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**Transforming the Field of Disaster Research  
Through Training the Next Generation\***

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*Given the importance of nurturing the next generation of hazards and disaster researchers and exposing them to the breadth, depth, and vitality of the field, surprisingly little has been written that explicitly addresses this topic. In this article, I examine the role of research centers in transforming the field of disaster research and specifically focus on the responsibility of research centers in educating and mentoring new scholars, who in turn will influence the future directions of the field. I*

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*discuss five aspects of training new researchers that I consider essential: a) fostering commitment to the field; b) maintaining academic and professional integrity; c) examining root causes of disasters; d) developing and improving research agendas; and e) disseminating research findings. The role of research centers is critical in the training process, given that there is probably no better venue for educating new scholars and ultimately encouraging innovative perspectives, generating new knowledge, advancing science, and strengthening the field.*

As expanding populations increasingly inhabit high-risk locations and as subsequent human and economic losses from natural, technological, and human-initiated disasters continue to escalate, the world is arguably more vulnerable to extreme events than ever before (Blaikie et al. 1994; Hewitt 1997; Perrow 1999). Given the growing exposure of the world's people to various chronic and acute risks, the hazards and disaster research community, which has systematically investigated the causes and consequences of disasters for over five decades, is poised to make significant contributions toward reducing the pain, suffering, and loss inflicted by catastrophic events. Moreover, given the recent occurrence of several large-scale catastrophes, such as the September 11, 2001, terrorist attacks, the 2003 Bam, Iran earthquake, the 2004 Indian Ocean earthquake and tsunami, the Gulf Coast hurricanes of 2005 (especially Katrina and Rita), and the 2005 Kashmir earthquake in Northern Pakistan, the efforts of disaster researchers and practitioners are receiving increased attention, and in some cases, additional government and private-sector funding for particular research and mitigation programs. Thus, despite the historically low prominence of hazards research in most social science disciplines (Anderson 1990), the work of scholars who study hazards and disasters is currently highly salient, and opportunities for conducting research have expanded greatly (Tierney 2002).

Considering these recent events and developments, this is an opportune time to recruit, train, and ultimately retain new hazards and disaster researchers. However, despite the critical importance of nurturing the next generation of scholars, little has been written

specifically about how such scholars should be educated or supported in their work, although notable exceptions exist. For example, in a chapter on data-gathering techniques and fieldwork immediately following disaster impact, Quarantelli (2002, p. 101) emphasizes the importance of thoroughly training graduate students and notes that all new graduate research assistants at the Disaster Research Center (DRC) at the University of Delaware are provided with: 1) a general introduction to the history of disaster research and the DRC; 2) a review of procedures and problems in qualitative field research; and 3) a detailed introduction to the specific research project(s) in which they are to be involved. In short, Quarantelli identifies and demonstrates the importance of systematic instruction for novice researchers, while also providing a framework for how that instruction may occur.

Based on his recognition of the potential future shortage of new hazards scholars, Anderson (1990) has challenged faculty members to make their work more attractive and exciting to both undergraduate and graduate students by involving them in field research and data analysis and allowing them to co-author reports and articles. In the same article, Anderson discusses the substantial lack of minority student involvement in the field and offers potential solutions to this problem (also see Tierney 2002). Wilson (1999) has proposed a tentative research agenda for the next generation of disaster researchers, focusing on questions with particular relevance to emergency management practitioners. At a 2004 conference on disaster research and the social sciences, an entire panel discussion was dedicated to the role of research centers in training the next generation of hazards and disaster scholars (see Rodríguez, Wachtendorf, and Russell 2004).

