

Understanding errors, biases that can affect journalists

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In the last fifteen years, psychology has witnessed an explosion of knowledge about how human beings process information. Much of this new knowledge concerns limitations and biases in perception, memory, and reasoning.

Research on eyewitness testimony has highlighted the distortions in perception and memory that can plague observers, particularly observers under stress at the moment of observation or recollection. Similarly, studies on the way people make inferences have shown us that people often favor anecdotal information over more reliable base rate statistical information. Even when instructed to be "objective," they often seek and select data according to preexisting expectations or theories.

Other research has documented the difficulties people have evaluating risk. Still more research has shown that people easily ignore sampling biases, fail to understand regression effects, often believe they "knew something all along" even if they didn't, tend to attribute the causes of people's behavior to dispositional rather than to situational factors, and often imagine association between events where none exists. Significantly, many of the errors and biases to which people fall prey only get worse under time constraints.

For journalists who pledge allegiance to objectivity and/or fairness as they observe and interpret people and events, such knowledge is potentially of great relevance. Yet only a small percentage of what we know appears to have found its way into journalism classrooms, most of it in upper-level or graduate courses that consider how audiences, as distinct from journalists, process information.

Moreover, hardly any of this knowledge seems to have found its way into courses and

textbooks that train students to write, edit, and report the news. Even those texts that do devote space to documented distortions in interviewing and observation (cf. Rivers & Harrington, 1988) have either ignored more recent findings on cognitive error and bias or drawn upon but a small portion of this research.

Given the growing demands on journalists to report and interpret the activities of an increasingly complex society and the demonstrated importance of the news media for setting public and private agendas, this is a shame. It is also a problem we may be able to do something about.

In the pages that follow, we will outline some of the more important errors and biases in thinking that psychologists have documented in recent years. We have little formal knowledge about the existence and operation of such biases in journalists (as we have noted, and lamented, in Stocking & Gross, 1988). However, we do know they have been found in a variety of professions and across a variety of tasks (cf. Loftus, 1979; Sims, Gioia, & Associates, 1986; and Rogoff & Lave, 1984), leading us to think they probably show up in journalists' work as well. We hope that journalism educators, when alerted to these common errors and biases, will be motivated to learn more about them and seek ways, in classrooms and textbooks, to bring them to the attention of their students.

The eyewitness fallacy

As everyone knows, "seeing is believing." When someone says, "I saw it with my own eyes," people listen, believe, and remember.

Indeed, psychologists who have studied

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the impact of eyewitness testimony in jury trials have found that jurors, when reaching a verdict, give much more weight to eyewitness testimony than they do to other kinds of evidence (Loftus, 1979).

Not surprisingly, journalists seem to understand intuitively the power of eyewitness accounts. Thus, as van Dijk (in press) has pointed out, editors so value first-hand reports that they "may even send a special envoy to places where already dozens of other reporters are present." (p. 78)

The problem is that eyewitness accounts, while more convincing than hearsay accounts, are not always reliable. Research on eyewitness testimony (c.f., Loftus, 1979) is very clear about this fact: Observations can vary and err as a function of a variety of factors such as prejudice, temporary expectations, the types of details being observed, and stress. It is very easy, in other words, for one's observations (and one's memories about observations) to be distorted or flat-out wrong.

In one of the most well-known demonstrations of the fallibility of observations, reported in Loftus (1979), Hastorf and Cantrill (1954) examined people's perceptions of a football game between Dartmouth and Princeton. The game, one of the dirtiest and roughest played by either team, was filmed and shown to students on each campus. Students were instructed to note any rule infractions they saw and to rate them as either "flagrant" or "mild."

In spite of instructions to be completely objective in their observations, students at the two schools perceived the infractions very differently. More precisely, students at Princeton saw the Dartmouth players make 9.8 infractions, more than twice the number of infractions they saw their own team make (4.2). Moreover, they saw the Dartmouth players make more than twice as many infractions as Dartmouth students saw their team make. Princeton students tended to rate the violations by their own team as mild and those committed by the Dartmouth team as flagrant. Dartmouth students were more evenhanded when they saw the film, seeing about the same number of infractions for both teams (4.3 by Dartmouth and 4.4 by

Princeton), but they also tended to see the violations of the opposing team as more flagrant than violations by their own team. Obviously, people don't always see what others see; even when instructed to be objective, they often see what they want to see.

