How Psychologists Identify Behavioral Phenomena

The following discussion provides students with an opportunity to deepen their understanding of the psychological phenomena presented in Chapter 1. Psychologists have identified these phenomena by means of experiments involving diagnostic questions. Questions that lie at the heart of these experiments are described here. (A questionnaire containing these questions can be downloaded from the book Web site at **www.mhhe.com/shefrin** and administered prior to the discussion of the material.)

The discussion of each phenomenon is divided into the following three segments: (1) a description of each phenomenon, (2) one or more diagnostic questions to identify each phenomenon, and (3) a discussion. The organization of the phenomena parallels the organization in Chapter 1.

A1.1 BIASES

Excessive Optimism

Description

Psychologists have concluded that people are *excessively optimistic*. They overestimate how frequently they will experience favorable outcomes and underestimate how frequently they will experience unfavorable outcomes.

Diagnostic Question

The following is a list of 18 possible events that might happen to you during your lifetime. Examine the events, and answer the question that appears after the list.

1. Being fired from a job
2. Your work recognized with award
3. Having gum problems
4. Living past 80
5. Having a heart attack
6. Tripping and breaking a bone
7. Being sued by someone
8. No night in hospital for 5 years
9. Victim of mugging
10. Decayed tooth extracted
11. Your achievements in newspaper
12. Weight constant for 10 years
13. Having your car stolen
14. Injured in auto accident
15. In 10 years, earnings greater than $1 million a year

16. Developing cancer
17. Not ill all winter
18. Deciding you chose wrong career

Question: Compared to other people of the same gender as you in this class, what do you think are the chances that each of these events will happen to you? The choices range from much less than average, through average, to much more than average. Enter a column of numbers from 1 to 18 on a blank page, and record your answers next to each event number. For example, consider event 1, being fired from a job. If you think that being fired from a job is as likely to happen to you as to anyone else, record a 7 beside event 1.

1. 100% less (no chance)
2. 80% less
3. 60% less
4. 40% less
5. 20% less
6. 10% less
7. Average
8. 10% more
9. 20% more
10. 40% more
11. 60% more
12. 80% more
13. 100% more
14. 3 times average
15. 5 times average

Do you know the probability that you will be involved in an automobile accident next year, see your wealth increase by more than 20 percent, or contract a life-threatening illness? Few people do. The preceding diagnostic question was originally designed to provide insight into the judgments that people form about the risks they confront. How accurately do people assess the risks they face? Are they prone to particular biases?

Discussion

In the preceding diagnostic question, people can rate how likely they are to experience particular events relative to other people who are similar to them. A rating of 7 means that a person feels that an event is as likely to happen to them as to anyone else in similar circumstances.[1] Some of the events are favorable, and some are unfavorable. The unfavorable events are

1. Being fired from a job
3. Having gum problems
5. Having a heart attack

6. Tripping and breaking a bone
7. Being sued by someone
9. Victim of mugging
10. Decayed tooth extracted
13. Having your car stolen
14. Injured in auto accident
16. Developing cancer
18. Deciding you chose wrong career

The favorable events are

2. Your work recognized with award
4. Living past 80
8. No night in hospital for 5 years
11. Your achievements in newspaper
12. Weight constant for 10 years
15. In 10 years, earnings greater then $1 million a year
17. Not ill all winter

If everyone held objective beliefs, then the average response across the class for all events should be 7. Typically the average rating for the unfavorable events is below 7, while the average rating for the favorable events is above 7.[2] This means that people believe that unfavorable events are less likely to happen to them than to other people, but favorable events are more likely to happen to them than to other people. While this may be true for some people, it cannot be true for everyone. The general conclusion is that people tend to be excessively optimistic.[3]

One of the items in the diagnostic question for optimism involves living past the age of 80. In practice, assessments of length of life can be used to proxy for optimism. The use of this proxy has led to the conclusion that excessively optimistic people are more likely to believe that future economic conditions will improve. They are also more entrepreneurial and work more hours than people who are less optimistic.[4]

Overconfidence

Psychologists have found that people are generally overconfident when it comes to difficult tasks and their own abilities. Overconfidence is a bias that pertains to how well people understand the limits of their knowledge, their own abilities, or both.