In this article, I further the discussion regarding fostering the next generation of hazards scholars by examining the role of research centers in shaping the field of disaster research. Specifically, I focus on the responsibility of research centers to train and mentor new hazards and disaster social science researchers at the graduate level, who in turn will influence the future directions of the field. As opposed to the 1960s and 1970s, when the Disaster Research Center, then at the Ohio State University, and the Natural Hazards Center at the

University of Colorado-Boulder were the two principal institutions in the United States dedicated to training new academic disaster researchers (Anderson 1990; Drabek 1996), today there are numerous educational institutions in the United States and other countries that are actively involved in either conducting or sponsoring disaster data-collection efforts and educating undergraduate and graduate students (Tierney 2002). Indeed, the Natural Hazards Center (2006) web site lists over 40 such academic centers and institutes in the United States alone. In addition, Blanchard (2006) recently compiled a list of 120 emergency management higher education programs, 56 homeland security/defense and terrorism higher education programs, 9 international disaster relief/humanitarian assistance programs, and over 30 additional related programs in areas such as fire administration, public health and safety, and environmental science. These centers, institutes, and academic programs investigate all forms of extreme environmental, technological, and human-initiated events, as well as examine specific types of risk, such as earthquakes, hurricanes, drought, floods, and terrorism.

I acknowledge the fundamental importance of many of these programs in training future practitioners and emergency management specialists (for a discussion of educational needs and employment opportunities for hazards managers, see Britton 1999, 2003; Thomas and Mileti 2003). In this article, however, I limit my remarks to graduate social science academic programs affiliated with hazards and disaster research centers, which are aimed at educating and training doctoral level students. I have chosen to focus my discussion somewhat out of necessity given space constraints, but also in recognition of the fact that it will likely be the individuals with doctorates who lead future research efforts in the field and guide subsequent cohorts of students through the academic education and training process. Moreover, if current trends continue, there will be a dearth of scholars to replace the professors who are soon to retire (for more information regarding the need for new faculty members in the field, also see Neal 2000). Thus, the role of these centers is critical, given that there is probably no better venue for training new scholars in the field of disaster research and ultimately encouraging innovative perspectives, generating new knowledge, advancing science, and strengthening the field.

### **Nurturing the Next Generation of Hazards and Disaster Researchers**

Today in the United States, new researchers are being trained at several of the leading social science hazards and disaster research centers, including the Center for Public Health and Disasters at the University of California-Los Angeles, the Disaster Research Center at the University of Delaware, the Hazard Reduction and Recovery Center at Texas A&M University, the Hazards Research Laboratory at the University of South Carolina, the Institute for Crisis, Disaster, and Risk Management at the George Washington University, and the Natural Hazards Center at the University of Colorado-Boulder. These centers provide many different kinds of support for young researchers, including logistical support, financial support, library resources, new social networks, research and collaborative opportunities, and perhaps most importantly, mentoring for the next generation. Below, I focus on five aspects of training the next generation of hazards and disaster researchers that I consider essential: a) fostering commitment to the field; b) maintaining academic and professional integrity; c) examining root causes of disasters; d) developing and improving research agendas; and e) disseminating research findings.

#### **Fostering Commitment to the Hazards and Disaster Research Field**

The commitment and professionalism necessarily involved in conducting disaster research can perhaps best be instilled at hazards and disaster research centers. Indeed, doing so may be the first obligation of any graduate training program. It is often through the research centers that new graduate students are introduced to the field of disaster research. Although these students may have been interested in pursuing this type of research because of their fascination with disasters or because of a personal desire to reduce the negative impacts of catastrophic events, students are certainly not innately devoted to the field. The specific commitment to disaster research must be fostered by staff at those centers who

demonstrate the importance of hazards research and how such work can contribute to the broader mission of minimizing damage and loss resulting from disasters. In particular, leaders at the centers must be thoughtful, committed, and enthusiastic mentors. As Phillips (2002) argues, advisors should support students' research interests while also promoting high academic standards. Students need to understand the place of disaster research within broader theoretical, methodological, and disciplinary perspectives. In addition, students and young professionals must be taught, encouraged, and reminded that one of the primary goals of this field is to reduce risks from hazards and to produce knowledge that will contribute to that goal (see Anderson and Mattingly 1991; Myers 1993). Related to this, scholars and practitioners also want to foster effective disaster response and recovery operations, and thus students should be educated in these important areas as well.

