



Figure 17.5
Nisbett. Personal collection.

Nisbett (see figure 17.5) and Wilson in 1977 with the catchy title “Telling More Than We Can Know: Verbal Reports on Mental Processes.”

The Nature of Self Reports: Bem’s Self-Perception

In a brilliant analysis of the nature of self reports, Daryl Bem (see figure 17.6) introduced the theory of “self-perception” in 1967. Bem is a social psychologist, but one familiar with radical behaviorism, who offered a compelling behavioral alternative to the cognitive mediational theory of cognitive dissonance, which was wildly popular at the time.

According to CD theory, dissonant cognitions having to do with our behavior, physiological states, and other beliefs may conflict, giving rise to an aversive drive similar to hunger. We then reduce this dissonance in various ways, often by changing our cognitions so that they do not conflict. For example, subjects induced to engage in counterattitudinal behavior, such as giving a pro-Fidel Castro speech, often show a change in “attitude” toward the disliked topic. In this case, Castro would be rated as less disliked, reducing the dissonance produced by giving the pro-Castro speech.

This is a prime example of a mediational theory, with imagined internal conflicts among imagined cognitions. Bem proposed that we



Figure 17.6
Bem. Personal collection.

examine the nature of self reports and reach a better understanding of so-called “attitude changes.” Following Skinner’s analysis, Bem (1967) argued that we learn to judge the “attitudes” of others through observations of their behavior, so we judge someone’s “hunger” by how much we see him eat. Often we apply the same practice to ourselves, as when we conclude that “I was not as hungry as I thought.”

In the majority of CD studies, subjects were asked questions for which they had no ready answer, and so assessed their “attitude” by considering their *own* behavior. I might give you a negative assessment of Castro if you ask me for one and I really have no firm opinion. But if you ask me again, after I have given a pro-Castro speech under coercion that I do not notice, I have more information to go on.

Bem emphasized that this was an account based on “radical behaviorism,” but no one seemed to notice. Skinner learned of it at some time or other and wrote a note on it that appeared in his published notebooks. He knew that Bem saw self perception as a radical behav-

ioral treatment, but for reasons I will never understand, Skinner wrote (in his *Notebooks*) that he didn't see the connection. Go figure.

Nisbett and Wilson: "Telling More Than We Can Know"

These authors surveyed data going back to the 1930s, as well as more recent findings by Bem, Schachter, Kelley, Jones, and others working in attribution theory. What may be surprising is their consistent finding that people have little knowledge of their "mental processes," though they commonly believe that they do.

We should remember that the Würzburg School had reached what seems to be the same conclusion, but even they might have been surprised at the extent of our oblivion regarding thinking. And Skinner and his followers should have recognized kindred doctrine in this latest form of attribution theory, just as Bem thought a decade before. Consider some of their findings, and then you will see the merit in their conclusions.

In one experiment, subjects were asked to judge the quality of clothes (four nightgowns or stockings) hanging on a rack. The 378 subjects chose the clothing hanging on the right end of the rack by a ratio of 4:1 over the other three positions. When asked why they chose what they did, subjects pointed to material, style, and workmanship to defend their choices. When told that the items' positions were randomly shuffled for each subject, but that the choice was still 4:1 for the right-hand item, subjects found it hard to believe. The subjects' choice behavior was easily explained as a position preference—what they thought determined their choice was irrelevant.

Ratings of "goodness," or esthetic judgments, are prone to all manner of spurious fluctuation, rendering such ratings of limited usefulness. Subjects watched a movie while a circular saw was loudly running just outside the viewing room. They rated the film and then were asked how they would have rated it were the saw not present. Of course, they said that they would have rated it higher, though a second group who watched the same film without the saw rated it just as did the first group.

Snake phobics were shown slides of snakes, followed by the word "shock" presented on a slide, while listening through headphones to false heartbeat sounds. The slide "shock" was followed by actual electric shock, and the false heartbeat sounds increased in rate, but the false heart rate never changed when a slide of a snake was shown. Subjects were later asked to approach and, if possible, to pet a live snake.

In this typical study of attribution, these subjects approached more closely and petted more often than did a group that had received different pretraining.

What has this to do with awareness? The subjects “learned” that their heart rate increased when shock was coming, but not when they saw a snake. Hence, they must not be as afraid of snakes as they had thought—their awareness of snake fear was faulty, as reflected in their approaching and touching. On the other hand, this was not the kind of “awareness” that is verbalized, since when asked directly about their fear of snakes, they reported that they were as fearful of them as ever.¹⁰ In other attribution experiments, such as when subjects take fake “insomnia pills,” changes in behavior are not correlated with changes in verbalization of motives and attitudes.

