Rising to the Challenges of a Catastrophe: The Emergent and Prosocial Behavior following Hurricane Katrina

By
HAVIDÁN RODRÍGUEZ,
JOSEPH TRAINOR,
and
ENRICO L. QUARANTELLI

Using several data sources including an extensive database of media reports and a series of government documents, but relying primarily on the University of Delaware's Disaster Research Center's field research in the aftermath of Hurricane Katrina, the authors describe the nontraditional behavior that emerged in that catastrophe. They also discuss the prosocial behavior (much of it emergent) that was by far the primary response to this event, despite widespread media reports of massive antisocial behavior. Their study focuses on individual and group reactions in Louisiana during the first three weeks following the hurricane. The authors limit their systematic analyses of emergent behavior to five groupings: hotels, hospitals, neighborhood groups, rescue teams, and the Joint Field Office. Their analysis shows that most of the improvisations undertaken helped in dealing with the various problems that continued to emerge following Katrina. The various social systems and the people in them rose to the demanding challenges of a catastrophe.

Keywords: catastrophe; disaster; emergent groups; organizational improvisation; looting; media; Hurricane Katrina

This article has a dual but related focus. Using several data sources including an extensive database of media reports and a series of government documents, but relying primarily on the University of Delaware's Disaster Research Center's (DRC's) field research in the aftermath of Hurricane Katrina, we describe the nontraditional or new behavior that emerged in that catastrophe. We also discuss the prosocial behavior (much of it emergent) that was by far the primary response to this event, widespread media reports of massive antisocial behavior to the contrary. Our discussions and observations

focus on the individual and group reactions in Louisiana during roughly the first three weeks after the hurricane hit.

The Negative Mass Media View

How did people, groups, and organizations in Louisiana react to the impact of Hurricane Katrina in September 2005? One dramatic picture, at least in New Orleans, was continually presented in the mass media coverage. The imagery that spread around the world, through the electronic media in particular, was of a state of anarchy; anomie; chaos; disorganization; regression to animal-like behavior; and a total collapse of social control, agencies, and personnel. This image was conveyed not only by visual but also by verbal means. For example, one cable news anchor reported, "All kinds of reports of looting, fires, and violence. Thugs shooting at rescue crews. Thousands of police and National Guard are on the scene trying to get the situation under control." A reporter responded to that statement with, "As you so rightly point out, there are so many murders that are taking place" (*New York Times* 2005). That same day, a commentator on another cable network said, "People are being raped. People are being murdered. People are being shot. Police officers are being shot" (*New York Times* 2005). In their lead story, a third TV cable network reported, "New Orleans resembled a war zone more than a modern American metropolis" (CNN World News, September 1, 2005). The national TV networks, somewhat less strident, put forward a similar negative image regarding the aftermath of Hurricane Katrina.

In addition, the electronic media disseminated actual comments by the mayor of New Orleans and its police chief that snipers were shooting at helicopters, tourists, and the police; that rival gangs were engaged in shootouts inside the Superdome and the Convention Center; and that there were hundreds of dead bodies lying around. They also quoted the FEMA director saying that his agency was working "under conditions of urban warfare" (CNN World News, September 1, 2005).

The print media was more restrained in its reporting, although there was considerable variation in the tone of the coverage from one newspaper or magazine to

Havidán Rodríguez is the director of the Disaster Research Center and professor in the Department of Sociology and Criminal Justice at the University of Delaware. His areas of interest include social vulnerability, risk communication, and demographic processes and disasters. Along with his colleagues, E. L. Quarantelli and R. R. Dynes, he is editing the Handbook of Disaster Research *to be published by Springer in 2006.*

Joseph Trainor is the projects coordinator at the Disaster Research Center and a Ph.D. student in the University of Delaware Department of Sociology and Criminal Justice. His areas of interest include disasters, organizations, collective behavior/social movements, and deviance.

Enrico L. (Henry) Quarantelli is an emeritus professor (and cofounder) in the Disaster Research Center and professor in the Department of Sociology and Criminal Justice at the University of Delaware. He has undertaken disaster research since 1949, and this year has coedited, with Prof. Ron Perry, What Is a Disaster? New Answers to Old Questions*, published by Exlibris.*

another. They were also the first, within about ten days, to undertake systematic investigation of the validity of earlier reports, and generally concluded that many of them were factually incorrect or had seriously distorted what happened (Dwyer and Drew 2005; Thevenot and Russell 2005). Overall, the national television networks and especially the 24/7 format of cable television were far more important for the overall negative picture that was conveyed than were local and print media. However, only elsewhere do we systematically describe the differentiated mass media coverage (Dynes and Rodríguez 2005; Quarantelli n.d.). For our purposes in this article, we think we have illustrated enough that the initial media imagery stressed the predominance of antisocial behavior going on in Louisiana and particularly in New Orleans.

[E]mergent activities in the impacted region showed a different and opposite pattern to those suggested by the imagery employed by the media outlets.

The major thesis of this article is that emergent activities in the impacted region showed a different and opposite pattern to those suggested by the imagery employed by the media outlets mentioned above. Throughout this article we argue, and provide data to show, that a great variety of new, nontraditional or emergent behavior surfaced in this catastrophic occasion. Not being able to act in traditional ways, most of the citizens and groups in New Orleans as well as the rest of Louisiana rose to the challenge by engaging in primarily new but relevant coping behavior. We also contend that the same was true of outside groups trying to help in the response. As an article on governmental response indicated, "In [the] hurricane's aftermath, agencies made up their missions as they went along" (GovExec 2005). In addition, we suggest that while some antisocial behavior did occur, the overwhelming majority of the emergent activity was prosocial in nature.