One of the best ways to instill these values and teach students about the field is to involve them in various aspects of a research center's mission, as well as in the larger hazards and disaster community. Students should actively contribute to all phases of the research process: including formulating new research questions, designing studies, gathering and analyzing data, and writing up and disseminating research results. They also need to participate in the day-to-day activities of the research center, as well as attend and present their work at scholarly conferences and workshops. These experiences will help students better understand the field as they become more informed, connected, and committed.

In support of the training missions of academic hazards and disaster research centers, the National Science Foundation (NSF) has funded several initiatives expressly designed to foster the next generation of hazards and disaster scholars. For example, with support from NSF, the Disaster Research Center has established a Research Experience for Undergraduates' (REU) program that allows undergraduate students to engage in training and hands-on research to improve their understanding of the social science aspects of disasters.

Similarly, with a grant from NSF, the Public Entity Risk Institute, the Natural Hazards Center, and Swiss Re have established a program

that awards dissertation fellowships to graduate students in all disciplines studying risk, hazards, and disasters. The purpose of the PERIShip dissertation fellowship program is threefold: 1) to advance knowledge in the hazards field; 2) to ensure that the next generation of interdisciplinary hazards professionals has a source of financial aid to foster their academic development; and 3) to solidify students' interest in and commitment to hazards and disaster research. This program is a particularly important resource for graduate students who are not affiliated with one of the major hazards or disaster research centers in the nation. These students often do not have the same level of institutional support for their research, and thus the dissertation fellowship program is vital in fostering their commitment to the field, while also connecting the students to the broader hazards and disaster research and practitioner communities.

“Enabling the Next Generation of Hazards Researchers,” another program funded by NSF, supports mentoring of junior faculty members who are interested in conducting social science research addressing hazards and extreme events. The junior faculty fellows participate in workshops, tutorials, and discussions with senior researchers and receive practical advice about research design and grant proposal development. A similar program, “Research Education in Disaster Mental Health,” which is funded by the National Institute of Mental Health, strives to improve the quality and utility of disaster mental health research by matching scholars at the beginning stages of their career with well-established disaster mental health researchers.

Continued financial and institutional support for the academic missions of hazards and disaster research centers, as well as for the programs mentioned above, is essential to the continuity and growth of the field. The mentoring that occurs within the centers as well as through the aforementioned programs helps inform new researchers about the state of knowledge in the field, while also fostering commitment by encouraging the development of long-term academic research agendas.

### **Maintaining Academic and Professional Integrity**

A second goal in training the next generation is to promote continued academic and professional integrity. Obviously, the field of disaster research is highly event-driven. Research and funding are subject to the events and politics of the moment. Regardless of the type of disaster, if the scale and scope of a catastrophe are sufficient to capture national and international attention, the event inevitably becomes the focus of not only the media, but of government officials, funding agencies, and researchers as well. It is not inherently bad to follow the hazard or disaster of the moment. However, it *is* a serious issue if researchers undertake studies just because funding is available, at the cost of ignoring very real problems that are equally worthy of their time, attention, and efforts.

In the post-September 11 era, where new “terrorism experts,” centers for homeland security, and parallel degree programs are appearing frequently, and many calls for disaster funding seems to be linked to terrorism, the need for integrity in research and the disaster field generally is perhaps greater than ever. We must step back and assess how we are going to maintain appropriate scholarly agendas and ask how terrorism fits into definitions, typologies, and theories of disaster, how what we already know from the field can be applied, and what new questions must now be considered (see Peek and Sutton 2003; Quarantelli 1993). Perhaps most importantly, we must be circumspect, critical, and even wary regarding what sort of support we accept and what kinds of research we undertake. As scholars, we must take the broadest view and be willing to battle for the study of what we believe are the most important long-range research and policy questions, and we must pass these values onto our students.