Description

People who are *overconfident* about their level of knowledge think they know more than they actually know. People who are overconfident about their abilities think they are better than they actually are. This overconfidence does not necessarily mean that these people are ignorant or incompetent. It just means that in their own eyes they are smarter and better than is actually the case.

Psychologists test for overconfidence about knowledge by asking knowledge-based questions such as the following.

Diagnostic Question

Consider the 10 difficult general-knowledge questions that follow. In addition to giving your best guess, consider a range such that you feel 90 percent confident that the right answer will lie between your low guess and your high guess. Try not to make the range between your low guess and high guess too narrow. Otherwise, you will appear overconfident. At the same time, try not to make the range between your low guess and high guess too wide. This will make you appear underconfident. If you are well-calibrated, you should expect that only 1 out of the 10 correct answers does not lie between your low guess and your high guess.[5] After each question, write down three numbers, your best guess, low guess, and high guess.

1. How old was Martin Luther King when he died?
2. How long, in miles, is the Nile River?
3. How many countries were members of OPEC in 1989?
4. According to the conventional canon, how many books are there in the Hebrew Bible?
5. What is the diameter, in miles, of the moon?
6. What is the weight, in pounds, of an empty Boeing 747?
7. In what year was Wolfgang Amadeus Mozart born?
8. How long, in days, is the gestation period of an Asian elephant?
9. What is the air distance, in miles, from London to Tokyo?
10. How deep, in feet, is the deepest known point in the ocean?

Discussion

These are 10 difficult questions. The answers can be found in endnote 6 at the end of this material.[6] Remember that the point of the question is to establish low and high guesses that bracket the true answer 90 percent of the time. A person scores a "hit" on a question when the true answer lies between his or her low guess and high guess. People who are well-calibrated should expect to score nine hits for the 10 questions.[7]

When people set their confidence intervals too narrowly, their hit rates can be expected to be less than nine. Such people are overconfident about their knowledge. When they set their confidence intervals too widely, their hit rates can be expected to be 10. Such people are typically underconfident about their knowledge.

How well do people do on these questions? Typically, the most frequent number of hits, and the average number of hits, is about 4. That is, when it comes to difficult questions, people are typically very overconfident about their knowledge. They do not realize how little they know.

In respect to the overconfidence questions, what is the percentage of people responding who are well-calibrated? The answer turns out to be about 5 percent.

Virtually everyone else is overconfident. Nevertheless, occasionally someone will achieve a hit rate of 100 percent and appear to be underconfident. But this is a relatively rare occurrence.[8]

In order to test for overconfidence in respect to ability, psychologists often pose the following question to people.

Diagnostic Question

Relative to all the people in the class, how would you rate yourself as a driver? (1) Above average? (2) Average? or (3) Below average? Here average is defined as the median.

Discussion

By definition, the median lies exactly in the middle, with the population equally divided on either side. The point of the last question is that very few people rate themselves below average. Instead, almost everyone rates themselves as either above average or average. This notion of overconfidence is sometimes called the **better than average effect.**

better than average effect
People tend to rate themselves above average rather than below average.

In a typical class, 55 percent might rate themselves as above average and 45 percent might rate themselves as average. Some people fault the wording in the question for not specifying a criterion on which to judge driving ability, suggesting that they chose criteria on which they indeed judge themselves to be above average. That is the point. People prefer to regard themselves as above average, if possible. And nobody likes to be below average.

Confirmation Bias

People who overlook information that disconfirms their views in favor of information that confirms their views are said to exhibit *confirmation bias*.

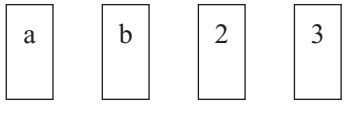
Description

People often only hear what they want to hear. They spend too much time searching for reasons to support why their views are right and too little time searching for reasons that might lead them to conclude that their views are wrong.