Earlier Work on Emergent Behavior

Sociologists have long studied emergent behavior. A subspecialization within the field of sociology is called "collective behavior." This area of study, existing for nearly a century (Park and Burgess 1921), focuses on dynamic social phenomena

such as crowds, riots, fads and fashion, panic, revolutions, origins of cults, ephemeral mass actions, and changes in public opinion, among others. The common element in all the behaviors mentioned is that they are primarily of a nontraditional nature and generally arise because the standard ways of acting cannot be followed or are not appropriate for certain occasions.

Moreover, our general theme is as old as the first systematic social science field studies of disasters in the early 1950s. One of the most consistent observations reported by pioneer field researchers was that during the crisis period of disasters, there was a great deal of emergent behavior, both at the individual and group levels. The emergent quality took the form of nontraditional or new behavior, different from routine or customary norm-guided actions. This new behavior was heavily prosocial, helping immensely in coping with the extreme and unusual demands of a disaster situation. But the earliest studies did not go much beyond noting a wide range of emergent features in disaster occasions.

The establishment of the DRC at The Ohio State University in 1963, however, led to a more analytical approach to emergent behavior. The DRC quickly developed a typology of organized behaviors at the time of the crisis period in disasters, which first appeared in a paper (Quarantelli 1966) and later in a book (Dynes 1970). Basically, the model states that organized behavior can involve either regular or nonregular tasks and that the structures to carry out these tasks can either exist before a disaster or come into being after impact. A cross-tabulation of these dimensions produces four types of groups: (1) established groups, *regular tasks and old structures*; (2) expanding groups, *regular tasks and new structures*; (3) extending groups, *nonregular tasks and old structures*; and (4) emergent groups, *new tasks and new structures*.

In the 1970s, this typology was subject to modifications by scholars both within and outside the DRC. For example, Bardo (1978) extended the typology and Quarantelli (1984) attempted to distinguish between emergent behaviors and emergent groups, which resulted in the addition of three new types. Another major step forward occurred in 1987 when Drabek wrote what is still the most extensive theoretical discussion on the topic. Reviewing the existing research, including studies outside of the DRC (e.g., Zurcher 1968; Walsh 1981), he asked such questions as, What is emergence and what emerges? And what are the conditions that lead to emergence? Answers to these questions suggest weaknesses in the traditional DRC typology and later variants.

Almost two decades later, Wachtendorf (2004), using data from her field studies focusing on the organizational response to the 9/11 terrorist attacks in New York City, developed the most sophisticated approach yet. She substituted the term *improvisation* for emergence and indicated three different types of improvisation (which she called reproductive, adaptive, and creative). She also gave some indication of what conditions generate each type.

In looking at emergent behavior in the following sections, we use aspects of all the models just highlighted, and we also attempt to categorize some specific examples.

Data Sources Used

Our data come from two sources. The first as well as the most comprehensive and reliable source is information that DRC teams obtained in the field through quick-response research initiatives following Hurricane Katrina. About three weeks after Katrina hit the Gulf Coast, DRC deployed eight researchers to various places in the impacted region for between five and ten days per team, to engage in several forms of data collection, including interviews ($n = 150$), participant observations, and systematic document gathering. Field teams visited a variety of locations including Houston, Texas (the Astrodome and the Reliant Arena); Mississippi (including Biloxi, Gulfport, Long Beach, and Pass Christian); and Louisiana (including Baton Rouge, New Orleans, and St. Tammany). Specific sites visited included the Joint Field Office (JFO)–the headquarters for the federal response to Katrina—and shelters in the three states. Extensive field observations were also conducted at local response centers, Disaster Recovery Centers, and impacted zones. DRC teams talked to local, state, and federal officials; relief workers; evacuees; and others who responded to the hurricane and consequent flooding. At the time of the writing of this article, the bulk of these data have only been selectively analyzed.

The other sources of data used in this work are accounts or stories by others outside of the DRC. These fall roughly into three general categories:

1. A database of news sources in paper format and/or their Web site equivalent that were collected over the first month of the response. These represent a selected group of both local and national sources and are focused primarily on print media and secondarily on television. It is noteworthy that more than two thousand articles have been collected and catalogued by DRC staff.
2. Reports disseminated by other formal organizations either in printed form or on their Web sites.
3. Stories from other informal sources such as bloggers on the Internet.

For the purpose of this article, special attention was paid to firsthand personal accounts by individuals speaking about their own behavior (and if possible, recorded at the time it was happening). Care was taken to use only stories that seemed valid and reliable. Since we are not writing a social history of specific groups, actual names of organizations or locations are not used except for a few already widely identified in news stories (such as the JFO in Baton Rouge).

The General Framework Used

What happened in New Orleans was a catastrophe rather than a disaster, a distinction reflecting our view that these two happenings are qualitatively different. Six elements capture the major differences between catastrophes and disasters (Quarantelli 2005). In a catastrophe,

1. there is massive physical impact (in contrast to the localized impact in disasters);
2. local officials are unable to undertake their usual work roles (in contrast to this happening only at a small scale in the typical disaster);
3. help will come mostly from more distant areas (in contrast to the massive convergence in disasters from nearby areas);
4. most everyday community functions are sharply and concurrently interrupted (in contrast to this not usually happening in a typical disaster);
5. nonlocal mass media, especially cable TV, socially construct the immediate and ongoing situation (in contrast to the typical disaster, where the greatest attention is by the local media and only incidental and brief reporting is done by cable and national media); and
6. very high-level officials and governmental agencies from the national level become directly involved (in contrast to disasters, where limited and primarily symbolic attention is often given by other than local persons and agencies—community and state).