### **Examining Root Causes of Disasters**

Related to the event-driven nature of the disaster research field is the continued overemphasis of research and policy on response to emergencies and disasters versus the societal/structural forces that put populations at risk and may be considered, in many cases, the *root* causes of disaster (Blaikie et al. 1994; Mileti 1999; White,

Kates, and Burton 2001). Of course studying disaster response is an important aspect of the field that must continue, as we have learned many important lessons from this type of research (see Tierney, Lindell, and Perry 2001). However, if they are to contribute to the long-term improvement of society, hazards and disaster research centers, and the scholars they produce, should not only attempt to understand and improve disaster response, but also must train scholars and produce research that examines fundamental causes of catastrophic events. We must question *why* an event occurred – not only in physical science or engineering terms, but in social science terms as well. The socio-political ecology perspective, most clearly used by Peacock, Morrow, and Gladwin (1997) in their edited book on Hurricane Andrew, integrates this type of broad ecological and political approach to disasters and focuses on interactions – not solely the interaction of human systems and the physical environment, but of all social systems.

Currently in the United States there is much discussion regarding what the next terrorist event will be. It is important to consider these questions, given the possibility of a future terrorist strike that could potentially harm thousands, or even millions, of people. At the same time, there has been very little dialogue or research regarding *why* another terrorist attack might occur (or, indeed, why past attacks occurred). Simplistic political statements about “attacks on freedom,” “pure evil,” and “hatred of the American way” beg the question. Clearly the causes of terrorism run deeper and lie in the ways that cultures meet, or fail to meet, and accommodate one another, especially cultures with markedly different histories, social structures, values, and economies. Again, it is taken for granted that another terrorist attack *will* happen, but this short-sighted acceptance of “reality” has hindered critical analysis and dialogue about *why* another event could take place, *what* the causes for that attack might be, and *how* we could possibly prevent it – in the sense of ameliorating the deeper, systemic causes of these conflicts (Butler 2004). The most sophisticated airport security systems, the most hardened buildings, will not stop terrorism. We must examine the root causes of these destructive actions and events and engage in serious dialogue regarding preventive measures.

Additionally, the focus on terrorism response might well be reflected in other disaster research where response issues will take further precedence over research into more fundamental causes and hence will usurp mitigation efforts. Moreover, the focus on terrorism may overshadow the importance of examining the root causes of other, potentially more devastating hazards such as large-scale natural disasters, pollution, water shortage, and global warming. Over the past few years, the world has witnessed the horrors inflicted by massive earthquakes, a devastating tsunami, and the worst natural disaster in U.S. history. The death and destruction caused by these “natural” catastrophes should serve as a reminder of the fundamental importance of examining the root causes that lead to these types of events. As Mileti (1999, p. 3) argues, disaster losses – rather than stemming from unexpected events – are the predictable result of interactions among three major systems: the physical environment, which includes hazardous events; the social and demographic characteristics of the communities that experience them; and the buildings, roads, bridges, and other components of the constructed environment. Again, we must ensure that the next generation of disaster scholars is able to discern the fundamentally important issues and long-term problems as distinct from the crises of the moment.

### **Developing and Improving Research Agendas**

Developing innovative, interesting, and important research agendas is critical to the scientific progress and survival of any field. Indeed, disciplines can only remain viable if they identify and study new problems, or, at a minimum, old problems from new perspectives, and systematically accumulate new knowledge. Because some disaster research is opportunistic and driven by a sense of urgency, researchers often dedicate too little effort to reviewing existing literature and building upon previous findings (Dynes 2000). Hence, earlier mistakes are repeated, and different researchers ask and explore similar questions time and time again. Replicating pre-existing research or studying the same phenomena is not always problematic, of course. For example, Kendra and Wachtendorf

(2001), in their examination of the response to the September 11 attacks, identify a new form of convergence not discussed by other researchers. In addition, many disaster researchers have argued that looting is essentially non-existent in natural disasters (see Fischer 1998). Yet the widespread media reporting of looting after Hurricane Katrina challenged disaster researchers to re-think their assumptions regarding looting behavior, and some embarked on new studies to explore this phenomena (Barsky, Trainor, and Torres 2006). These examples illustrate the importance of studying social and behavioral phenomena across a variety of contexts, and also remind us that important lessons can be learned by re-evaluating previously studied cases. At the same time, it remains imperative that hazards and disaster research centers continue to teach students to ask new and important questions, while also reminding them to evaluate the state of knowledge before embarking on new projects.

