

Dennis S. Mileti. *A Normative Causal Model Analysis of Disaster Warning Response*. Ph. D. Dissertation, Department of Sociology, University of Colorado, 1974, 187 pp.

I think the sociological literature on disasters has numerous excellent descriptive case studies, some insightful ideas, but little systematic theory building and testing. The justification for the paucity of theoretical models seems to be that the fluidity and dynamics of disaster situations renders systematic measurement of fundamental response patterns too difficult. In spite of my disagreement with some of Mileti's interpretation of findings, his work clearly illustrates the potential of theory-building for disaster research and, in so doing, gives us important knowledge about the mechanisms of warning response. It is a good piece of research that hopefully will stimulate sustained efforts at systematization and quantification.

Beginning with a general systems perspective of warning that encompasses the community, organizational, and individual levels of analysis (although it does not particularly inform the latter), he develops a causal model of warning response for individuals. The model is then tested with research of two warning events (eight days apart in June of 1972) in Rapid City, South Dakota: the first event was followed by a flood and the second was one in which the threat but not occurrence of flash flooding was genuine. This review cannot begin to convey the complexity of the theoretical model or research design, but in general, the study assessed the relative effects of social background and disaster event variables as they related to warning response patterns. The implications of both learning and reference group theories of behavior were conceptually specific to the research and at least a gross quasi-experimental treatment effect could be examined.

The final causal model was a variation of path analysis (estimation but not model testing) which contained three exogenous variables

(income, number of children, and severity of last flood experience), three intermediate endogenous variables (degree of personalness of warning communications mode, degree of specificity of warning sought, degree of warning confirmation behavior), and a final outcome variable reflecting degree of adaptive response (from doing nothing to evacuation). Although the measurement of these variables was in some cases crude, most of the statistical assumptions of path models were adequately met. Random samples were drawn from areas impacted by the major flood of June 9th as well as areas of the city targeted for flood warnings on June 17th. As you would expect, the research was necessarily *ex post facto* and employed self report data. Based on a four warning sequence for each event, the model was estimated eight times. A number of statistically significant relationships were uncovered under controlled conditions: the higher the income (SES), the lower the degree of personalness of warning communication mode; the greater the number of children (role responsibility), the greater the specificity of warning content sought; the greater the severity of last flood experience, the lower the confirmation behavior and the lower the adaptive response; and many others. The interpretation of findings was generally adequate but the discussion of what were, in my judgment, the major findings of the research deserves some comment because I see definite problems with it.

Severity of last disaster experience was positively but weakly related to specificity of warning content in the first event (pre-June 9th flood) but strongly and negatively related to this dependent variable in the second warning event (post-June 9th flood). Severity of last experience also showed substantial negative relationship to warning confirmation behavior in the second warning event, and most importantly, was consistently negatively related to adaptive behavior in both warning events. On the basis of these findings, it is argued that vicarious learning will expedite "behavioral

efficiency,” but when perceptions of situational danger induced by last experience become too high, maladaptive stress is aroused. In effect, Mileti’s interpretation suggests a kind of fear syndrome proportional to the severity and recency of last experience which retards both interpretive and adaptive capability. Rather startlingly, Mileti then offers the policy pronouncement that under disaster threat conditions warning messages be delivered in such a way that “extremely dramatic and perilous conditions are not conveyed even though they may exist.” Based on the tenuous (at best) assumption of a curvilinear relationship between stress and performance he suggests instead that warning messages should convey only middle levels of anxiety inducing threat. It seems we are back to either the helpless victim or panic conceptualizations of disaster which have been strongly criticized by previous disaster studies.

The fact that these very intriguing findings beg for alternative theoretical interpretations is never mentioned in this precipitous quest to be policy relevant. For example, disaster experience may create a false sense of security rather than fear, thus a strategy of underplay-

ing extant danger could be irresponsible. Further, experience may engender rationality by expanding knowledge about both environmental cues and alternative responses. His measures of warning behavior in no manner capture these possibilities. Finally, it could be argued that learning is a decreasing function of time regardless of severity of last impact. I can think of other plausible interpretations but the point is that they virtually all imply alternative policy implications. We are therefore admonished to be cautious with rudimentary understanding of complex processes. Mileti has completed a rigorous study, discovering relationships which are both theoretically interesting and practically important. The implications of these findings should be pursued by careful research. But the above kind of premature policy statement is glib, unwarranted, and potentially harmful when based on the admittedly crude data provided thus far.

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