The importance of the six dimensions mentioned is that they provide the larger social context within which all the emergent phenomena that we describe occurred. In a sense, they are the general conditions that set the stage for emergence. For example, 80 percent of New Orleans was under water (no. 1), and most outside help could only arrive later from more distant areas (no. 3); these elements put tremendous pressure on impacted persons, groups, and organizations to improvise actions that might seem to help in coping with the immediate urgent needs in the crisis.

Different Levels of Description and Analysis

A strong case can be made that as a consequence of the hurricane and subsequent flooding, there was significant disruption across all social levels from individual behavior to that of state governments. So in terms of our framework, we anticipate that similarly, there would be internal and external emergence across all social levels. However, this article limits its systematic analyses to five groupings, based on the amount and validity of the data we had available and our desire to show this phenomenon across the social spectrum. The groupings are hotels, hospitals, neighborhood groups, rescue teams, and the JFO.

Hotels

In this section, we discuss what happened in the major hotels in the New Orleans area, many of them part of national chains such as Hilton, Marriott, Hyatt, and others that cater mostly to tourists and conventioneers (there are about 265 hotels in the area with 38,338 rooms; Hirsch 2005). Overall, much of the improvisation was generally successful in dealing with successive crises and was overwhelmingly prosocial in nature. According to our data, a sequence of events resulted in three different phases or stages in the emergent behavior of the hotels and the people in them.

Traditionally, prior to Hurricane Katrina, hotels—especially high-rise hotels—provided a respite for the vertical evacuation of local citizens. In 2004, when Hurri-

cane Ivan threatened New Orleans, 75 percent of hotel guests in two chain hotels, with a capacity of 2,085 rooms, were local residents. Another hotel housed more than 5,000 locals. Some guests had regularly come to the same hotel over the past twenty years whenever hurricanes threatened the areas (Webster 2005). From a social science perspective, a "disaster subculture" had developed.

The first stage of improvising. The situation and conditions for 2005 were different from previous years. Given what hotel operators observed had happened in Florida the previous year, combined with pressure from local emergency managers to discourage hotels from providing vertical evacuation, and given the weather forecasts that suggested Katrina would be at least a Category 3 hurricane, the major hotels decided that they would not take hurricane-related room reservations during 2005 from local residents. Hotel administrators or managers decided to accept only guests who were stranded but that all other guests should be encouraged to make an attempt to leave the endangered areas. This represented a major shift in organizational behavior, away from the everyday and even the disaster subculture norms.

Hotels ended up with many more guests than they had anticipated, however, because many nonlocal guests, who had intended to leave, found that their airline reservations were cancelled at the last moment. In addition, as in the past, families of hotel employees, a number with pets, sought shelter in these hotels. On Sunday night, hotels boarded up in the usual way, but, atypically, a number had their guests come to windowless ballrooms where blankets and pillows were provided. The impact of the hurricane resulted in broken windows, the disruption of electric power, and a lack of air-conditioning and functioning elevators.

The second stage of improvising. More important, it became clear that floodwaters from the breached levees would become a major problem, preventing hotel guests from driving cars or catching buses to leave the city as well as hampering evacuation efforts at the local level. A major effort in one large hotel to rent buses at a cost of $45 for each guest fell through when the buses were commandeered by the military to evacuate others. So while the creative improvisation more or less handled the initial crisis, a major new crisis was generated by the floodwaters. There was soon a scarcity of food and water in many of the hotels, leading some guests to "loot" basic necessities from machines within hotels and nearby stores. It also became common for hotels to provide each guest with nontraditional necessities such as trash bags.

While they heard many of the rumors about widespread antisocial behavior all around them, in most hotels the guests helped one another and later reported feeling very positive about hotel staff. At the hotel level, the organizational crisis was dealt with relatively quickly as convoys of food and supplies were brought in from other hotels in the same chain and from nearby cities such as Atlanta and Houston. Private security guards also arrived, as well as high-level hotel chain executives and safety engineers. All guests were eventually evacuated, mostly through arrangements made by the hotels. Many hotels using their resources also provided direct

immediate relief and help of different kinds for employees' loss of property and personal possessions. There is not much evidence that hotels got help of this kind from sources other than their corporate structures.

The third stage of improvising. After stranded guests had left, the hotels had to adjust to requests made by FEMA and others to rent their rooms to federal employees as well as evacuees. All hotels were booked at 100 percent capacity. DRC field teams were informed by receptionists in more than a dozen hotels that their rooms had been reserved and paid for by FEMA, some until December 2005 and January 2006. Providing semipermanent housing is not a usual tourist hotel function. This forced the hotels to shift to a still different kind of operation; not their preimpact everyday operation; not the no-locals guest operation; not the flood threat operation; but to a new long-term housing operation.

Hospitals

The crisis for hospitals (n = 78 including rehabilitation, psychiatric, and long-term acute care ones; Deslatte 2005) in the New Orleans area was different from that faced by hotels. Simply in terms of everyday operations, all hospitals are required to have disaster plans to maintain accreditation. However, as the DRC has found in its past research on hospitals (see Quarantelli 1997), such plans very seldom deal with the possibility of having to evacuate the hospital if it is impacted in a disaster. Nevertheless, hospitals in southern Louisiana had prior experience with hurricanes, some just as threats, others actually impacting.

Consequently, the initial response of hospitals was to react as they had done in the past. They activated their disaster teams of specially designated physicians, nurses, and other key staff members. Less critically ill patients were discharged. Extra supplies of water, food, blood, and medical supplies were stored on scene. Assuming that electric power might be lost in a major impact, extra fuel was brought in for use by emergency generators. The general expectation was that the hospital would return to more or less normal operations after four days or so.