Confirmation bias pertains to the manner in which people either seek information or make use of the information at their disposal. Psychologists have concluded that many people are vulnerable to confirmation bias. This conclusion is based on the study of tasks such as the following.

Diagnostic Question

Imagine that you are presented with four cards placed flat on a table in front of you. There is a letter appearing on one side of the card and a number on the other side of the card. You see the following on the four cards: a, b, 2, and 3.



Suppose you are asked to test the following hypothesis about these four cards: "Any card having a vowel on one side has an even number on the other side." Imagine that you are asked to select those cards, and only those cards, that will determine whether the hypothesis is true. That is, please select the minimum number of cards that will enable you to determine whether or not the hypothesis is true. Of the four cards, which would you turn over to verify the hypothesis?

Discussion

In this card task, most people turn over the card with the *a*, and some turn over the card with the *2* as well. Typically less than a third choose to turn over just the *a* and the *3*. Yet, turning over only the *a* and *3* turns out to be the correct answer. This is because the efficient way of testing the validity of the hypothesis is to turn over only the cards that might falsify the hypothesis.

Consider in turn the falsification potential of each card. Suppose we turn over the card featuring the *a*. We will find either an even number or an odd number. If we find an even number, we have evidence supporting the hypothesis. However, if we find an odd number, we know that the hypothesis is false. Next, suppose we turn over the card with the *b*. This card provides us with no evidence to judge the validity of the hypothesis, since the hypothesis says nothing about cards featuring consonants. Now consider the card with a *2* on it. If we turn it over, we might find a vowel. This would be consistent with the hypothesis. Alternatively, we might find a consonant. That would be irrelevant to the hypothesis. Hence, this card offers no potential for falsification. Last, suppose that we turn over the card with the *3* on it. If we find a vowel, we know that the hypothesis is false. A consonant provides no information to support or falsify the hypothesis. Thus, the only two cards that offer the potential for falsification are the *a* and the *3*. However, most people choose *a* and *2*, or *a* alone. Notice that while *a* allows for both confirmation and falsification, *2* allows for confirmation only.[9]

Illusion of Control

When a person makes a decision, the outcome typically depends on a combination of luck and skill. Psychologists have concluded people have an exaggerated view of how much control they exert over outcomes. The associated bias is known as the *illusion of control*.

Description

The more control a person has over the outcome, the less the influence of chance and the more the influence of skill.

Diagnostic Question

Imagine that you agree to participate in a baseball pool. The pool works as follows. Lying in front of you are two identical piles of baseball cards, with each pile containing 227 cards. The face of each card displays the picture of a different baseball player. The organizer of the baseball pool asks you to look through the pile, select one card, and show it to her. After you have done so, the organizer looks through the second (duplicate) pile, finds the twin of the card you selected, and deposits the twin

into a brown cardboard carton. In order to participate, you pay $1 to the pool organizer. Because you were the first participant approached, when the pool organizer approaches the next participant, she will do so with two identical pools containing 226 cards, not 227 cards. After all the cards have been sold, the organizer then plans to draw exactly one card from the brown cardboard carton. The owner of the winning card will receive a $50 prize.

Suppose that all the cards have been sold, but the drawing has yet to take place. The pool organizer approaches you to say that someone who really wanted to participate cannot, because all the cards have been sold. She asks you how much you would be willing to accept in exchange for the card you drew. What is the minimum amount you would ask for to give up your card?

Discussion

When the study using the preceding question was first run, only half the participants were allowed to choose their own cards from the pile of 227 cards. Each person who was not allowed to choose a card was instead handed a card by the pool organizer. Apart from that change, everything else was the same for the two groups of participants, including the valuation question at the end.

Is it important that people be able to choose their own cards instead of being handed their cards? Does it affect their valuations? Is a pool participant more likely to win the $50 just because he or she selected the card instead of being handed the card? Of course not; the winner of the pool is determined entirely by a chance drawing. The odds of winning $50 from a single card in this pool are 1 in 227. The expected payoff is $0.22. And participants have been asked to pay $1 per card no matter who selects the card.

