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Neal, David M.

Veröffentlichungsversion / Published Version
Sammelwerksbeitrag / collection article

Toward a Sociology of Risk: Using Disaster Research to Understand Group and Organizational Behavior toward Technological Risk

David M. Neal (Oak Ridge, Tennessee)

Understanding how people perceive and respond to risk has been of interest to social scientists and engineers. The recent low probability, high consequence disasters such as the Bhopal chemical release and the Chernobyl nuclear power plant meltdown demonstrate the technological hazards that surround us and has further increased interest in the topic. Much of today's risk analysis is a psychometric approach that looks at individuals' attitudes toward risky technologies (e.g. see the plethora of work by Fishhoff, Slovic, Lichtenstein). Although such an approach begins to answer some questions regarding human response to risk, there also exists some problems with this approach. Two problems with the psychometric approach identified here pertain to the emphasis of studying 1) individuals, and 2) attitudes. I propose that a more sociological approach, focussing on groups and behavior be undertaken to complement the psychometric approach. Furthermore, a sociological approach does not need new methodologies for understanding risk. To illustrate, brief examples from disaster research are used. Finally, psychometric risk analysis should also identify its ideological component or attempt a less value-laden approach with its research questions.

A Focus on Behavior

A popular focus by some risk specialists is to describe and explain individuals' perceptions toward risk. This type of research has given the study of risk credence and has helped to develop the field. However, this approach to risk should be a starting point for research, not the only point of research. Furthermore, attitudes do not always predict behavior (Deutscher, 1973), and studies that use attitudes to predict other attitudes or behavior often run into tautological problems (Mayhew, 1980, 1981). In order to broaden the understanding of how people react to risk, and to avoid tautological, methodological problems that exist within the psychometric framework, behavior should also be a research focus.

A Focus on the Group

Individuals do not define risk in a social vacuum. Rather, risk is defined in a social setting through a group process. Therefore, research should focus upon how groups and organizations define and respond (i.e. behave) toward risk.

Toward a Sociology of Risk

In order to improve risk studies, we need to go beyond studying individuals' attitudes toward risk and move toward studying the behavior of groups or organizations in response to risk. Space does not permit a long, technical discussion of how this is to be accomplished. However, I will draw upon some recent studies done in the area of disaster research to illustrate that a sociological approach to risk is also possible. By looking at different social groups in society and how they behave, a better understanding of risk can be achieved.

One sociological approach toward risk would look at how citizens, local groups, and organizations respond to a proposed risky technology. Some groups may support the risky technology, whereas others may be against it. The number of groups, types of groups, and degree of support of each group has for a proposed technology, can be used to gauge the degree of risk perceived and responded to in a community. This type of analysis would also demands an incorperation of how the local economic and power structure would intervene in supporting or not supporting a new low probability, high risk technology.

A recent study completed at the Disaster Research Center (see Quarantelli, 1985) in which I participated (e.g. see Neal, 1984) partially applied this approach. This study explained the reasons why local citizen groups formed around hazardous technology issues, the support these groups garnered, and the success or failure these groups had in preventing or mitigating the potential risk. Studying various groups, such as social movements, business organizations, or political organizations, and these groups' stances regarding technological risk, is one way of ascertaining how segments of a community respond to a low probability, high consequence risks.

Another aspect of disaster research that can be applied to risk analysis is emergency preparedness. Simply put, an organization or community's

efforts to prepare for disaster may indicate a greater perception of and response to risk. Granted, the degree of preparedness may not always reflect totally this indicator due to intervening factors (poor community tax base to support emergency preparedness). Yet, combined with the other indicators mentioned in this paper, a community's perception and response to risk can be better profiled.

A recent study for the Army Corps of Engineers (see Sorensen and Neal, 1986) regarding dam safety illustrates this point. The Army Corps of Engineers has determined that some dams may not be as safe as originally believed. Therefore, they are in the process of determining different ways of improving dam safety, including improving warning and evacuation procedures. The study showed that the Corps, who is aware of the dams' risks, was making major efforts to maintain and improve dam safety. Local emergency organizations (such as police and fire departments, and local civil preparedness), who are not aware of the dams' potential dangers, were not taking any actions to improve their warningor emergency response systems. The Corps' knowledge of the dams, in addition to the resources they have available, explains their response to dam safety when compared to the other local emergency organizations.

The best indicator, I believe, of how a community responds to risk is the how well the community actually behaves during a disaster. Those communities or organizations that are prepared and respond well usually are collectively aware of the potential of disaster. Those communities that do not prepare or respond well are not collectively aware of the risk, or give emergency planning lower priority.

The Question of Ideology

An implicit research question in the psychometric approach, including social science risk studies by engineers, seem to ask the question, "Why won't the public accept low probability, high consequence risks (especially nuclear power)?" Not only is asking a research question in this manner biased, it is just poor methodology since only one angle of the question is asked. A broader, less ideological and better methodological question would be, "Why do some people approve and others not approve of low probability, high risk technologies" In addition, there is some irony in the fact that by focussing their research on attitudes rather than behavior, those supporting

nuclear energy may have taken the wrong methodological approach in trying to sway the American public to accept nuclear power in larger numbers.

Conclusion

In this paper I have advocated a sociological approach to risk analysis, drawing upon techniques already used in disaster research. Rather than focussing upon an individual's, I argue that we look at how groups and organizations in potentially affected communities respond to proposed or built low probability, high risk technologies. Risk in technological societies is a major issue today. By studying the social process of defining and responding to risk, and asking research questions from a less ideological framework, a better understanding of society's response to risk can be achieved.

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