When the hurricane hit the area, the buildings as a whole suffered little physical damage. The electric power did fail, but that had been anticipated. In most hospitals, the expectation was that normal operations would soon be resumed. For example, as one report stated, "Doctors and nurses in the 12th floor surgical intensive-care unit and elsewhere gave one another high-fives . . . convinced things would return to normal fairly quickly" (Freemantle 2005). It appeared for a few hours that the traditional planning had worked.

Within less than twenty-four hours, however, the floodwaters from the levee breaks created a new kind of crisis. Basements with stored food, water, and fuel, as well as morgues, were inundated; in some hospitals, activities on the first floor had to be moved to higher floors. Telephone systems were erratic at best. As emergency generators ran out of fuel, the water, sewage, and air-conditioning systems failed. Patients who died in the hospitals had to be temporarily stored in stairwells. Eventually, waste of all kinds was strewn almost everywhere. The rising tempera-

tures made most diagnostic equipment inoperable. As a director of emergency medicine indicated, "Above 92 degrees, the lab machines shut down and so did the telephone switches inside the hospital . . . you can't run a CAT scan or an MRI. It's like going back to low-tech medicine" (Schrobsdorff 2005). Regular hospital procedures simply stopped, but personnel improvised to try to provide at least minimum health care. For instance, physicians, nurses, and volunteers fanned patients to keep them cool, sometimes using manually operated devices to keep them breathing.

Overall, much of the improvisation was generally successful in dealing with successive crises and was overwhelmingly prosocial in nature.

In addition to all the mentioned problems were two other complications: very crowded areas and high concern about personal safety. In many cases, more persons arrived at hospitals: some for medical treatment, others just seeking what they saw as a safe place of refuge. In Charity Hospital, for example, at one point there may have been about 350 patients in addition to more than 1,200 staff members, family members of patients, and newly arrived refugees. Also, rumors of widespread antisocial behavior all around them spread among hospital personnel and were believed to be true. This led in some hospitals to staff members being given weapons for protection (it is not clear where such weapons came from). There were also reports (apparently false) of firings at rescue helicopters.

Some hospitals attempted to evacuate—first patients, then the rest of the stranded people in their buildings. One hospital put patients in boats, but these returned when anticipated transportation at higher ground levels never materialized. There was considerable use of helicopters (sometimes from the initiative of a hospital; sometimes they just randomly appeared). Medical personnel found themselves having to make triage decisions in the absence of medical records on whether evacuated patients should be sent to a regular shelter, a special needs shelter, or another hospital. Elsewhere, custodians knocked down light poles and cleared debris to create a makeshift pad for helicopters on the roof of the hospital parking garage. In the same hospital, pharmacists and custodians helped patients in the dark to climb flights of stairs to wait for rescue helicopters (McEnery 2005). Many staff members were doing things that were quite distant from their everyday jobs.

Eventually, all hospitals were completely evacuated except for one that was never flooded. But there was a difference in the coping patterns of some hospitals. Private ones, like the hotels we discussed earlier, with more resources were able to make relatively early arrangements for security personnel and helicopters. Published stories indicate that public hospitals such as Charity and University could not do the same. So in one case, at least, all persons, including all staff members, from a private hospital were totally evacuated, while patients from a public hospital waited in sight of that evacuation but at that time were not picked up.

Overall, hospitals initially responded to the warnings of a hurricane approaching New Orleans with their traditional planning activities. But the rising floodwaters created unforeseen problems that initiated massive but erratic improvisations. These barely coped with the problems and brought most hospitals to a minimally operating but prosocial status until their evacuations brought the crisis to an end.

Local neighborhoods

Apart from improvisations in organizations, there was also very extensive emergent behavior in more informal groupings, especially at the neighborhood level. DRC found instances of emergence in at least four neighborhoods in New Orleans (in Carrollton, Algiers, and in two radically different areas in Uptown). Undoubtedly, there were far more, but informal neighborhood groups, which unlike formal organizations, are less likely to catch mass media attention and seldom produce reports or records.

One group named itself the "Robin Hood Looters." The core of this group consisted of eleven friends who, after getting their own families out of the area, decided to remain at some high ground and, after the floodwaters rose, commandeered boats and started to rescue their neighbors in their working-class neighborhood. For about two weeks they kept searching in the area, although some marooned families absolutely refused to leave their homes. At first they slept on the ground, and then in tents that others brought to them. They foraged for food and water from abandoned homes, and hence their group name. Among the important norms that developed were that they were going to retrieve only survivors and not bodies and that group members would not carry weapons. The group also developed informal understandings with the police and the National Guard who not only gave them ready meals but to whom they also passed on rescued survivors who wanted to leave the area (for further details, see Kiehl 2005). While many of the core members of the group had been childhood friends, and they were very familiar with the area, what they did in this crisis, despite their earlier hurricane experiences, was new for them in every sense of the word. In the DRC typology, this was clearly an emergent group.

In another working-class area in Uptown, a group emerged that gathered their neighbors in a local school. Initially, everyone was invited, but when some "thugs" started to vandalize the building, breaking into vending machines and wielding guns, leaders of the groups expelled them from the school and prevented them from reentering. Before the flooding started, canned flood, cleaning supplies, and

a radio and batteries were brought into the school. A classroom was converted into a dining room. At its peak, forty persons slept in the building with men on the third floor and women on the second, using blankets and cots brought from their homes. Those in the school also brought food and liquids to elderly homebound neighbors as well as bringing some of them (eighteen) to the school rooftop to be evacuated by arrangement with Coast Guard helicopters (which also brought in water, food, and clean clothing for those who did not want to leave the school). It appears that at least two hundred people used the school before it was forcefully and fully evacuated by M-16-armed sheriff's deputies from New Mexico, New Orleans' police, and others. Again, the persons in the school were very familiar with the building, and some remembered that it had survived Hurricane Betsy (for more details, see Brewington 2005). This is another emergent group by DRC criteria.