In the actual study, among participants who selected their own cards, the typical response was $8.67. In the alternative version, where the organizer selected the card, the typical response was $1.96.

What accounts for the difference? Psychologists have concluded that the illusion of control leads people to place a higher value on their cards when they select the cards than when the organizer selects their cards. That is, people seem to act as if they can control the odds of winning the pool by selecting the card themselves rather than letting somebody else do it. However the odds are the same, no matter who selects the card. Being able to control the odds is an illusion.

A subsidiary finding concerns overvaluation. First, people agree to pay $1 for a risky expected payoff amounting to $0.22. Second, they place a minimum value well in excess of $1, let alone $0.22. Once they own that card, it increases dramatically in value.

A1.2 HEURISTICS

Representativeness

In asking about the extent to which an object or idea fits a stereotype, people are asking how representative that object or idea is for the class to which it belongs. Psychologists refer to the underlying principle as *representativeness*.

Description

People often make judgments and predictions by relying on heuristics that make use of analogues and stereotypes. Psychologists have concluded that people place too much reliance on representativeness and suggest that representativeness-based thinking can result in systematic errors. One such error is known as the **conjunction fallacy** and was studied through the use of the following question.[10]

conjunction fallacy
People misjudge the probability that several events occur simultaneously.

Diagnostic Question

Imagine that you hear about a 31-year-old woman named Linda from people who know her quite well. They tell you that she is single, outspoken, and very bright. When she was a student, she was deeply concerned with issues of social justice. Linda's friends neglect to tell you about her current interests and career. Consider the following eight choices.

1. Linda is a teacher in an elementary school.
2. Linda manages a bookstore and takes yoga classes.
3. Linda is active in the women's movement.
4. Linda is a psychiatric social worker.
5. Linda is a member of the League of Women Voters.
6. Linda is a bank teller.
7. Linda is an insurance salesperson.
8. Linda is a bank teller and is active in the women's movement.

Rank these possibilities about Linda from 1 to 8 by assigning 1 to what you regard as the most likely possibility and 8 to what you regard as the least likely possibility.

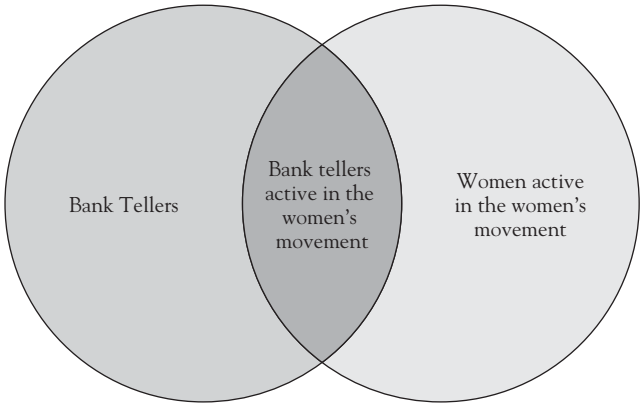
Discussion

In answering this question, people often put activity in the women's movement and psychiatric social worker at the top of their lists. The two situations that people judge to be least likely are insurance salesperson and bank teller.

How do people arrive at these assessments? Psychologists suggest that they consider each situation as a category and ask how representative Linda is of the category. Since the description of Linda is highly representative of their impression of someone active in the women's movement, they judge that Linda is highly likely to be in the women's movement. Similarly, since Linda does not seem to fit the stereotype of a bank teller, they judge that Linda is unlikely to be a bank teller.

Because heuristics are shortcuts, they may also lead their users astray. For example, consider two of the choices for Linda, item 6 (Linda is a bank teller) and item 8 (Linda is a bank teller and is active in the women's movement). As Exhibit A1.1 demonstrates, feminist bank tellers are members of the category of bank tellers. Therefore, it cannot be more probable for Linda to be a feminist bank teller than just a bank teller. This would violate one of the laws of probability. Yet, most people respond to the Linda question by assigning a higher likelihood to item 8 (feminist bank teller) than they do to item 6 (bank teller).[11]

EXHIBIT A1.1



The event that Linda is both a bank teller and is active in the women's movement is an example of the conjunction of two events. In this respect, the typical response to the Linda question constitutes a *conjunction fallacy*.