It is perhaps an obvious point that one's personal prejudices can unconsciously affect the accuracy of one's observations; personal prejudice is usually what journalism educators mean when they warn about "bias" in the news. However, research on eyewitness testimony (Loftus, 1979) suggests that other factors besides personal prejudice can lead to unreliable eyewitness reports, among them: temporary expectations, expectations from past experience, and stress.

Eyewitness accounts can also be unreliable when the event has been witnessed infrequently and for a short period of time, when violence has been involved, when a long time has elapsed between witnessing the event and reporting it, or when the witness is under stress at the time of recollection. Researchers have also found that information introduced after an event has taken place can alter the memory of it; thus, if a reporter witnesses a concert and then reads a competitor's article on the concert, the reporter may alter his own memory of the event to conform to information contained in his competitor's account.

The point in all this (and much more, contained in Loftus, 1979) is simple: People, journalists included, may put more weight on eyewitness accounts than they do on other kinds of evidence. Unless journalists are aware of the ways that eyewitness accounts can be biased and erroneous, they, like juries, may fallaciously assume that such accounts offer more truth than they do. Such assumptions could, in turn, influence reporters to "count on" such accounts and prematurely limit their reporting efforts.

Underutilization of statistics

Related to people's tendency to weight eyewitness accounts more than other types of evidence is a tendency for people to favor anecdotal or case history information over base rate statistical information (information

about the percentage of cases in the population).

This tendency to underutilize more reliable base rate information, to focus on specific individuals and make less use of information about the population from which individuals come, has been vividly demonstrated in a study by Hamill, Wilson, and Nisbett (1980). In this study, subjects read a magazine article about a Puerto Rican woman who had a number of unmanageable children by a succession of common-law husbands. When this anecdotal case was presented along with base rate statistics indicating that 90 percent of welfare recipients "are off the welfare rolls by the end of four years," subjects regarded the case history as more informative than the more reliable base rate statistics. Put another way, the statistical facts had less impact on people's views about the laziness and hopelessness of welfare recipients than did the single vivid case.

Just why people favor anecdotal information over base rate information is unclear. It may be because the information contained in anecdotes is usually more vivid (Nisbett & Borgida, 1975; Nisbett & Ross, 1980), or it may be that the information in anecdotes seems more relevant (Tversky & Kahneman, 1978). But regardless of the precise reason, what the Hamill et al. study and related research suggests for journalists, who routinely use anecdotes to "personalize" the news, is a need to handle anecdotal information with considerable caution.

Some sources are masters of the anecdote. Intentionally or unintentionally, they may present anecdotal data that do not square with more abstract statistical information. If reporters fall victim to the tendency to favor vivid anecdotal information over pallid but reliable statistics, they, and their audiences in turn, may be misled.

Confirmation bias

Intellectually, most of us probably realize that preconceived ideas shape how we view, interpret, and remember information. But what we may not realize is the extent to which such notions bias us.

In recent years, psychologists have con-

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ducted research revealing that preconceived ideas can be very powerful indeed in shaping what we see, understand, and remember. In fact, so powerful are their effects that it is hard to imagine they do not affect the work of journalists and journalists-in-training.

The tendency for people to seek, select, and recall data according to preexisting expectations or theories is called the "confirmation bias." To understand its pervasiveness, it is important to understand how it works.

Two processes seem important here. First, when people seek information with respect to one theory, they are unlikely to seek information with respect to another theory simultaneously. People, in short, test theories one at a time, or sequentially. So, for example, the person who is testing a theory about the negative impact of feminism on women's lives is unlikely to test theories about its positive impact as well. Similarly, the individual testing the theory that there is a "crime wave" against the elderly (Fishman, 1980) is unlikely to test the opposite theory that there are no crimes against the elderly.