The people in the school, through their radio, heard stories of what supposedly was going on in the Superdome and the Convention Center, which strengthened their determination not to evacuate to those localities. Also hearing the same stories, in a more extensively upscale area of Uptown, some white residents organized themselves into heavily armed groups to protect that locality from rumors about invading gangs of young black men. Other residents in that same neighborhood paid for a team of former Israeli commando units to fly into the area in former Russian attack helicopters (for more details, see Lewis 2005).

While the extent to which and how rumors were a factor in the development of emergent groups in New Orleans will have to await a more systematic and more focused study, the circulating and widely inaccurate stories clearly helped to define the situation many people saw themselves faced with in this catastrophe. The stories added the perceived threat to personal safety to the flood crisis.

Search and rescue teams

Unlike what we have just discussed, emergent behavior also occurred in formal response organizations. The massive impact and subsequent flooding in this catastrophe created a need for a response that many of these agencies had never planned for, as the following examples illustrate.

Our first instance of governmental responder emergence involves the local firefighters and police in Slidell, Louisiana. In informal conversations with DRC field team members, these responders reported that they conducted, with no federal assistance, operations during the first few days after Hurricane Katrina, particularly focusing on door-to-door search and rescue activities within the fifty-five square miles of their community. While responders indicated that their training in previous years was valuable, they were quick to say that following Katrina they had to improvise in many situations, absent previous specific planning for what they actually had to do. The first example they mentioned was that firefighters and police got together to create operational plans on how they would separate the community into grids. Next, they sent scouts out to mark the edges of each grid by spray painting coded symbols on any roadway that crossed a grid line to avoid redundancy, and to make sure that responders knew which grid they were in, in

case trouble developed. Finally, they adopted the symbols used by the federal Urban Search and Rescue (USAR) teams to mark every structure on dry land. In terms of the DRC typology, this was an unplanned extending group, involving the use of old structures but for new tasks.

The second phase of this search and rescue effort involved initiating water rescue. For this, the extending group used their personal boats or those of local residents to search inside all the homes that were underwater. While this action was completely unplanned, it did tap into local familiarity and availability of watercraft to engage in a complete search operation over land and water.

There were at least two other examples of emergence in this community. The first was the ad hoc creation of a shelter at the site of an abandoned Wal-Mart. The extending group broke the store door locks off and allowed people inside when they realized that there were no other shelters to which displaced residents could go. Eventually, water and food collected from nearby businesses were also brought by the group members to this temporary shelter.

As a final example of emergent behavior by this group, members mentioned that when their primary communication systems failed, they created a new one by collecting family band radios from local businesses and using them. In this new system, messages were sent out from radio to radio across the jurisdiction until it reached the intended recipient of the message.

Search and rescue was actually undertaken in this catastrophe by a wide variety of groups. As indicated earlier when discussing local neighborhoods, we noted search and rescue was informally carried out by groups in those localities. We have just mentioned formal groups that extended their activities into what was for them nontraditional search and rescue actions. And of course, formal groups were specifically trained and set up to undertake search and rescue, such as the federal USAR teams. Of importance is that our data indicate that all groups undertaking search and rescue in Katrina had to improvise to some degree. Perhaps this stems from the fact that it is almost impossible ahead of time to visualize and therefore to plan for all possible contingencies that have to be faced in a disaster. Also, searching for living persons to prevent their immediate death has a very high priority in all societies, as the recent Indian Ocean tsunami (2004) and the earthquake in Pakistan (2005) showed. This social pressure helps to stimulate the formation of informal groups (nearby friends and neighbors) and encourage improvisation even in formally organized search and rescue groups.

The JFO

The establishment of the JFO is a kind of emergence different from the others we have discussed so far (requiring us to provide far more background information than necessary for what else we have discussed). This is true both in terms of who was involved and how it came about. The catastrophe generated the largest and most complicated mobilization of federal resources and personnel that had ever occurred in the country's history in the face of a national or technological disaster. And even the terrorist attack of 9/11 was more localized than was the direct impact

of Katrina on three states and indirect effects on several nearby states, thus occasioning a relatively lesser federal response.

This kind of massive mobilization was neither visualized nor planned for, as far as we know. To be sure, there is a National Response Plan (NRP) but what happened went far beyond what that envisioned. For example, DRC has a document that lists the kinds and levels of response of all the federal cabinet-level organizations and the major independent federal agencies. It is clear from what is reported that many of the activities initiated were of an ad hoc nature and not the result of any preimpact planning or following the NRP (see Bell 2005). There was a degree

[I]n all its planning, FEMA did not anticipate that an abandoned shopping mall in Baton Rouge would become the major center for its operations in this catastrophe.

of prior planning regarding who was responsible for the coordination across the board of the federal response and indirectly the relationship between the federal level and the state and local levels. Actually, that rested somewhat ambiguously in the Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA). However, in this article we will not examine the structural problems within and between the two organizations; others (e.g., Perrow 2005) have discussed this. While avoiding any analysis of that organizational problem, we can still say that FEMA had the primary responsibility of taking and did take the initial lead role in this disaster; the effectiveness of its response, however, is a topic for another article focusing on the aftermath of Hurricane Katrina. This brings us to what we want to discuss, the physical establishment of and the social features of the JFO.

The physical location of the JFO was in the Bon Marche Shopping Mall in Baton Rouge, the earliest such place in the city. However, the mall had been closed for about five years. It was certainly not a standby site for emergency operations that some government agency had created and clearly did not have the kind of equipment or furnishing typically found in any emergency operations center. Obviously, in all its planning, FEMA did not anticipate that an abandoned shopping mall in Baton Rouge would become the major center for its operations in this catastrophe. While it is not clear at this point who was specifically responsible for and what lay behind the decision to locate in the mall, it was not the result of prior planning but had to be an improvised choice.