**Asking New and Important Questions.** As the members of the academic hazards community develop research agendas, we must challenge ourselves and our students to look deep and ask the questions that have not yet been asked but are central to improving the human condition. Where are the gaps in our knowledge – theoretically, empirically, practically, locally, and globally?

Responding to this challenge is difficult for a new scholar to the field, someone who does not yet know what knowledge has already been produced and who may not even know how to formulate a research question. Clearly, a key role for research centers, and specifically, individual mentors within those centers, is to both define those questions and teach new scholars how to identify them. Again, we must train scholars to ask larger questions, to break new ground, and to consider new empirical and theoretical issues. In this regard, it would be beneficial for directors of the various research centers, as well as other faculty who advise graduate students, to meet regularly (perhaps once a year) to discuss the state of the field and to present overviews of ongoing and upcoming projects. Such a meeting would allow researchers to understand and complement one another's work, foster collaboration, and establish unified, integrated research agendas. A meeting of the director's of hazards and disaster research centers currently takes place each July at the Hazards Research

and Applications Workshop in Boulder, Colorado. Perhaps such a meeting could be expanded to include all faculty members who advise graduate student researchers. Another possibility is to create an electronic mail list that faculty could use to communicate with one another about ongoing projects, new research opportunities, and so forth.

In addition to relying on faculty mentors to help formulate new research questions, research agendas should be developed *in conjunction with practitioners* – with the planners, public officials, emergency managers, law enforcement officials, and others – working in communities. These practitioners are keenly aware of what needs to be studied and what questions need to be answered, and they are looking for concrete, feasible recommendations regarding what they should or should not do to lessen disaster losses in their communities (Myers 1993). Additionally, because these individuals are often the people responsible for the day-to-day activities associated with disaster preparedness, response, and recovery, they can often shed the most light on important practical needs or policy options that should be considered in research reports.

Another recommendation is to encourage graduate students to gain practical experience through internships at organizations such as the American Red Cross, the Environmental Protection Agency, or the National Oceanic and Atmospheric Administration, for example. The type of experience that is gained through actually working closely with practitioners can provide important insights that may help future researchers ask new questions and better understand the links between research, practice, and policy. Moreover, internships and other fieldwork experiences may equip students with the theoretical, methodological, and applied knowledge and skills necessary to understand a range of increasingly complex and serious emergency situations (also see Moseley 2004).

At the same time, because disasters involve all dimensions of society, from the personal to the collective, cross-disciplinary and interdisciplinary collaboration is vital. Although there have been calls for higher education to move away from traditional disciplines toward interdisciplinary education that solves the real-world problems entailed in linking hazards risk and sustainability (see

Mileti 1999), most graduate students continue to be educated in the theories and methods of a particular discipline, such as anthropology, geography, political science, or sociology. However, graduate students who study hazards and disasters often have the opportunity to become involved with more interdisciplinary research efforts through a hazards or disaster research center. Particularly in the current funding environment, where cross-disciplinary collaboration is not just recommended but often required, it is extremely important that researchers and young scholars from one discipline work with others involved with the same problems. Research questions, and the answers to these questions, can no longer be developed in isolation; they will span all social science disciplines and also integrate knowledge from the natural and physical sciences and engineering.

In the March 2004 *Natural Hazards Observer*, Russell Dynes offered an invited comment that challenged scholars to think more broadly, more globally, and he asked us to recognize the different types and fundamentally different nature of disasters that are occurring in our world, particularly in less-developed countries. Dynes posed a set of questions and issues regarding various hazards agents and their consequences that he feels must be addressed if disaster research is to remain viable. Specifically, he argues that we must expand our research horizons to examine conflict and slow-onset disaster events in developing countries, which often result in enormous human costs. New students of hazards and disaster research should be challenged to develop innovative theories of disaster that may help us to understand these new and understudied types of disaster.

**Assessing the State of the Field.** To ask new questions and to develop new research agendas, current scholars and their students must first comprehensively assess what is already known and then take a serious look at the gaps in research and practice. *The Second Assessment on Natural Hazards*, which Dennis Mileti (1999) and a host of contributing authors concluded seven years ago, was a recent attempt to do just that (also see Drabek 1986; Hewitt 1997; Quarantelli 1998; Tierney et al. 2001). However, one lesson of this millennium is certainly that such an assessment cannot be conducted only every 25 years. The world changes too quickly.

