

A Comparison of Research and Practice: A Practitioner's View

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This paper compares known research and emergency management practice, and demonstrates the need and success of applying research to dispel common misconceptions about disaster-related behavior. I draw upon the experience of Fort Worth-Tarrant County Emergency Management practitioners to compare to research findings. Specifically, I discuss reactions to warnings, evacuation behavior and the use of shelters. Also, I incorporate my experience in planning for the disabled in emergencies to further illustrate my points.

Introduction

"That's not what I've always heard." My fellow students and I would make that frequent remark when discussing papers by such disaster researchers as Drabek, Dynes and Quarantelli. During my emergency management classes at the University of North Texas, we debated numerous unresolved issues between students and teachers. With basically no practical experience, we students argued with those that had actually been there, and Ph.D.'s at that. Why? Because it was not what we had always heard and seen. We grew up with mass media, the six o'clock news, and grade B movies. We assumed the panic, looting, and mass confusion were commonplace in disasters. Unfortunately, many citizens, young and old, believe these myths. Fortunately for myself and others in emergency management positions, "we have seen the light." After four short years in my job at the Fort Worth-Tarrant County Emergency Management Office, I am still surprised how accurate those researchers have been and continue to be.

In this paper, I will discuss our jurisdiction's experience with disaster-related behavior as it relates to recent research. Specifically, I will address evacuation and warning behavior, shelters, and disaster planning in a large metropolitan area. Finally, I will also share briefly my experience in working with the disabled population and their concerns as they relate to emergency management.

When speaking to various citizens' groups in our community about emergencies, I usually begin by explaining how no two situations are ever exactly the same. However, most disasters have many similarities; for example, people have to be informed, or warned. They need quick, concise information in a language they can understand. They may need to evacuate, and, if so, they need a place to go, a way to get there, and they want to get there as soon as possible. Families need a systematic way of finding each other and staying together. These are just a few, but they are the most relevant to the affected citizens.

The Warning Process

To make comparisons between research and practice on these topics, I have chosen several articles. The first is entitled "Shall We Leave?" (Drabek 1983). It is a short article, full of good information for emergency managers. Drabek urges his readers to recognize the "enormous behavioral gap between warning issuance and people actually taking protective action." He lists eight behavioral principles to warning responses, which are summarized below. I compare these points with our Emergency Operating Center staff experience. Drabek's points include:

1. The typical initial public response to disaster warning is disbelief, not mass panic.
2. A siren does not constitute a public warning; it may alert some, but many will ignore it.
3. Warning messages must include both threat information and directions for adaptive actions.
4. The more specific the information, the more likely people are to believe it.
5. Community warning systems must include: detection, measurement, collation, interpretation, decision to warn, message content, and dissemination.
6. Responses may vary—Women and children are more likely to believe; elderly and ethnic minorities, like males, take more convincing.
7. Authority figures such as uniformed police officers are more likely to be believed than other sources such as relatives and media representatives.
8. Groups like family or work receive and process warning messages, not single individuals in total isolation from others.

In Fort Worth and Tarrant County, members of our office have never observed any form of mass panic. I believe most citizens seek to confirm this information, but do not disregard it. For instance, we have 72 outdoor warning sirens. Through public awareness programs, citizens know that the sirens are no more than an attention signal to seek shelter and/or tune into local radio and/or television stations. If those are not available, call a friend or relative with one. The threat information and directions for actions are given to the mass media through us and agencies such as the National Weather Service. Many will still need a "nudge" or confirmation from a family member or friends in order to take action in emergencies that require evacuation.

An article called "When Disaster Strikes" (Drabek and Stephenson 1971) supports these observations. In their research of a flood that struck Denver, Colorado on June 16, 1965, they noted that family relationships are crucial as warning and confirmation sources, as well as evacuation points. "Telephone conversations with relatives during the warning period were usually a key factor" (Drabek and Stephenson 1971, pp. 199-200). Our staff agrees with Drabek and Stephenson that requests by officials that the public not "tie up" phone lines will largely be ignored. We understand that families need to talk to each other. We have families of our own. In any case, we have yet to have an overload problem on the entire system. This research has reinforced our efforts to convince the City Council that we need to do more than blow sirens.

Our experience shows that women and children do not require much convincing after being warned. However, our experience with the elderly and ethnic groups at times are different. From what I have seen in our area, the elderly are very cooperative and many are active in awareness groups such as "Neighborhood Crime Watch." I have been invited on several occasions to speak to retirement community groups that have formed their own watch groups in order to help each other in times of crisis or to warn each other before a crisis occurs. Some of these groups have purchased their own C.B. radios. Two of these groups emerged after threatening floodwaters neared their homes two years in a row. Perhaps our proactive approach has mitigated problems experienced in other communities.

