

Risky Business

Vividness, Availability, and the Media Paradox

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The popular media deliver reports on a carefully chosen set of events in vivid detail. Owing to its concrete, personal, and emotional flavor, this biased sample of information is easily retrievable from memory and therefore exerts a disproportionate influence on our judgments and decisions. This results in the media paradox: The more we rely on the popular media to inform us, the more apt we are to misplace our fears.

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Do you believe that more people die in the United States each year from falling airplane parts or from shark attacks? From tornadoes or from lightning? From stomach cancer or from car accidents? From diabetes or from homicide? When we evaluate the relative degree of danger associated with different hazards, we can easily overlook two subtle biases in the sample of information that comes to mind. First, the popular media report to us, in vivid detail, a carefully selected assortment of unusual events. Second, vivid and unusual events exert a disproportionate influence on our subsequent judgments through their increased memorial availability. These two biases operate hand-in-hand to create what I call the “media paradox”:

The more we rely on the popular media to inform us, the more apt we are to misplace our fears.

In one widely cited study, college students ranked nuclear power as the most dangerous of thirty different activities and technologies. Experts in risk assessment, on the other hand, ranked nuclear power twentieth on the same list, less hazardous than riding a bicycle (Slovic, Fischhoff, and Lichtenstein 1979). Ross (1995) reviews several serious misperceptions of risk and poses the critical question, "Are we then turning our backs on a raging inferno while we douse the flame of a match?" (53).

Vividness

Many of us rely on the popular media (television, radio, newspapers, magazines, the Internet, and so forth) for daily information to help navigate the hazards in the world around us. These sources, however, do not provide us with a representative sampling of events. For a variety of reasons—including fierce competition for our patronage within and across the various popular media outlets—potential news items are rigorously screened for their ability to captivate an audience. Stories featuring mundane, commonplace events don't stand a chance of making it onto the six o'clock news. The stories that do make it through this painstaking selection process are then crafted into accounts emphasizing their concrete, personal, and emotional content. Each of these aspects of a story promotes its vividness, which increases the likelihood that we will attend to and remember the information (Nisbett and Ross 1980; Plous 1993).

Both anecdotal and empirical evidence demonstrates the impact of vividness. Imagine that you are in the market for a new car, and you turn to *Consumer Reports* for advice.¹ Several hundred consumers' experiences, plus the opinions and road tests of automotive experts, are neatly summarized, and it appears that the cost and reliability of a Honda Civic will best meet your transportation needs. Before making a purchase, however, you happen to mention your decision to a colleague, who is shocked. "A Honda! You must be joking! A friend of mine bought one and had nothing but trouble. First the fuel injection system broke, then the brakes, and finally the transmission. He had to sell it for scrap within three years!" The vividness of this warning makes it quite compelling. How many of us can honestly say that we would treat it in a rationally appropriate manner, fairly weighing the favorable evidence from several hundred consumers plus a consensus of automotive experts against the unfavorable evidence from one second-hand account?

Of course, I would not expect to convince you of the significance of vividness with a single vivid example. Experimental investigations more definitively illustrate the impact of vivid information. For example, Borgida and Nisbett (1977) asked introductory psychology students to rate their interest in taking each of ten upper-level psychology courses. To help make these ratings, all students were randomly assigned to one of three informational conditions.

Those in a "base rate" condition read a statistical summary of course evaluations from "practically all the students who had enrolled in the course the previous semester." A small panel of advanced students shared their views on the ten courses with participants in a "face-to-face" condition. The panelists prefaced their remarks by reporting the same average numerical evaluations that were provided in the statistical summary to "base rate" participants. Finally, participants in a control condition were given no information about the courses.

Compared to the control group, students receiving the statistical summary expressed slightly greater interest in the recommended courses. More important, students hearing the panel discussion expressed considerably greater interest in the recommended courses. The face-to-face presentation of information had a more pronounced impact on students' preferences than did the statistical summary of a far larger number of previous students' responses.² Moreover, this effect was stronger among students who had recently decided to major in psychology than among students who had declared other majors. Personal relevance appears to magnify the power of vividness.

The popular media capitalize on this power in many ways. Why, in a story on the effects of welfare reform on thousands of families across a state, does nine-tenths of the report consist of an interview with one affected individual? Why is the logic of "going beyond the statistics and onto the streets" to examine an issue persuasive to viewers, listeners, or readers? Producers are aware that a scientific analysis is not as emotionally compelling as one (carefully chosen) individual's personal experiences. Why does a television news reporter stand in front of a courthouse when sharing a landmark verdict reached earlier that day? Why does a weather correspondent endure frigid temperatures, sleet, and harsh wind on camera to inform us that a severe storm is in progress? Even superficial background elements appear to add a sense of realism and concreteness to a story.