Availability

Psychologists have concluded that people tend to attach more weight to information that is more readily available than to information that is less readily available. They call the propensity to overrely on information that is readily available the availability heuristic.

Description

People typically rely on their own experiences and memories when forming judgments of risk. In other words, salience matters. This conclusion is based on studies that pose questions such as the following.

Diagnostic Question

Consider the danger of death or injury stemming from four sources, all involving water:

1. Shark attacks
2. Hurricanes
3. Riptides
4. Floods

Which item in this list involves the most danger to people?

Discussion

Most people think about the risks associated with the above four sources by trying to recall events associated with each, and basing their judgments of relative frequency on the ease with which such events come to mind. Memories record both personal experiences and information obtained through the media.

In August 2005, Hurricane Katrina struck the gulf states, and damaged the levee system that protected New Orleans. The resulting flood destroyed the city and was

the main media story day after day. The resulting death toll from Katrina was in the thousands. Before Katrina, the death toll from hurricanes and floods had been much lower. In 2004, four successive hurricanes struck Florida, in what was viewed as a highly unusual event. The resulting death toll from all four storms was about 100, quite a high number at the time.

The media reports attacks by sharks on swimmers and surfers, often with a level of drama that rivals the reporting of many floods and hurricanes. Stories about riptides receive occasional coverage in the media, usually when someone has died.

Before Hurricane Katrina, most people ranked shark attacks or floods as posing the most danger. Few people chose riptides. Yet, according to the U.S. Lifesaving Association, riptides pose the most danger. The association reports that in 2003, there were 16,300 rescues of swimmers who got caught up in riptides and were unable to reach shore without assistance. On average, 19 people die annually while wading or swimming at Florida beaches, most very close to shore. As for the death toll from Katrina's destruction of New Orleans, that stemmed from a combination of special factors described in the Chapter 1 minicase.

Anchoring and Adjustment

A number that people have in their minds can serve to anchor their judgments just as a dropped anchor keeps a boat from drifting too far. Psychologists have concluded that people are susceptible to a bias known as *anchoring and adjustment*.

Description

When forming judgments, people have a tendency to become anchored on numbers in their heads and do not make sufficient adjustments relative to the anchor. The following two-part question has been used to study anchoring.

Diagnostic Question

Record the last three digits of your home phone number. Now add 400 to the last three digits of your home phone number. Call the sum *X*.

1. Without looking up the answer anywhere, do you think that Attila the Hun was defeated in Europe before or after the year *X*?
2. Without looking up the answer anywhere, provide your best guess about the actual year that Attila the Hun was defeated in Europe?

Discussion

Most people do not know their history well enough to remember that Attila the Hun was defeated in Europe in 451CE. The mean prediction is the year 915, with an associated standard deviation of 439. Because most people do not know the date, they have to estimate it based on whatever recollections they have.

Consider the first of the two parts of the preceding question. The first question is intended to provide a context for the way they think about the second question. The issue here is whether people arrive at their prediction of the year of Attila's European defeat by beginning with X and adjusting up or down. Specifically, do they anchor on X but not adjust sufficiently?

There is no rational reason to expect that people's predictions should in any way be correlated with the last three digits of their phone numbers. Yet in practice, people's responses are so correlated. A typical correlation coefficient between their telephone numbers and their responses is about 0.5. A regression of prediction year on the last three digits of telephone number has a slope coefficient that is about 0.75, which is statistically significant at the 5 percent level. This means that for every increase of 4 in the last digits of a phone number, the prediction year for Attila's defeat increases by 3.

Interacting Phenomena

Description

Psychologists have discovered that one behavioral phenomenon can affect another.

Diagnostic Question

The question pertaining to excessive optimism involves a series of possible life events. Please assess each of these events on the specified criteria.