Given the deteriorated condition of the mall, many physical improvisations had to take place to turn it into a high-security, massive center of operations. According to the DRC field team, it seemed that the full capacity of the mall was being used for the JFO operations. There were facilities to store an extensive amount of supplies for staff personnel, a security screening facility that would produce (almost instantaneously) official FEMA identification badges with color pictures, and extensive and state-of-the-art computer and communication technology. The DRC was informed that on several occasions there were small fires, power outages, and malfunctioning escalators and elevators at the JFO headquarters given that the facilities were overwhelmed with the massive amount of technology and electronic equipment for which this mall was not structurally prepared. In the past, the DRC has not found that carrying out major maintenance work is a usual requirement at FEMA centers of operation in disasters.

The primary responsibility of the JFO was to plan and coordinate "the efforts of federal, state, and volunteer agencies involved in Louisiana hurricane recovery efforts" (FEMA 2005). A report by Manjot Singh (2005) indicated that "nearly every federal agency from OSHA and the EPA to the Army and Air Force is housed at the JFO here in Baton Rouge. An 'Equal Rights' office was also created to prohibit episodes of discrimination during the relief efforts." Singh additionally reported that an area was also set up for nonprofit organizations, including "America's Second Harvest, Islamic Relief, Red Cross, Salvation Army, and United Sikhs." One DRC field team also observed the presence of many other charitable, religious, and other nongovernmental organizations such as Goodwill, Episcopal Church of World Services, Convoy of Hope, Church of Scientology Volunteer Ministry, and the Adventist Community Services. Also, media representatives had been given space at the JFO facilities, and there was a media monitoring station that JFO personnel used to monitor the most important media and cable reporting of Hurricane Katrina.

DRC was informed that FEMA personnel had arrived from all over the United States and that the agency was trying to minimize their stay and was attempting (although not always successfully) to rotate, on a regular basis, their JFO personnel. Before arriving at the JFO, employees had to be credentialed, trained, and immunized. All personnel admitted to work at the JFO also had to undergo security screening. It appears that the JFO was able (at least partially) to start working in the building about two weeks after the impact of Katrina. About one month later, when DRC field team members did research in it, the JFO was functioning at full capacity with about two thousand federal, state, and local employees.

DRC research team members generated field notes indicating the following:

> In the course of several weeks the [JFO] building has been wired to accommodate the increased electrical needs and the computer needs of the personnel. People were sleeping in bunk beds on site, in closets, and in corners of any room. The operation runs 24-7. Maps are hung on almost every wall with every type of imaginable data, from flooded areas to surge areas; total population and population density; number of housing, buildings, and people impacted by Katrina; and comparisons for 100 year events, among others. There is a logistics supply store that is full of materials and supplies, with a sign reminding people to

take only what they need and that this was a "no looting zone." The DRC team also observed flyers focusing on "stress management," as well as "how to cope with over-stressed workers," "NIMS training," "ICS training" and other types of training sessions and opportunities for staff workers.

The JFO had an impressive (and very rapid) convergence of staff, equipment, and supplies, in what was essentially an obsolete shopping mall. FEMA and other personnel and staff at the JFO had to be creative and to improvise in response to the facilities available to them and the dynamic processes that were under way. Meetings were occurring on an almost continuous basis among and between different staff members, working groups, offices, and organizations; conference calls, including staff and personnel not only at the JFO but also with the participation of other personnel located throughout the United States, were also taking place on a regular basis. Minute-to-minute interactions and meetings, and continuous requests for information, data, maps, and reports were situations to which all JFO employees needed to adapt almost instantaneously. In essence, a very complex, multifaceted, multipurpose, dynamic, and relatively large bureaucracy emerged in an extremely short time period, requiring not only constant coordination, communication, and interaction but a significant degree of improvisation and creativity. Without in any way denying that some of what went on at the JFO was both traditional and preplanned, overall, our view was that much of what happened especially in the first few weeks, was of a very emergent nature. In Drabek's (1987) terms, there was a system emergence; and there were all the kinds of improvisations that Wachtendorf (2004) discussed.

Other illustrations of emergence and improvisations

In concluding this part of the discussion, we want to mention a variety of still other institutional areas in which major disruptions resulted in emergent coping behavior and in some cases emergent groups. Area professional sport teams, in the absence of prior relevant planning, had to change the schedules and locations of their games. Local scientific researchers in the health area had to try to salvage their ongoing work: three hundred federally funded National Institute of Health projects that were disrupted in New Orleans alone (Gardner 2005).

Local traditional religious groups accustomed to providing food and other help to disadvantaged people on a daily basis in churches and mosques suddenly and unexpectedly had to take on and train many volunteers (becoming, in the DRC typology, an expanding group) or to provide new kinds of services (becoming, in the DRC typology, an extending group). Members of an Internet domain hosting service located in a skyscraper in the heart of New Orleans not only maintained its usual services but also extended its activities to setting up a Web message center freely available to anyone interested, a companion photo gallery, and a live Web cam site of scenes around their building. They also scrounged for diesel fuel needed for emergency generators and shared patrol duties in the building (Broache 2005).

The list could almost be endless because as stated earlier, catastrophes sharply and concurrently disrupted most everyday community functions (no. 4). But a catastrophe also generates emergent behavior in locations far away as outsiders try to help or get involved in some way during the aftermath of the disaster. In fact, we want to illustrate this last point with respect to the operations of the DRC field teams.

