Affect amd the Perception of Risk

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As cognitive scientists turn their attention to emotion, they face the task of integrating affect into models of cognition. The perception of risks seems an ideal area to examine the relationship between cognitive and affective processes. When we witness an accident, or read a newspaper story about a natural disaster, we do more than simply revise our subjective probabilities. We are often quite disturbed and shaken by such events. Our encounters with risk are inevitably connected with feelings, including those of surprise, dismay, and worry.

Previous work in risk perception has concentrated on the cognitive domain. Lichtenstein et al. (1978), for example have asked people to estimate the frequency of death due to various causes. They argue that the availability of instances in memory helps determine these perceived frequencies. Thus, homicide is seen as much more common than suicide, although actually the reverse is true. Causes of death which are spectacular and the subject of media coverage appear to be overestimated while more mundane causes are underestimated.

We conducted three studies using an experimental paradigm similar to the one used by Lichtenstein et al. Before they made their estimates, however, subjects read a newspaper-like account of the death of a single individual under the guise of a newspaper reporting study. These stories, although quite graphic, were relatively devoid of information. They were, however, effective in changing mood, causing readers to report they felt much more depressed than a control group which had not read the stories. Later, in an apparently unrelated questionnaire, these subjects were asked to estimate the frequency of death due to various causes. The causes of death ranged from those closely related to the topic of the story, such as stomach and lung cancer for a story about leukemia, to unrelated causes such as tornados and airplane accidents.

The potential impact of these stories, and their accompanying changes in mood, represent a continuum. At one end of the continuum, we might expect the story to have no effect on the estimates. This is the normatively justified response, since the stories contained no information about the frequency of the death in the population. In contrast, the reader of the story might generalize from the instance in the newspaper-like story and increase their estimate of the frequency of that cause of death. We will term this a local generalization.

The impact of the story might also generalize to other, related risks. A story about a leukemia victim might also raise our subjective probability of related diseases such as lung and stomach cancer, but not unrelated risks such as airplane accidents. This gradient generalization should be closely related to the similarity of the risks. Finally there is abundant evidence in social psychology (Isen, Shalker, Clark, and Karp 1978) for more pervasive influences of affect. We might expect that increases in estimated frequency might occur for all risks, a possiblity we term global generalization.

In the first two studies we examined the generalization of negative affect across the responses. Despite our attempts to provide a sensitive test of local or gradient generalization, both studies demonstrate sizable global generalization. Readers of the newspaper stories estimated that all causes of death were about 40% more common than the control. Since the changes were unrelated to the topic of the story, these data suggested that the effect was due to mood induced, and that the bad moods were more than unpleasant states. In addition, they had pervasive influences on an important class of risk-related judgments.

In the third experiment, we broadened the estimates we requested to include items not related to either death or risk. For example, subjects were asked to report the frequency of bankruptcy and divorce. Even with these widely divergent estimates, we have found strong global generalization of affect, with no evidence for either local or gradient generalization. We also included a condition which read an additional newspaper story free of risk related content, but which described a series of negative events which occurred to the main character. Since the story made no reference to risk or death, its principle effect was the negative mood it induced in the reader. This depressing story resulted in a pattern of results almost identical to those induced by the risk-related newspaper stories.

These data, viewed as a whole, demonstrate that affect can have a large and pervasive influence on one important class of judgments, estimates of the frequency of risk-related events in the population. So far we have found no indication of a connection between the information contained in a story and its impact on the estimated frequency of death. The overriding factor in these increases does not appear to be the story told, but rather the mood or affect state it conveys to the reader. These effects are not limited to areas of death, but have been shown for estimates of non-fatal hazards and lifestyle threatening risks such as divorce and bankruptcy.

Any model of affect must account for two important aspects of this phenomenon: (1) Induction of a negative mood alone is sufficient to change estimates, and (2) the size of the change is unrelated to the semantic similarity, either among the estimates themselves, or between the cause of the mood and the estimates.

References

Isen, A. M., Shalker, T.E., Clark, M. & Karp, L. "Affect, accessibility of material in memory, and behavior: A cognitive loop?", Journal of Personality and Social Psychology, 1978, 37, 1-14.