A. For each of the life events, assign one of the following controllability category numbers (1 through 5).

   1. There is nothing one can do that will change the likelihood that the event will take place.
   2. There are things one can do to have a small effect on the chances that the event will occur.
   3. There are things one can do to have a moderate effect on the chances that the event will occur.
   4. There are things one can do to have a large effect on the chances that the event will occur.
   5. The event is completely controllable.

B. For each of the life events, assign a desirability number on a scale of 1 to 9 where

   1 = extremely undesirable
   3 = undesirable
   5 = neutral
   7 = desirable
   9 = extremely desirable

C. For each of the life events, assign a category number for familiarity, where the categories are

   1. The event has not happened to anyone I know.
   2. The event has happened to acquaintances.
   3. The event has happened to friends or close relatives.
   4. The event happened to me once.
   5. The event has happened to me more than once.

D. For each of the life events, assign a category number for mental imaging, where the categories are

   1. No particular person with a high chance comes to mind.
   2. When I think about the event, a type of person comes to mind to whom it is likely to happen, but this image is not very clear.
   3. When I think about the event, a clear picture comes to mind of a particular type of person to whom it is likely to happen.

Discussion

One of the most important interactions for corporate finance involves the connection between control and excessive optimism. The more that people report they are in control of a situation, the greater their optimism about how the situation will turn out.

Wishful thinking also affects optimism. People are more optimistic about events that are desirable than events that are undesirable.

Availability through personal experience also affects optimism. The more familiar people feel with a situation, the greater their optimism about how the situation will turn out. People are more optimistic about events that have happened to them than about events that have not happened to anyone that they know.

Representativeness also affects optimism. When a person has a clear picture of the type of person to whom the event is likely to happen, he is especially optimistic. He is less optimistic about events for which no clear picture comes to mind of a person to whom the event is likely to happen.

A1.3 FRAMING EFFECTS

Framing effects pertain to the manner in which people describe the information involved in decision tasks. To set the stage for the discussion of framing effects, please read the following question and then note on a separate piece of paper what decision you would make if you faced these choices.

Diagnostic Question

Suppose that you face the following pair of concurrent decisions, with the outcome of your first decision being determined tomorrow afternoon and the outcome of your second decision being determined tomorrow evening. Examine both decisions, and then make your choices, keeping in mind that the outcomes are one-shot deals.

First decision: Choose between

A. A sure gain of $2,400.

B. A 25 percent chance to gain $10,000 and a 75 percent chance to gain nothing.

Second decision: Choose between

C. A sure loss of $7,500.

D. A 75 percent chance to lose $10,000 and a 25 percent chance to lose nothing.

Attitudes toward Risk and Loss

Psychologists have found that when faced with the preceding question, the majority of people choose the risk-free A over the risky B, but choose the risky D over the risk-free C. What does this pattern imply?

The risks described in the question are one-shot deals. A person who chooses B wins either \$10,000 or \$0, nothing in between. However, some people think about risk in terms of facing the same situation repeatedly. For example, suppose that a person were able to choose B four times in a row, and then receive the total winnings divided by four. In that case the probability of winning \$0 drops to 32 percent. This is because winning \$0 in four repeated tries requires that you win \$0 in all four tries, and that happens with probability $0.32 = 0.75^4$. Clearly the risk of winning \$0 is much lower if you can take the average winnings from four attempts instead of the winnings from a one-shot attempt.

Facing a probability of 25 percent is like winning \$10,000 one out of four times. Someone who won \$10,000 in one out of four tries would walk away with \$2,500, the total winnings divided by 4 (\$2,500 = \$10,000/4). In fact, the law of large numbers stipulates that a person who repeats B a great many times is virtually certain to walk away with \$2,500 as his or her average winnings. The law of large numbers is sometimes called the law of averages.

The expected winnings from choosing B as a one-shot deal amount to \$2,500 ($= 0.75 \times \$10{,}000 + 0.25 \times \$0$). Think of the expected winnings from B as the average winnings from facing B a great many times instead of once.