Although for the past forty-two years the DRC has undertaken more than 650 field trips collecting perishable data on different kinds of disasters, emergent behavior also characterized its response to the hurricane. For example, having been informed that no lodging facilities were available within a one-hundred-mile radius of Baton Rouge, the DRC assumed the need for camping equipment. Therefore, for the first time in its history, the DRC sent tents, sleeping bags, and other camping material to the Gulf Coast. As it turned out, during our stay in Mississippi and Louisiana, we were greeted by the hospitality and altruistic behavior of colleagues and even strangers. Our research teams spent several nights in the house of a colleague from Louisiana State University; they slept in the facilities of a city hall, in a fire department training facility, and in a Baptist church that not only provided lodging but also meals to our field team. Moreover, in addition to an extensive planning process regarding our research in the impacted regions, the teams also had to develop detailed evacuation plans given that Hurricane Rita was approaching the Gulf Coast during our stay in the region. This was also a new first for the DRC.

Furthermore, despite weeks of intensive preparatory work and the development of a semistructured questionnaire focusing on issues of substantive and theoretical interest to DRC researchers, a team member met with a number of Hispanic immigrants in the field who did not speak English. Thus, she had to translate the questionnaires on site to interview these respondents, who provided detailed information regarding the issues and complexities of undocumented immigrants that had been affected by the catastrophe. So despite the extensive planning process prior to sending the DRC teams into the field, flexibility, innovation, and creativity were instrumental for the success of our research.

The Complexity of Emergence

In this concluding section, we briefly discuss some of the complexities involved in describing and analyzing emergent behavior. In particular, we address two questions. Is "looting" emergent behavior? Is it also antisocial behavior? The answer to these questions is more complex than might be thought at first glance. And we leave aside here that in almost all jurisdictions there is no criminal act that has the label of "looting." Usually, acts of "looting," if taken up by the criminal justice system, are legally treated as instances of burglary.

Emergent behavior is not always legal; this statement is certainly true. However, and more important, it can still be prosocial. We will look at this in terms of the

"looting" that occurred in the New Orleans area, and we will see the complexities involved in trying to analyze what went on.

Our analysis draws heavily from a much earlier study of the "antisocial behavior" that occurred after Hurricane Hugo hit the U.S. Virgin Island of St. Croix (see Quarantelli n.d.). There was massive "looting" in that situation, which is the illegal taking of goods and material. The looting was initiated by preimpact delinquent gangs; others later joined in that behavior. However, study after study of the typical natural and technological disaster in the United States and Western Europe have consistently found that looting of any kind is very rare and when it occurs has certain distinctive patterns; mainly it is done covertly, is strongly condemned in the community, is engaged in by few persons, and involves taking advantage of the chance opportunities that occur. In St. Croix, the looting was overt, socially supported, engaged in by many persons often in a group fashion, and involved targeted places to loot (a pattern often found in riot situations).

[T]he behaviors that did appear were overwhelmingly prosocial, making the antisocial behavior seem relatively minor in terms of frequency and significance.

Elements of both patterns emerged in the wake of Hurricane Katrina. The stealing of consumer goods by preexisting delinquent gangs was in the analytical terms of the DRC typology, simply established groups doing on a somewhat larger scale what they do on an everyday basis. Apparently, the pre-Katrina criminal elements were not minor. Estimates by students of the area indicated that as many as twenty thousand participants in the drug culture lived in the area before the hurricane. Thus, in many ways, some of the behavior observed following Katrina was not emergent behavior; doing what one does traditionally is not doing something new.

But after Katrina, other people engaged in the emergent stealing of "necessities." Some of this has also been reported by press and blog sites and is consistent with what the DRC found. Many respondents talking to DRC team members first reported that "looting" behavior had taken place. When asked about the details of such "looting," however, the respondents overwhelmingly indicated that they had only heard that such behavior was occurring but that they had not engaged in it themselves, nor did they know of other persons who had, nor had they directly observe anyone "looting." As we have already indicated in some of our earlier examples of emergent groups and emergent behavior, however, taking necessities

was not defined as "looting" (as was also true in St. Croix). Some respondents reported that if they had taken something, it was primarily food and water or a boat to help rescue others who were stranded as a consequence of the flooding (Barnshaw 2005). In a strictly legal sense, such emergent behavior is a violation of the criminal code. But to many people, taking only things that they consider immediate necessities that are often shared with others in similar straights is simply not criminal behavior. (Cases in the literature show that such actions almost never result in legal sanctions.)

However, we should leave open the possibility that more was involved than looting behavior of a traditional kind by organized gangs and the emergent taking of necessities by victims in need. In St. Croix, some "looters" did not fall into either one of these two categories. They were persons who did not engage in everyday criminal behavior yet who did steal more than necessities, for example, consumer goods. It is possible that happened in New Orleans also. Perhaps the documented cases of police officers looting in that city might be instances of this third category. (Officers also did some of the looting in St. Croix.) At the very least, researchers of looting and criminal behavior should examine the obvious complexities of emergent behavior especially in catastrophes rather than crises, a theoretical distinction we have indicated throughout this article is crucial to understanding much of what went on after Hurricane Katrina.

There is also a need to examine more closely a subtle implicit bias, in discussions by disaster researchers, that emergent behavior is always a good thing, in the sense that it provides a better coping mechanism for a crisis than otherwise would have been the case. Our work on Katrina does not fully support that notion. For example, evacuees totally rejected the emergency housing offered them on a tourist cruise ship sent by FEMA to New Orleans. Residents in flooding homes who retreated up into their attics sometimes died. Research is needed on what improvisations work and do not work and why. Overall, emergent behavior, as we saw it in Louisiana, is usually good for those acting in that way, but not always. It is more complex; emergent behavior is a different way of acting, but that does not mean it is necessarily better than other ways.