We are fortunate to have several agencies that directly serve, keep track of, and do casework for much of the elderly population that do not have someone to help them. The American Red Cross, the Area Agency on Aging, and Meals on Wheels are three such agencies. Cohen and Poulshock (1977) suggest that Area Agencies on Aging keep up-to-date lists of the elderly. In addition, Huerta and Horton (1978) suggest that the information

item "To whom would you turn in time of emergency or extreme need?" be included in any questionnaire or visit to the elderly. Our experience with Area Agencies on Aging is that they are more of a legislative lobby group. However, this is an excellent idea that can be utilized through other avenues. Meals on Wheels, for instance, visited and served more than 2,500 people last year. They are also a good way to distribute awareness pamphlets, since 93% of their clients are over 65 and the remainder are disabled. Perhaps the elderly and ethnic males need more convincing, but I believe most will take appropriate action when warned in a language they understand by someone they trust.

Finally, I think everyone in the field of emergency management agrees with Drabek that warnings received from uniformed authority figures are more likely to be believed. We have experienced, on occasion, individuals that did not want to leave when warned by apartment managers, plainclothes officials, or Radio Amateur Civil Emergency Services (RACES) workers, and even uniformed police officers at times. However, a fire fighter in full turn-out gear and self-contained breathing apparatus to the door during a hazardous materials incident may prove effective. Potential victims tend to heed their word and leave in a somewhat hurried fashion.

The research on warning behavior has provided us an excellent means to improve our warning procedures. Although we do not have the system we desire, we can confidently apply techniques that will maximize what we do have. We can free such personnel as the ham radio operators to perform other communications functions.

The Evacuation Process and Sheltering

Again, I encourage community planners and managers to "read the research" on these topics and make it available to those around you. I have also found Drabek's (1983) "Pathways to Evacuation" useful in my position. Briefly, these pathways include:

1. **Evacuation by Default** — Drabek uses an excellent example for this point. A police officer warns a family, but they really don't believe that their house is in danger. Out of curiosity, they drive down to the river. They see nothing unusual there, so they decide to drive upstream. As they drive, news reports begin to make them think that there is a chance their house could be hit. They head home, but are stopped before they get there by a police blockade. We have seen this in different situations as well. People may also be coming home from work or some other routine to find themselves evacuated. We could call this "Evacuation by Routine."

2. **Evacuation by Invitation** — This is simply when friends or relatives invite you over to "ride out the storm" or to come over and watch the news and have dinner until it's safe to go back home. One of the main points that Drabek makes here is that we don't always consider that these invitations and relationships serve to reduce anxiety and promote helping and coping behavior.
3. **Evacuation by Compromise** — This is when your wife wants to, or insists on evacuating, even though you know that you are safe and could handle any situation. You still compromise with her just to, as the researchers say, "shut her up" and "keep the peace." As we mentioned above, families always want to find each other and stay together. This is supported again by Drabek and Stephenson (1971) in the study of the 1965 Denver flood. Families that were together at the time of the warning evacuated together. This accounted for 92%. Families that were separated at the time of warning had immediate concerns directed at locating each other.
4. **Evacuation by Decision** — The family confirms the warning, discusses it, then makes a conscious decision to leave.

An initial question focuses on shelter location? This is still a common question media representatives ask every time we have a major flood or evacuation situation. When we gingerly explain that shelters are seldom used, we stand a good chance of either educating that person or making them think we are incompetent. Quarantelli (1960) has been telling us for decades that disaster victims are more likely to seek help from family members and friends first. Only as a last resort, he says, will they "turn to the special disaster agencies like the Red Cross or civil defense organizations." In the 1971 San Fernando, California earthquake, fewer than 7% sought housing aid from public agencies when weakened dams caused more than 80,000 people to be evacuated (Quarantelli and Dynes 1972). Other statistics cited by Quarantelli (1980, p. 125) show the limited use of public shelters. In the Wilkes Barre, Pennsylvania flood, only 3.3%, and in the Managua, Nicaragua earthquake, only 6% took advantage of public shelters.

Drabek (1983) points out that the use of public shelters increases when community preparedness is high, when most of the community is evacuated, and when the evacuees expect to be out of their homes for an extended period of time. Even then, public shelters seem to attract only about one-fourth of evacuees. Interestingly, our experience consistently shows Quarantelli and Drabek to be correct. We consider Tarrant County to have a high level of preparedness, with over 80% of the 1,180,000 member

population being covered by active disaster plans. Below, I draw upon two cases we recently experienced that confirms the research.