Secondly, as people seek information with which to test their theories, they show a dramatic tendency to use a theory-confirming strategy. For example, a reporter who has theorized that there is a crime wave against the elderly may unconsciously seek out sources that confirm this theory — the potential and actual elderly victims in a bad part of town, the head of a crime prevention program for the elderly, etc. Further, the reporter may ask questions of these sources — about increases in reported crimes, efforts to reduce crimes, and the like — that confirm the theory, without asking probing questions

that might disconfirm the hypothesis (Snyder & Swann, 1979).

Not only may expectations influence the sources to which reporters turn and the types of questions a reporter may ask, but they also may influence journalists' evaluation and selection of data. One pervasive bias in perceivers' decisions about what information is most relevant or credible is the tendency to regard information that is consistent with one's a priori theories as the worthiest pieces of information (Darley & Gross, 1984; Hayden & Mischel, 1976; Snyder & Gangestad, 1981). Thus, when one is testing a theory about the nature, causes, or outcome of an event, the information that will be selected as most useful is information that is consistent with and confirming of one's theory.

Information that runs counter to one's theories is discounted a number of ways. For one thing, disconfirming evidence may be regarded as transient or situationally induced. For example, a political figure who is thought to be honest and forthright and who is then caught in lies about events may be regarded as momentarily confused, or without recall, or perhaps induced to perform dishonestly by misguided advisers or the pressure of office (Ross, Lepper & Hubbard, 1975). Even if journalists themselves do not interpret actions in this way, they may regard such interpretations by others as highly credible and so give them prominent play.

Secondly, disconfirming evidence may be regarded as arising from poor or shoddy sources. Thus, one may be particularly critical of the methodology of the disconfirming study, and, in fact, so critical that the study may be discarded as entirely unreliable. Reporters may similarly discard sources (persons or resources for data) that are disconfirming of their theories by virtue of their judged unreliability.

Fishman (1980), in his account of how a series of events in New York City came to be linked together as a "crime wave," noted that once a crime wave was established in journalists' minds it took on a life of its own, guiding reporters' perceptions of hitherto unconnected crimes and city police officers' as well. "A week and a half after the coverage

started, the police wire was steadily supplying the press with fresh incidents almost every day." Even when a reporter examined police crime statistics and discovered that crimes against the elderly had actually decreased (*not* increased) compared to the previous year, the crime wave theme remained in place. As Fishman tells it, "The reporter was puzzled and eventually decided to ignore the police figures. He felt they were unreliable and incomplete, and anyway he had to do the story as originally planned because the whole issue was too big to pass up or play down." (p. 5)

If people, including journalists, are unaware of the extent to which they seek to confirm their expectations and theories, it may be in part because the processes that allow this to happen operate below the level of consciousness. Reporters may honestly believe they are objectively considering all sides to an issue, while in practice they are processing information in a way that confirms what they expect or believe.

Misperceptions of risk

Every day, on the news, from their friends, in the movies, people hear about risk — the risk of diseases, natural disasters, technological mishaps, nuclear war, auto emissions, passive smoke. And, based on what they hear, people perceive some risks as greater than others. But are they right?

Psychologists have done a great deal of research on people's perceptions of risk in recent years, and their findings include the following:

- Anything that makes a hazard appear very memorable or imaginable, such as a recent disaster, vivid film, or media coverage, can influence one's perception of risk; thus, someone who has just seen the movie "Jaws" may overestimate the probability of being attacked by sharks on their vacation to the ocean, and someone who has just seen "The Towering Inferno" may overestimate the probability of being killed in a high-rise fire.

- People overestimate the risk of death from dramatic or sensational causes, such as homicide, accidents, cancer, and natural disasters, and underestimate the risk of death

from undramatic causes such as diabetes, emphysema, and asthma, causes which kill one at a time and are common in nonfatal form.

•When people lack strong opinions about a hazard, they are highly susceptible to the way risk information is presented; thus, the way information is framed (whether, for example, one says "*only about one percent* of the nation's five million chemical processing units handle hazardous waste materials that could result in runaway reactions," or "*as many as 50,000* of the nation's five million chemical processing units handles hazardous waste materials...") can have a major effect on perceptions.