So, what does it mean to say that someone is aware of a state of mind or of the causes for action? In all the cases above, and in many more that Nisbett and Wilson described, outside observers knew why subjects did what they did better than did the subjects themselves. As Bem showed, if I see that you do not call your mother or eat brown bread over a six-month period, I know what you think of both mother and bread and I may know it better than you do! When you say that you “love mother,” are you just mouthing a slogan learned in childhood that represents what people are supposed to say?

When can we say that a person is aware? Nisbett and Wilson suggested that we cannot take people’s word for it and that the criterion for awareness should be instead verbal report which exceeds in accuracy that obtained from observers provided with a general description of the stimulus and response in question.

We typically don’t know why we judge as we do. We are apt to think that President Kennedy’s assassination was a conspiracy, because Oswald was too pitiful to cause such a mighty effect. One of our assumptions is that big effects have big causes, even though we constantly see exceptions to that rule. We like the police who help us change a tire in the rain, even though it is their job to do such things. When we stand in an elevator, we look up at the display showing the floors as we rise or fall, but we do not look at the other passengers, nor do we face the rear of the car.

What do people know? What is that content of consciousness that has been debated for so many centuries? These authors propose that there are three things that are known. First, we know personal historical facts, such as the name of our kindergarten teacher and the high

school where we graduated. We know approximately what is the focus of our attention at any given time. I can tell whether I am listening to you or thinking about Christmas. And, finally, I can report my current sensations, more or less, and tell you something of my emotions, and sometimes I can do that better than can others who observe me. However, when I make a judgment, whether causal or esthetic, my report is often wrong, and when you explain your motives, you too are often wrong

Rationality Is Only Occasional

The psychophysics of value induce risk aversion in the domain of gains and risk seeking in the domain of losses. The psychophysics of chance induce overweighting of sure things and of improbable events, relative to events of moderate probability. Decision problems can be described or framed in multiple ways that give rise to different preferences, contrary to the invariance criterion of rational choice. The process . . . explains some aspects of consumer behavior. (Kahneman and Tversky 1984, p. 341)

In 1984 Daniel Kahneman and Amos Tversky described their studies of the way we make choices—it is not a rational process. If we behaved as do rational decision makers, our choices would depend merely on expected utility, or the product of expected gain and utility. Utility is the value of something when presented as a choice. Five dollars has no utility unless it is compared with ten dollars or with nothing, which is usually the case. Expected utility takes into account the probability of the outcome's occurring. Hence, if I flip a fair coin, bet you ten dollars, and let you call it, the net expected utility for you would be as follows—say you called “heads”:

$$P(\text{heads}) \times U(\text{heads}) + P(\text{tails}) \times U(\text{tails}) = (.5) (\$5) (.5) (-\$5).$$

Whether you choose heads or tails is immaterial for this one toss—you may win or lose. However, over the long run, if you continued betting, you would break even, of course. Curiously, when the odds are even over the long run, people are reluctant to bet on a single instance. You may see for yourself by offering an acquaintance a bet of five dollars on a coin toss—most will not take you up on it. Even when the odds are in their favor, people hesitate.

Daniel Bernoulli and Risky Choice

In 1738 Daniel Bernoulli, one member of a Swiss family of geniuses, published an essay that inspired Daniel Kahneman and Amos Tversky;

it concerned the reasons why people are averse to risk, unless they are very wealthy. For example, suppose that you have the chance to win \$1,000, but it is an eighty-five-percent chance, with a fifteen-percent chance to win nothing. That is one alternative. The second choice is a sure \$800. Which would you choose? The gamble has the higher net utility:

$$(.85 \times \$1000) + (.15 \times \$0) = \$850.$$

So why not take a chance on the \$1,000, rather than settle for the \$800—the expected utility of the gamble, considering probabilities of winning and losing, is \$50 more. People choose the sure thing over the comparable gamble, showing risk aversion. Bernoulli showed that “value,” or “subjective utility,” is a nonlinear function that is concave, so that the difference between the value of \$100 and \$200 is greater than that between \$1,100 and \$1,200. Hence, a gain of \$800 is more than eighty percent of the value of a gain of \$1,000. This causes an “irrational” preference for the sure thing, since the smaller gain is seen to have more value than eighty percent of the larger.

Risk Seeking

Kahneman and Tversky also proposed that the function for losses is concave, so that the difference in subjective value between a loss of \$100 and of \$200 is greater than the difference between losses of \$1,100 and \$1,200. Risk seeking is a consequence of the convexity of the loss portion. Consider another example, presented as a pair of alternatives:

- A. An eighty-five-percent chance to lose \$1,000 (so fifteen-percent chance of no loss).
- B. A sure loss of \$800.

In this case, the large majority of people queried choose the gamble over the sure loss. This reflects risk seeking, since the expected value of the gamble is $-\$850$, worse than the $-\$800$ of the sure thing. Seeking risks when faced with losses occurs in cases other than monetary ones, such as cases where the “currency” is hours of pain, loss of lives, and other domains.