Concluding Observations

We started our article with a brief description of the antisocial imagery that the mass media initially set forth about what happened after Hurricane Katrina and expressed our doubts about its validity. We then noted that what occurred was a catastrophe rather than just a disaster, that different social factors following Katrina would encourage the emergence of new behaviors to generally cope with new threats and risks. Our examination of five different groupings was intended to illustrate the range of emergent behavior that surfaced. Generally, most of the improvisations undertaken helped in dealing with the various problems that continued to emerge. The various social systems and the people in them rose to the demanding challenges of a catastrophe. Equally as important, the behaviors that

did appear were overwhelmingly prosocial, making the antisocial behavior seem relatively minor in terms of frequency and significance.

References

Bardo, John. 1978. Organizational response to disaster: A typology of adaptation and change. *Mass Emergencies* 3:87-104.

Barnshaw, John. 2005. The continuing significance of race and class among Houston hurricane Katrina evacuees. *Natural Hazards Observer* 30 (2): 11-13.

Bell, Peter. 2005. No agency left behind in hurricane relief effort. http:www.govexec.com/story_page .cfm?articleid=32207&printerfrie.

Brewington, Kelly. 2005. A do-it-ourselves shelter shines. http://www.baltimoresun.com/news/nationworld/ bal-te.community07sep07,1,2977124.story?ctrack=1&cset=true.

Broache, Anne. 2005. Blog offers rare glimpse inside the chaos. http://news.com.com/2102-1038_3-5846830 .html?tag=st.util.print.

Deslatte, Melinda. 2005. Hospitals face struggles in Katrina storm area. http://cms.firehouse.com/content/ article/printer.jsp?id=44361.

Drabek, Thomas. 1987. Emergent structures. In *Sociology of disasters: Contributions of sociology to disaster research*, ed. R. Dynes, B. DeMarchi, and C. Pelanda, 259-88. Milan, Italy: Franco Angeli.

Dwyer, Jim, and Christopher Drew. 2005. Fear exceeded crime's reality in New Orleans. *New York Times*, September 29.

Dynes, Russell. 1970. *Organized behavior in disasters*. Lexington, MA: Heath.

Dynes, R., and Rodríguez, H. 2005. Finding and framing Katrina: The social construction of disaster. http:// understandingkatrina.ssrc.org.

Federal Emergency Management Agency (FEMA). 2005. Hurricanes Katrina and Rita recovery summary. Press Zoom, October 14. http://presszoom .com/story_112759.html.

Freemantle, Tony. 2005. Hospital's will to survive grew with floodwaters. *Houston Chronicle*, September 18.

Gardner, Amanda. 2005. Katrina leaves scientific research in ruins. http://www.medicinenet.com/script/ main/art.asp?articlekey=54885.

GovExec. 2005. In hurricane's aftermath, agencies made up missions as they went along. http://www .GovExec.com.dailyfed/0905/091305cl.htm.

Hirsch, Jerry. 2005. New Orleans' tourist business dealing with big difficult. *Los Angles Times*, September 30.

Kiehl, Stephen. 2005. Some stay to save; some come to see. http://www.baltimoresun.com/news/weather/ hurricane/bal-te.tentcity11sep11,1,6007819.story.

Lewis, Michael. 2005. Wading toward home. *New York Times Magazine*, October 9, pp. 44-50.

McEnery, Regina. 2005. How Tulane hospital saved the babies first. *Cleveland Plain Dealer*, September 11.

New York Times. 2005. More horrible than truth: News reports. September 19.

Park, R., and E. Burgess. 1921. *Introduction to the science of sociology*. Chicago: University of Chicago Press.

Perrow, Charles. 2005. Using organizations: The case of FEMA. http://understandingkatrina.ssrc.org/ Perrow/.

Quarantelli, E. 1966. Organization under stress. In *Symposium on emergency operations*, ed. Robert Brictson, 3-19. Santa Monica, CA: System Development Corporation.

———. 1984. *Emergent behavior at the emergency time period of disasters: Final report*. Newark, NJ: Disaster Research Center, University of Delaware.

———. 1997. Non-medical difficulties during emergency medical services delivery at the time of disasters. *BC Medical Journal* 39:593-95.

———. 2005. Catastrophes are different from disasters: Some implications for crisis planning and managing drawn from Katrina. http://understandingkatrina.ssrc.org/Quarantelli/.

———. N.d. Notes on antisocial and criminal behavior in disasters, catastrophes and conflict crises: The research evidence. Manuscript.

Schrobsdorff, Susanna. 2005. How two New Orleans hospitals—and two ER physician brothers—endured heat, floods and power outages to treat victims of Katrina. *Newsweek*, September 6.

Singh, Manjot. 2005. Hurricane Katrina—Destruction and devastation. Panthic News, September 18. http://www.panthic.org/news/123/ARTICLE/1788/2005-09-18.html.

Thevenot, Brian, and Gordon Russell. 2005. Rumors of death greatly exaggerated. *New Orleans Time Picayune*, September 26.

Wachtendorf, Tricia. 2004. Improvising 9/11: Organizational improvisation following the World Trade Center disaster. Ph.D. diss., Department of Sociology, University of Delaware, DE.

Walsh, Edward. 1981. Resource mobilization and citizen protest in communities around Three Mile Island. *Social Problems* 29:1-21.

Webster, Richard. 2005. New Orleans-area resident still perceive downtown high-rise hotels as safe havens from hurricanes. *New Orleans City Business*, July 18.

Zurcher, Louis. 1968. Social psychological functions of ephemeral roles: A disaster work crew. *Human Organization* 27:281-97.