A person who chooses A over B effectively chooses a sure \$2,400 over an expected \$2,500 in order to avoid the risk of walking away empty handed. Being willing to sacrifice the \$100 in expected winnings in order to avoid the risk is what defines aversion to risk. Choosing A over B is the risk-averse choice.

What about a person who chose D over C? Notice that this person would choose an expected \$7,500 loss over a certain \$7,500 loss. This choice pattern does not conform to risk aversion. Notably, D is actuarially fair, meaning that it offers the same expected loss as the risk-free alternative, C. However, psychological studies have demonstrated that many people who choose D over C would do so even if the expected loss in D were more than \$7,500, say \$7,600. The point is that when only losses are involved, people may seek risk rather than be averse to risk.

Aversion to a Sure Loss

Psychologists have concluded that instead of accepting sure losses, people are prone to accept risky, actuarially unfair prospects. This tendency is known as the *aversion to a sure loss*.

Description

Decision C amounts to accepting a sure loss. Decision D is risky but offers the possibility of no loss. The majority of people choose the risky D over the sure C, despite the fact that their expected outcomes are the same. In order to see the importance of situations involving only losses, consider the following question.

Diagnostic Question

Suppose you had an opportunity to take a 25 percent chance of winning $7,500, but a 75 percent chance of losing $2,500. Would you be willing to take this chance? Yes or no?

Discussion

Most answer no, finding the risky alternative described unappealing. In doing so, they judge that the potential gain of $7,500 does not justify a three in four chance of losing $2,500.

There is an important connection between the preceding question and the choice between accepting a sure loss (C) and taking a chance to break even (D). Psychologically, coming to terms with a $7,500 loss means treating the $7,500 as an irrelevant sunk cost. Someone who accepts the loss should frame the choice between C and D differently. The alternative frame should be between (C) a risk-free $0, and (D) a 25 percent probability of a $7,500 gain, and a 75 percent probability of a $2,500 loss. Notably, that frame is exactly the frame described in the preceding question. The point is that most people accept the risk when the problem is framed to highlight the sure loss and refuse to accept the risk when the problem is framed to ignore the sunk cost.

Breaking even is very important. The issue is not just about losses, a point that the following question is intended to bring out.

Diagnostic Question

Imagine that you face the following choice. You can accept a guaranteed loss of $750 or accept a risk. The risk involves a 50-50 chance of losing $525 or losing $975. Would you accept the sure loss or take the risk?

Discussion

In the situation just described, the majority of people accept the sure loss. To be sure, the risky alternative is actuarially fair, relative to the sure loss. However, the risky alternative does not offer the possibility of breaking even. The possibility of breaking even serves as a compelling reason for people to choose risk-seeking behavior.

Narrow Framing Bias

People who engage in narrow framing ignore their overall risk profile, in terms of both the risks that they assume at a single point in time and those that they assume over time.

Description

Narrow framing leads people to make the wrong decision because they structure their decision tasks opaquely rather than transparently. The following question illustrates the concepts of transparency and opaqueness.

Diagnostic Question

Suppose you face an unavoidable situation where there is a 75 percent chance you will lose $7,600 and a 25 percent chance you will win $2,400. However, imagine that before you learn the outcome of this gamble, you are offered a certain $100, no strings attached. If you accept the $100 and lose, your net loss will be $7,500 instead of $7,600. If you accept the $100 and win, your net gain will be $2,500 instead of $2,400. Accepting the $100 does not mean that you can avoid facing the risk. What accepting the $100 does is to reduce your loss by $100 in the event that you lose, and increase your gain in the event that you win. Would you accept the $100? Yes or no?

Discussion

Most people accept the $100 in the preceding situation, again preferring more to less. They do so because the decision problem has been framed transparently. However, decision problems are often framed opaquely rather than transparently, and opaque framing often induces people to make the wrong decision.