Compelling but Irrational

Bernoulli’s function describes powerful effects on subjective valuations of gains and losses, and they belie the conventional canon that we are “rational animals” as Aristotle put it. Rational decision makers were

first described by von Neumann and Morgenstern (1947). They proposed that rational decision makers are guided by axioms, including transitivity (if we prefer A to B and B to C, then we prefer A to C), substitutability (if A is preferred to B, then an even chance to get A or C is preferred to an even chance to get B or C), and other less straightforward rules.

Two other simple rules are dominance and invariance. Dominance means that if two choices are equally attractive in all respects but one, the choice more attractive in that respect must be chosen. Invariance means that choice among alternatives should not change when the alternatives are presented or described in different manners. Kahneman and Tversky showed that the failure of invariance to hold is striking and pervasive. That subject is called the framing of alternatives.

The Framing Effect: A Failure of Invariance

The same choices can be framed in different ways, so as to appear to be prospects of gains or of losses, and this can radically influence our preferences. In a simple case, an oil company may offer a “discount for cash,” or add a “surcharge for using a credit card.” We may realize that the cost is the same, but the so-called “discount” is more appealing. Kahneman and Tversky carried out an experiment that is more impressive, clearly showing how strong are our biases. The following problem was posed to 152 subjects—the percentage of subjects who chose each of two alternatives is given in parentheses.

Imagine that the United States is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

- If Program A is adopted, 200 people will be saved. (72%)
- If Program B is adopted, there is a one third probability that 600 people will be saved and a two thirds probability that no people will be saved. (28%)

The problem thus cast assumes a reference point in which the disease will kill 600 people and the programs refer to gains, the saving of people. Since we are risk averse when it comes to gains, subjects choose the sure thing over the risky alternative—better to save 200 for sure than to risk that none will be saved. Note that the expected value

is 200 in both cases. What if the problem is rephrased slightly, as follows?

- If Program C is adopted, 400 people will die. (22%)
- If Program D is adopted, there is a one third probability that nobody will die and a two thirds probability that 600 people will die. (78%)

You can see that options C and D are precisely those of options A and B, but the second case is phrased in terms of losses, against a reference state in which no one dies. Since we tend to be risk seeking in cases of perceived losses, the majority of respondents chose D, since it includes a possibility that no one will die. However, that is exactly what Program B proposed, except in that case the risk appeared to apply to gains, not losses.

Programs A and C are identical and B and D are identical, yet A is chosen in the first case and C is not chosen in the second. Subjects may be given the two pairs of choices a few minutes apart and still choose A in the first case and D in the second. When they read the problems again they were often puzzled when the inconsistency in their choices was pointed out. Though they realized their contradictory choices, they still wanted to avoid risk in the “lives saved” version and risk seeking in the “lives lost” version. Kahneman and Tversky compare the paradox to a perceptual illusion rather than a computational error.

These considerations apply to the actual preferences both of physicians and of patients when considering alternative therapies. The preferences for hypothetical therapies for lung cancer differed greatly when their outcomes were described in terms of death or of survival. Since surgery always carries the risk of death, while radiation therapy does not, surgery was dispreferred when outcomes were described in terms of mortality rather than survival.

When we learn that surgery results in death for twenty percent of patients, we are less accepting of it than we are told that there is an eighty percent survival rate. The principle is the same as the “lives saved” versus the “lives lost” options of the Asian disease problem. We are risk seeking when it comes to losses, but we prefer no risk of loss. We will take the safe radiation therapy over the risky surgery (McNeil, Pauker, Sox, and Tversky 1982).

Behavioral or Cognitive?

All of this research and this method of interpretation is behavioral, though many behaviorists don't know it. And most cognitive and

social psychologists don't know it! Let's hope that things change someday and that both behaviorists and cognitivists read Aristotle, Francis Bacon, and Hume. And may they read William James, who summarized and distilled what was known of psychology in the late nineteenth century. Can we move past that century? Can we progress past the current trends in cognitive psychology and "cognitive neuroscience"?

Cognitive Psychology: The Nineteenth Century Continues?

In 1997, Clark Glymour, a worker in cognitive neuroscience, offered the following observation:

One January a few years ago, shortly after the governor of Arizona had been impeached and the Exxon Valdez had spilled its cargo around Port Arthur, I had one of those uncanny experiences reserved for the people who read old news. Paging through the San Jose Mercury for January 1917, I came upon an article describing the impeachment of the governor of Arizona and a report of a large oil spill at Valdez, Alaska. Nietzsche, it seems, was on to something, the Eternal Return, the no news under the sun, the history repeats itself sort of thing. I have had similar uncanny experiences over the last few years reading bits of the literature of cognitive science as it has emerged in our time, and reading in the same years the literature of physiology, psychology, and psychiatry in the closing years of the nineteenth century. (p. 377)

Perhaps that answers a question posed at the beginning of this book: "Why study the history of psychology?"