In May of 1990, during the worst county flooding since 1957, more than two thousand residents evacuated their homes along the Trinity River and other low-lying areas in Fort Worth. Maryalice Lanier, Director of the Tarrant County American Red Cross (1991), recently provided statistics on the use of public shelters and mass care facilities. In a period of four days, six shelters were opened and 393 people used them. Mass care was provided to 2,500 citizens, most of whom were emergency workers. Hence, about 20% of those evacuated used public shelters.

On December 18, 1990, a construction crew ruptured an underground pipeline carrying aviation fuel to Carswell Military Air Base. Jet fuel spewed through an apartment complex and alongside other apartments and businesses. Approximately 300 people were evacuated. Of those 300, 82 stayed in the Red Cross shelter and 142 ate meals. The figure is somewhat higher here at 27%. This was a low-income housing area, with many non-English speaking residents. However, Drabek (1983) points out that lower income city dwellers will constitute the largest public sheltering need.

On the subject of wanting to go home, it is often said that emergency officials are not sympathetic to the fact that people are upset and would much rather be in their homes. Drabek (1983, p. 28) points out that many, when faced with a choice between a "legal authority and a perceived need to return home, will break the law." He makes a plea for emergency managers to better incorporate this awareness into their planning. That may be a fair assessment. However, barricades, accompanied by a public safety official, are usually there for a reason—to protect citizens' lives and their property. When someone breaks that line, they not only endanger themselves, but they unduly put the lives of others in jeopardy when others have to jump in and save them. We continually have this problem. Last year we had several drownings and more than a dozen swift water rescues. Several of these cases were due directly to driving around barricades.

Public Education

Granted, we need to improve conveying to the public the "awesome power" of floodwaters. We also need additional legal support to keep people out of rain swollen creeks and rivers and from driving around barricades. We are in the process of getting a new ordinance passed to allow stiff fines for line breakers. We are also working with the Corps of Engineers and the Trinity River Authority to determine a level at which they may designate

the river areas closed to the public. At this time, police have no authority to make people stay out of the river.

To help families find each other when they are separated, we attempt to educate them to plan where they will meet or who they can each call to check in. Typically, the Red Cross aids us, but other groups (e.g., ham radio operators, the local school district) can also help. For example, the Fort Worth Independent School District has each parent sign a card describing how the parent will find their child in an emergency. High school students and their parents fill out a card determining whether students may leave the school on their own or be evacuated by school authorities. Families are then encouraged to further plan where they will meet.

The research has helped "drive home" the fact that more pre-planning and education is necessary for children and families. Knowing the need for families to find each other has shown us that additional communications are necessary to locate and check on the welfare of family members. We can readily convince school district officials on emergency management policy when we back such programs by research.

Special Populations

Finally, a topic that is demanding more attention is the planning for the disabled in emergencies. Recent research provided guidance regarding special populations. The definition of disabled is not always clearly defined. For this paper, I define a disabled person as anyone with a mobility, hearing, visual, or mental impairment that may hamper their ability to seek shelter or escape in an emergency. Although progress has increased to ensure such necessities as building accessibility for people with disabilities, much remains to guarantee safe egress during an emergency. From a practical side, our office needs to know how move a 250-pound man down 15 to 20 flights of stairs without disabling someone else. After he is down, how does he get around? Do we also carry down his wheelchair? Did anyone even think to help him in all the confusion? These problems are only solved through pre-planning by employers and highrise building owners. I recently spoke to the Metroplex Building Owners and Managers Association (BOMA) and I must say that it was frightening to me how many of them have not even considered this.

Both management and emergency service organizations need a systematic method of identifying and locating handicapped individuals within a plant or office building to facilitate their rescue during emergencies. Likewise, neighborhood groups such as the local "Neighborhood Crime Watch" groups should take measures to ensure that disabled or home-bound indi-

viduals are assisted in the event of an evacuation of a residential area. You can expect to encounter some problems here since most people do not want to be labeled and/or have a sticker on their car or home window that designates them as an easy target to criminals. A special code that comes up when a disabled person dials 9-1-1 is also a good idea. However, some phone companies will refuse to do this for liability reasons. Many new products on the market may facilitate warnings, evacuations, and calls for help, but it seems we are all lacking in the comprehensive implementation of these systems.

Conclusion

The research we have seen by the authors listed above have been directly influential in regard to decision making about evacuations, warnings, and sheltering. In many cases, it has simply helped to reaffirm our suspicions. Hopefully, we can continue to dispel the many myths that remain at an even faster pace by "integrating disaster research and practice." This paper should help convince many emergency managers that research can make their jobs easier. It should also convince them that the research is worthwhile. There is so much information out there on so many topics that it's hard to keep up with what is applicable to your particular needs. Both practitioners need to continue working and talking with each other.

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