In short, researchers have found that people have a great deal of difficulty accurately perceiving risk (Slovic, 1986).

Not surprisingly, some of these same difficulties have revealed themselves in news media coverage of risk (c.f., Combs & Slovic, 1979). Thus, it appears that journalists, like lay perceivers, process risk information poorly.

"Reporters obviously need to be educated in the importance and subtleties of risk stories," psychologist Paul Slovic has written in an article detailing some of the difficulties inherent in informing and educating the public about risk (Slovic, 1986). In obvious agreement, a number of psychologists, mass communication researchers, and other groups have produced materials and events, including articles, pamphlets, films, and workshops, to help reporters understand and clarify risk issues (c.f., Fischhoff, 1985a, 1985b; Risk Reporting Project, 1986; Institute for Health Policy Analysis, 1984).

Since the news media are a dominant source of information about risk, it seems incumbent upon journalism educators to alert students to the ways in which they may err (and be influenced by the intentional and unintentional errors and biases of sources) as they process information about risk. It also seems incumbent upon us to alert them to some of the ways they can minimize such errors and biases.

Sample errors and biases

Although journalism educators have rec-

ognized for some time the need for journalists to pay attention to biases in formal poll data (c.f., Wilhoit & Weaver, 1980), they have given relatively little attention to the need for journalists to attend to sampling biases in other realms, though they probably should. Researchers have found, for example, that people can and often do ignore biases in existing samples of information (Fiske & Taylor, 1984).

In one of the few textbook examples of this shortcoming in journalism, Tankard (1976) points to how journalists covered the Watergate hearings during the 1970s. One reporter, using letters reportedly sent to Senator Ervin's committee, concluded that televised hearings were appreciated by audiences, while another reporter, judging from call-ins to television stations, concluded just the opposite (pp. 51-52). Apparently, neither reporter stopped to consider the inherent biases in the samples they drew upon in reaching their conclusions.

Misunderstanding of regression

People have a poor understanding of regression, the fact that extreme events will, on the average, be less extreme when observed again. As a result, they often use extreme events to predict future extreme events (Jennings, Amabile, & Ross, 1982). In journalism, regression effects are sometimes appreciated, as when a literary critic raves about a first book but at the same time urges readers to wait for the next book because previous experience suggests that second novels often are not as good as first ones. However, other times they may not be appreciated, as when reporters herald the first very positive results of a study on a new drug. The study may show positive results, even great results, but it is only one study, and chance alone may have accounted for the findings.

Hindsight bias

Psychologists have found that once people learn the outcome of an event, they tend to exaggerate their ability to have foreseen it. Thus, in one experiment, students were asked to predict the likelihood of various possible outcomes of President Nixon's forthcoming

trips to Moscow and Peking. When, in the wake of Nixon's journey, the students were unexpectedly asked to recall their initial predictions, they remembered them as very close to what they now knew had happened (Fischhoff & Beyth, 1975). This tendency to overestimate what could have been foreseen is known as the "hindsight bias" or the "I-knew-it-all-along" phenomenon, and it seems to have been operating in much of the post hoc moralizing about journalistic coverage of the shuttle disaster (I knew or would have known, so others should have too); it may also have been operating when Sen. William Proxmire bestowed "Golden Fleece" awards on research that documented or explored the "obvious," though many journalists didn't recognize the fact.

Illusory correlation

Sometimes, psychologists have found, people greatly overestimate the frequency with which two characteristics or events are related, or they even impose a relationship where none exists (c.f., Crocker, 1981; Jennings, Amabile, & Ross, 1982). This phenomenon, known as illusory correlation, has been demonstrated in a number of circumstances, but particularly when two things happen to be associated in meaning. Thus, if journalists commonly associate "longhairs" with demonstrations (that is, they expect to see people with long hair at demonstrations), they may overestimate the frequency with which long-haired people attend such events. Likewise, if reporters associate university-based artists with state grants for the arts, they may overestimate the frequency with which such artists (as distinct from community-based artists) have been awarded such grants.