What, then, are we to do? First, of course, new students to the field must be encouraged to carefully review the disaster research literature to ensure the examination of key questions and to adequately conceptualize research projects. At the same time, the assessment of hazards research and practice must become an ongoing project, with a collective appraisal of significant changes and possible research implications occurring much more frequently. This is one of the goals of the Natural Hazards Center's Annual Hazards Research and Applications Workshop, but the evaluation could and should be more explicit.

### **Disseminating Research Findings**

A person may conduct stellar research and arrive at brilliant conclusions, but if he or she cannot clearly articulate and communicate those findings – both to colleagues, and perhaps more importantly, to practitioners – the labor has been pointless. We must take what we have learned through disaster research and make it useful, and we must demonstrate this goal to our students. This may seem a simple point, but defining what is useful, based on the audience, can be very difficult. What is useful to sociologists could be defined as something that contributes to the empirical literature and says something new theoretically. What is useful to practitioners might well be a clear, jargon free, summary of research findings that offers realistic recommendations for policy and practice (Myers 1993). Research centers must train young scholars regarding these different notions of “useful,” teach them how to write for and present to various audiences, and impress on them that they must *do* just that: communicate to all audiences that might benefit from their knowledge.

One effective way to discover what is useful, and to train young scholars regarding how to write and present, is to have both researchers and practitioners actively involved, not only in the design of research, but more integrally in the ongoing work of hazards and disaster research centers (see Drabek 1986, p. 416). Research centers cannot work in isolation. Practitioners should be included in a center's operations – whether it be as a paid staff member, a

member of an advisory committee, or as a visiting fellow. In a field that relies on the connections between researchers and practitioners, such interchange between various stakeholders is vital.

Although some great research is currently being conducted within various hazards and disaster research centers and independently within universities, that information is slow to reach policy makers and practitioners. The main goal of the Natural Hazards Center at the University of Colorado-Boulder is to strengthen communication among researchers, and the individuals, organizations, and agencies concerned with individual and public actions to reduce damages from disasters (see Myers 1993). Through its information dissemination program, the Hazards Center produces both print (*Natural Hazards Observer*) and electronic (*Disaster Research*) newsletters. These publications provide briefings on current research, and reach approximately 30,000 individuals in the national and international hazards community. The Hazards Center also convenes a workshop each summer in Boulder to strengthen the link between the research and applications communities. The Hazards Center and the Disaster Research Center at the University of Delaware house large libraries that contain thousands of books, articles, reports, journals, and other documents. In short, there are many resources available to help researchers disseminate their research findings; however, academics must seek out and utilize these resources, while encouraging their graduate student mentees to do the same.

### **Conclusion**

During the first years of the twenty-first century, catastrophic, and in some cases unprecedented, disasters have occurred across the globe, resulting in the death and displacement of hundreds of thousands of people and costing billions of dollars (Munich Re 2004). Soaring urban populations, environmental degradation, and poverty are exacerbating seasonal hazards such as droughts and floods to create chronic adversity for many of the world's people (International Red Cross 2004, p. 8). Over the past several decades, hazards and disaster research has played a vital role in documenting and explicating the causes and consequences of extreme events for

human society (White et al. 2001). However, as more individuals and communities are exposed to new and multiple forms of risk and as disasters continue to grow in frequency, scope, magnitude, and complexity, researchers must adapt their agendas to consider these new issues, while also preparing future generations to study, understand, and, ideally, minimize these threats.

If the field of disaster research is to change with the times, the hazards and disaster centers are where that transformation will begin. But such transformation requires reflection and planning, and then action. We must examine what is working within our research centers and be honest about what needs to change. We must look at the trends in the field and decide which to embrace and which lead down dead-end paths. We must distinguish the most critical problems from those highlighted by the media. By engaging the students who will become the next generation of disaster scholars in this process, the present leaders and mentors at the various centers will ensure that the field remains not just relevant but a contributor to the betterment of humankind.

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