Availability

Having been exposed to a biased sample of vivid information through popular media outlets, what impact does this have on our subsequent decisions? Psychologists have discovered that our judgments of frequency and probability are heavily influenced by the ease with which we can imagine or recall instances of an event. Consider these two problems from the research literature. First, from among a group of ten people, are there more distinct ways to form a two-member or a five-member committee? Second, supposing that you have randomly sampled an English word from a text, is it more likely that it begins with the letter "k" or that "k" is its third letter?

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Tversky and Kahneman (1973) found that participants in their studies systematically and predictably erred on both of these problems. In the first problem, it is perhaps easier to imagine forming smaller committees, which readily differ from one another, than larger ones, which overlap substantially. In fact, there are only forty-five ways to form two-member committees but 252 ways to form five-member committees. In the second problem, it is surely easier to bring to mind words that begin with "k" than words with "k" as the third letter, but extensive word-counts indicate that the latter outnumber the former by a ratio of roughly two to one. In fact, you might not have noticed that there have already been eleven words with "k" as the third letter in this article, but only one occurrence with "k" as the first letter—

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and even that occurrence could be disqualified on the grounds that it was a proper name at the beginning of this paragraph, "Kahneman."

What these exercises reveal is that our judgments are indeed biased by the ease of imagining or recalling information. In everyday life, what makes one event more available in memory than another? One crucial determinant is vividness. When we search through our memory to reach a judgment of frequency or probability, the most easily retrieved instances are often those that are concrete, personal, and emotional. Students in the course selection experiment, for example, are more likely to remember the views expressed by panelists than the comparatively pallid statistical summaries. Likewise, a news report will leave a more lasting impression by documenting one individual's personal suffering than by providing a scientific argument based on "mere statistics."

Because our judgment is affected by the ease with which instances of an event can be recalled, rather than a careful evaluation of all the logically possible events weighted by their actual frequency of occurrence, the simple presence of one memory and absence of another can short-circuit a fully rational evaluation. We seldom take notice of *non-occurrences*, such as the *absence* of crime or accidents (Nisbett and Ross 1980). Still more rare are popular media reports on the absence of events—unless of course this absence itself represents a dramatic change from the status quo, as when a large city witnesses a significant drop in homicide rates. Richard Bach (1973) once wrote of a young couple's fear when they embarked on their first trip on an airplane:

In all that wind and engineblast and earth tilting and going

small below us, I watched my Wisconsin lad and his girl, to see them change. Despite their laughter, they had been afraid of the airplane. Their only knowledge of flight came from newspaper headlines, a knowledge of collisions and crashes and fatalities. They had never read a single report of a little airplane taking off, flying through the air and landing again safely. They could only believe that this must be possible, in spite of all the newspapers, and on that belief they staked their three dollars and their lives (37).

The Media Paradox

Bach's passage on a couple's fear of flying highlights the joint operation of vividness and availability on our judgment, which ultimately results in the media paradox. We have likely all heard or read that, per mile traveled, flying is much safer than driving. Given this fact, media coverage of air travel catastrophes may actually steer us in the wrong direction: onto the more hazardous roadways. Indeed, a classic series of studies on the judged frequency of lethal events underscores the powerful impact that media coverage has on our perceptions of risk. College students and members of the League of Women Voters were asked to estimate the frequency with which forty-one causes of death occurred each year

in the United States (Lichtenstein, Slovic, Fischhoff, Layman, and Combs 1978). Two systematic biases were uncovered in analyses of these judgments. First, frequencies of the least common causes of death were overestimated, whereas frequencies of the most common causes of death were underestimated. In many cases, the judgments were off by more than an order of magnitude. Second, relative to the best-fitting curve that characterized the relationship between judged and actual frequencies across all forty-one causes of death, those that were overestimated tended to be the ones that received more extensive media coverage. For example, motor vehicle accidents and homicide were overestimated relative to the best-fitting curve, whereas smallpox vaccination and diabetes were underestimated.

Following up on this evidence that suggests a connection to the media, Combs and Slovic (1979) closely scrutinized the actual reporting of deaths in their regional newspapers (the Eugene, Oregon, *Register Guard* and the New Bedford, Massachusetts, *Standard Times*). During alternate months for one year, they counted the number of articles about, the number of occurrences of, and the number of reported deaths resulting from each of the forty-one causes of death. The two newspapers were almost perfectly consistent in their coverage of deaths (correlations across the causes of death were .98, .94, and .97 for the three indices listed above). This is interesting in that newspapers with vastly different readerships nonetheless still find certain types of deaths to be more "newsworthy" than others.³ More important, there was an impressive correspondence between judged and reported frequencies of death, with a correlation of about .70. This substantial correlation was not due to a

common link between both judged and reported frequencies with actual frequencies of death. In fact, when actual frequency was statistically held constant, the correlations were much higher, .89 and .85 for the two newspapers.