Some of the research on illusory correlation (c.f., Chapman & Chapman, 1982) appears to suggest that expectations can also lead people to impose illusory causal (as distinct from simple correlational) relationships between characteristics or events. Consider the journalist who notices that an abnormally high number of children living near a chemical spill have been born with birth defects. In the reporter's mind, chemical accidents often cause human health prob-

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lems; if there is an increase in birth defects following a chemical accident, it would appear that the increase must be due to the accident. In the face of such strong prior expectations, it may never even occur to the reporter that a simple increase in the birth rate may have caused the unusually high number of defects.

Fundamental attribution error

In journalism texts and journalism classrooms, we do considerable talking about journalists' role as "interpreters" of behavior and events; we tell students not only to report behavior and events but also to explain the reasons behind behavior and events. But for many of us, that is as far as our training takes us. We provide no real understanding of what goes into making causal inferences and the biases and errors that can, and often do, occur. As a result, we send out students who, in their role as interpreters, are likely to commit a number of cognitive errors. Some of these errors are documented in attribution theory research, which concerns how people make causal inferences about their own and others' behavior.

Research on one such error, the ubiquitous "fundamental attribution error," suggests that one is more likely to attribute another person's behavior to his or her own dispositional qualities than to situational factors (Jones & Harris, 1967). Thus, reporters discovering a case of scientific fraud at their local university are more likely to explore the theory that the person was a "bad apple" than to explore the theory that the "barrel itself was rotten." There are documented exceptions to the fundamental attri-

bution error, of course, but the tendency needs to be recognized.

Conclusion

There are numerous other documented biases and errors in people's thinking (see Fiske & Taylor, 1984). But our point, we hope, has been made: In most skills courses and most journalism texts, we put great stock in observable facts without adequately emphasizing some of the ways observations can vary and err. We warn our students to be wary of their own biases, but we appear to do very little to demonstrate how easily biases and prior expectations can affect their selection of data. We encourage students to "personalize" the news but fail to warn them adequately of the dangers, often unwittingly reinforcing the cognitive tendency to favor case histories or anecdotal information over important base rate information. In the same vein, we encourage coverage of activities that pose social or environmental risks, yet say little or nothing about the errors people commonly make when assessing risk. In these and many other small ways, we may be unknowingly failing our students and our profession.

The need — to learn more about such errors and biases, and to bring what we know and learn into the educational setting — is great. Admittedly, it may not be easy. Most of us have all we can do in a term to teach students the traditional fundamentals of interviewing, observation, and mining documents. To bring this knowledge into the classroom successfully will require us to develop exercises that will provide opportunities for learning about cognitive distortions without sacrificing the basics.

Teachers' manuals for undergraduate texts in social psychology often contain exercises for demonstrating such errors and biases; some of these might be modified for use in writing, reporting, and editing classes, but others will have to be developed from scratch. We must also work to integrate this and related knowledge into traditional journalism textbooks. Some materials produced by cognitive social psychologists are accessible enough to use as readings for undergraduate

journalism majors (c.f., Loftus, 1979; Stanovich, 1986), but most are not. It is imperative that those capable of translating psychological research be involved in producing and testing classroom-appropriate materials.

Whether journalists and journalists-in-training will be receptive to efforts to meet this need is another matter; another cognitive tendency that psychologists have documented is the "overconfidence phenomenon," or the tendency for people to overestimate the accuracy of their judgments (Fischhoff, Slovic & Lichtenstein, 1977). Also uncertain is whether journalists, even if receptive, will be able to inhibit these errors and biases, particularly under time constraints, which have been found to exaggerate such problems (Kruglanski & Freund, 1983).

Still, there is evidence that, at least under some circumstances, people can inhibit some of these biases. Simply telling people to be unbiased won't lessen people's tendency to maintain a theory in the face of disconfirming evidence. However, some research suggests that telling people to consider carefully how they are evaluating evidence and to watch their biases as they go through the process of interpreting data does help (Lord, Lepper, & Thompson, 1980). Asking people to explain why the theory might be wrong has also worked in some experiments (Anderson, 1982).

By doing nothing, we can be almost certain that journalists, to the extent that they do make these mistakes, will be condemned to repeat them.

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