The diagnostic question at the beginning of this section provides an example of opaque framing. As was mentioned earlier, the most common choice pattern is for people to choose the risk-free A over the risky B, and the risky D over the risk-free C. In this respect, remember that the question features concurrent decisions. If B is chosen over A, then B is played out in the afternoon. If D is chosen over C, then D is played out in the evening.

Consider the situation faced by someone who chooses A and D. From the perspective of today, what prospect does he or she face at the end of tomorrow? The risk-free $2,400 in A is combined with either a $10,000 loss in D or a $0 loss in D. Therefore, the combination of A and D offers, at the end of tomorrow, a 25 percent probability of a $7,600 loss and a 75 percent probability of a $2,400 gain.

Now consider someone who, in responding to the first diagnostic question in this section, chose B over A and C over D. What gamble would he or she face at the end of tomorrow? Notice that the risk-free loss of $7,500 in C would be combined with a gain in B, of either $0 or $10,000. Hence, the net result of B and C would be a 25 percent probability of a $7,500 loss and a 75 percent probability of a $2,500 gain.

Juxtapose the gamble associated with the combination of B and C against the gamble associated with the combination of A and D. Notice that choosing A and D over B and C in the question is equivalent to turning down an offer of $100! See Exhibit A1.2.

EXHIBIT A1.2

	A vs B	C vs D	Sure Gain Risky Loss A and D	Risky Gain Sure Loss B and C	Probability
Sure Choice	$2,400	($7,500)			
Risky Choice					
Favorable	$10,000	$0	$2,400	$2,500	25%
Unfavorable	$0	($10,000)	($7,600)	($7,500)	75%

Most people accept the $100 when the decisions are framed transparently. Yet it is typical for between 35 and 50 percent of those answering the question to choose the combination A and D. In other words, between a third and a half of all people typically act as if they turn down money. In contrast, the percentage choosing B and C typically lies between 3 and 10 percent.

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[1] See Neil Weinstein, "Unrealistic Optimism about Future Life Events," *Journal of Personality and Social Psychology*, vol. 39 no. 5, 1980, pp. 806–820.

[2] People are not uniformly optimistic about all events. For unfavorable events, most people are exceptionally optimistic that they will not be fired from a job. They are less optimistic about gum disease.

[3] Undergraduates tend to be more optimistic about unfavorable events than MBA students.

[4] See Manju Puri and David Robinson, 2005. "Optimism and Economic Choice," working paper, Duke University.

[5] For readers who use the metric system, note that there are 2.2 pounds in a kilo, 5,280 feet in a mile, and that 1 km corresponds to 5/8 (0.625) of a mile.

[6] The answers to the knowledge overconfidence questions are as follows: 1. 39 years 2. 4,187 miles 3. 13 countries 4. 24 books 5. 2,160 miles 6. 390,000 pounds 7. 1756 8. 645 days 9. 5,959 miles 10. 36,198 feet.

[7] The trivia test is adapted from J. Edward Russo and Paul Schoemaker, *Decision Traps*. New York: Simon and Schuster, 1989.

[8] Interestingly, people are not equally overconfident across all questions. For example, the hit rate for the Boeing 747 question is almost always considerably lower than the hit rate for the OPEC question or the Mozart question. A typical hit rate for the Boeing question is around 10 percent, while for the Mozart question it is 50 percent or more. There is variation across groups. The Boeing question hit rate might be as high as 25 percent. The Mozart question might be as high as 75 percent.

[9] There is an interesting exception to the general conclusion discussed in Lena Cosmides and John Tooby, "Cognitive Adaptations for Social Exchange." In Jerome Bankow, Lena Cosmides, and John Tooby (eds.), *The Adequate Mind: Evolutionary Psychology and the Generation of Culture*. New York: Oxford, 1992.

[10] See Amos Tversky and Daniel Kahneman, "Judgments of and by Representiveness." In Daniel Kahneman, Paul Slovic, and Amos Tversky (eds.), *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge, MA: Cambridge University Press, 1982.

[11] Typically more than 60 percent answer this way. However, there can be wide variation, and it is not rare for 100 percent of a class to think it more likely that Linda is a feminist bank teller than a bank teller.