Tempting as it may be, however, we must be careful not to conclude on the basis of this correlational evidence alone that the media are necessarily responsible for distorting our perceptions of risk. It may be just the opposite: perhaps media professionals are simply responsive to our fears and interests, reporting what they perceive to be newsworthy to us. It may be that a "third variable"—such as the relative degree of controllability or the catastrophic nature inherent in different causes of death—causes both our fears and media coverage. A case can be made for each of these explanations for the observed link between media coverage and beliefs, as well as others, and the broad array of factors that are involved appear to be complexly intertwined.

Fortunately, however, we are in a position to evaluate this relationship armed with more than correlational evidence. Evidence from controlled experimentation shows a causal influence of vivid information on our judgments, and the additional causal influence of memorial availability on our judgments represents a likely mediator of the vividness effect. This knowledge makes it very difficult to deny that the media exerts some measure of causal influence on our fears. Debating the strength of this effect or whether it operates in a reciprocal fashion is certainly worthwhile, but it does not allow us to escape from the conclusion that any systematic departure from reality in the media is likely to be mirrored in our beliefs.

Falling Airplane Parts Revisited

Aside from a close miss by what was reported to be a falling airplane part early in *The Truman Show*, I cannot personally

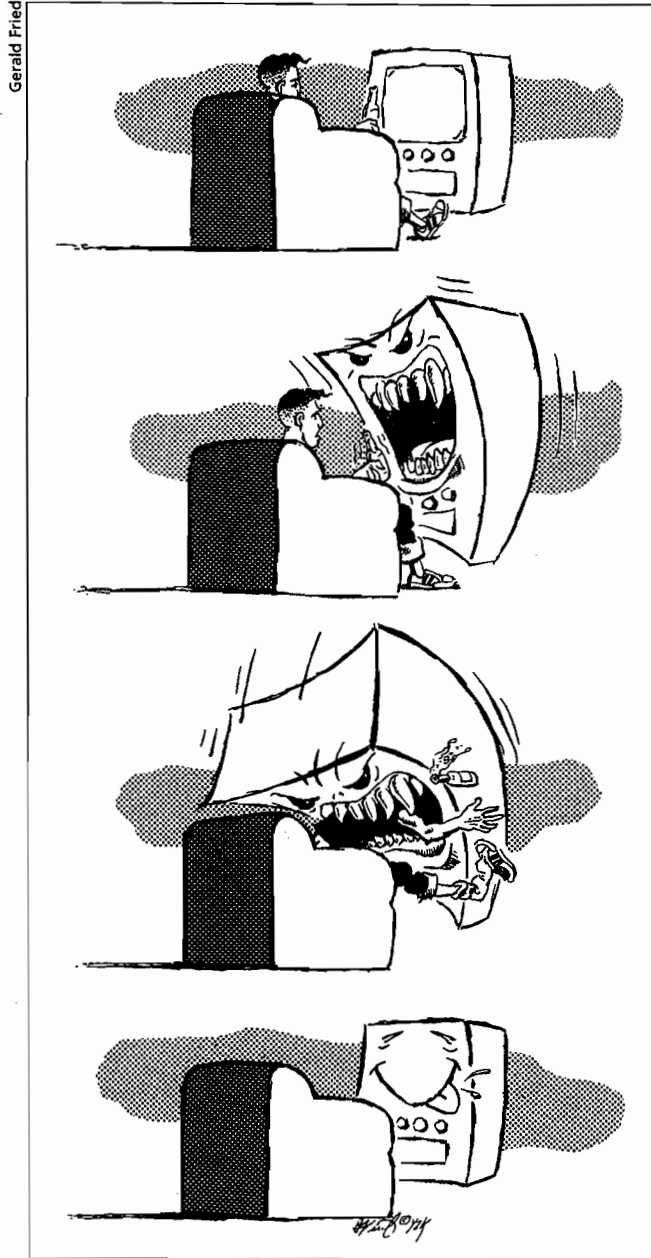
recall ever having heard of such an incident, fictitious or real. Students over the years have told me that they recall stories of people having *found* fallen airplane parts, but not of an actual fatality resulting from such falling parts. Shark attacks, on the other hand, are easily imagined and widely reported. Moreover, in the first movie that comes to my mind, the shark in *Jaws* actually did cause several fatalities. It may come as

some surprise, then, to learn that in an average year in the United States thirty times more people are killed by falling airplane parts than by shark attacks ("Death Odds" 1990).

By this point, it has probably become evident how Plous (1993) constructed all four of the questions that I borrowed at the beginning of this article. Within each pair of causes of death, one tends to be reported more frequently than the other in the popular media. The correct answers (as given by Plous 1993) are: falling airplane parts, lightning, stomach cancer, and diabetes.

Simply put, then, the media paradox operates this way: Events must be somewhat unusual in order to be considered newsworthy, but the very fact of their appearance in the news leads us to overestimate their frequency of occurrence. We may therefore come to believe that relatively rare events are common, taking precautionary measures against unlikely dangers at the neglect of more significant hazards. At any given time, we are bombarded with warnings about particular hazards that often turn out to be far less significant threats to our well-being

than initially advertised. Gilovich (1991) discussed widespread media reports on the chances of contracting HIV through heterosexual sex. He quotes Oprah Winfrey as having said that "Research studies now project that one in five heterosexuals could be dead from AIDS at the end of the next three years. That's by 1990. One in five. It is no longer just a gay disease. Believe me." This has obviously turned out to be a gross exaggeration, and although the transmission of



HIV through heterosexual sex is a serious public health issue, it is nonetheless important to keep the degree of danger in perspective.

A healthy dose of skepticism is one obvious way to protect ourselves from misplacing our fears. We can routinely ask ourselves simple questions, such as, "Why did the producers choose to air this story?" or "How common is the problem being described?" Gilovich (1991) outlines several other strategies for protecting ourselves from misplaced fears, such as considering the source of information, distrusting projections, and being wary of testimonials.

A Radical Conjecture

To respond to Ross's (1995) question, it appears that we may sometimes douse a match and ignore a raging inferno. I suggest something more radical still. I propose that a mindful review of cautionary advisories may paradoxically alert us to pockets of relative safety. That is, some media reports intended to shield us from danger may, upon careful reflection, actually signal precisely the opposite. Let me illustrate this notion through a pair of examples.

Once when I used to live in a suburb of Boston, a local fast-food franchise was temporarily closed for violations of the health code. To put it gently, the illnesses of several patrons had been traced back to unfortunate encounters with food at the salad bar. The local media quite naturally ran stories about this. When the time came for the restaurant to reopen, at least one local newspaper printed a follow-up story to remind local residents of the danger. I would suggest that, of all the places one could grab a quick bite to eat, this particular restaurant was among the *safest*, at least in the short run. The management surely must have realized that a second problem, so soon after the last, would have spelled disaster. The knowledge that everyone—patrons and health inspectors alike—would be keeping a close watch on food quality would surely have heightened attentiveness to the issue.

If the choice of a fast-food restaurant strikes you as trivial, consider a decision with more profound, long-range consequences. On March 28, 1979, an accident occurred at the Three Mile Island (TMI) nuclear power plant in Middletown, Pennsylvania. As the twentieth anniversary of this tragic event approached, there was considerable publicity here in south-central Pennsylvania, publicity which no doubt awakened memories and rekindled old fears. Around this time, a candidate for a faculty position at the college where I work declined a job offer because the candidate's spouse refused to live so close to TMI. Now, not only do experts in risk assessment consider nuclear power to be quite safe, but I would contend that of all the nuclear power plants in the world, TMI is likely to be among the very safest. Nobody would tolerate another accident, and the operators of TMI have been forced to take extraordinary precautions for the past two decades. They will surely continue to do so, compelled as they are by their own widely-publicized track record.

Media professionals have a penchant for dramatizing case

studies of mishap, be they accidental or malicious. When an incident is brought to the public's attention, it is possible to overlook the fact that the alleged perpetrators are themselves sensitized to the issue, and thus likely to be exercising renewed vigilance. Therefore, not only should we be extremely careful about accepting media warnings at face value, but an even more robust skepticism may point to a sensible course of action 180 degrees at odds with the directions mapped out in a vivid story.

I encourage readers to consider the broader implications of the media paradox. With practice, we may learn to protect ourselves from the subtle biases that pervade popular media reports, but does this go far enough? One's own critical thinking habits will provide insufficient protection against ill-advised *policy* decisions based upon prevailing misconceptions that have spread through the mass media. As spelled out in the experimental work of Shanto Iyengar (Iyengar 1991; Iyengar and Kinder 1987), media effects on ordinary citizens' political judgments raise grave concerns about the stability of a democratic system that rests upon a well-informed public.

Notes

1. This example is adapted from Nisbett, Borgida, Crandall, and Reed (1976).
2. In order to control for the possibility that the face-to-face condition achieved a large effect by providing critical information not contained in the statistical summary, a replication of this experiment included a condition in which the base rate group received—in addition to the statistical summary—a complete written transcript of the panelists' comments. This new condition was also less influential in affecting students' preferences than was the face-to-face condition (Borgida and Nisbett 1977).
3. This is not simply a result of each newspaper reporting deaths in accordance with the actual frequencies of occurrence. For example, homicides were reported three times as often as deaths by diseases despite the fact that diseases killed about 100 times as many people.

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