Biases in Managerial Decision Making

Objectives

After studying this chapter, you will be able to . . .

1 Understand biases resulting from attention- and memory-related constraints.

2 Understand biases relating to underprocessing.

3 Understand biases resulting from overprocessing.

Smart People—Dumb Decisions

The onset of the recent global financial crisis may be rooted in some really dumb decisions by CEOs at key financial institutions such as Lehman Brothers and Merrill Lynch. Why do smart, experienced managers make really foolish decisions? Investing in the subprime mortgage market despite ominous signs that the real estate bubble was about to burst was definitely one of them. What could lead seemingly brilliant executives to make such lousy calls? Arrogance and greed are not the sole culprits. Sydney Finkelstein, of Dartmouth’s Tuck School of Business and author of Why Smart Executives Fail, argues that managers’ bad decisions are hard-wired. His book, Think Again, applies the complex and controversial world of neuroscience to management decision making.
Finkelstein identifies four internal biases that often lead to bad decisions: inappropriate prejudgments, inappropriate experience, self-interest, and attachments. The first two are particularly relevant to marketers. Prejudgment occurs when decision makers choose a course of action and ignore any advice or information that does not support that decision. Inappropriate experience can be summed up as “what worked before will work again,” an approach that is far too common among marketing executives. It helps explain why marketers continue with the status quo in the face of ever-changing consumer needs in a global economy. For instance, Finkelstein implicates Yahoo!’s CEO as costing shareholders billions by stubbornly holding out for a better deal from suitor Microsoft, which subsequently walked away from the table. In that situation, the bias displayed by Yahoo!’s CEO was an attachment to the company he helped create.

Surprisingly, Finkelstein’s advice for marketers coping with the current economic downturn is to act boldly. He implies that consumers are more willing to accept change during a crisis. This suggests that the recession is an opportunity to make hard choices that firms may have resisted heretofore.¹

Effective managerial decision making begins with a clear understanding of consumer judgment and decision processes. After developing a clear understanding of these processes, a manager should scrutinize his or her own judgment and decision making. Although the typical manager is usually intelligent and well educated, his or her decisions are nevertheless susceptible to many common judgment and decision errors.² Biases affect decisions, as in the case of the recent financial crisis. This chapter describes and analyzes these biases, and Chapter 18 discusses de-biasing procedures for improving managerial judgment and decision making.

Biases Resulting from Attention- and Memory-Related Constraints

Just as consumers attend to only a few things at a time, the attention spans of managers are also limited. Interestingly, consumers and managers alike are willing to acknowledge limitations in attention and memory, but are less willing to acknowledge limitations in judgment and decision making. This is ironic because attention- and memory-related constraints impart a strong influence on judgment and decision making. In fact, because attention and memory influence decision making, unbiased decision making is impossible when attention and memory are biased.
# Salience and Vividness Effects

Because managers cannot attend to all available information relevant to a decision, they tend to focus on information that is interesting, attention-drawing, and easy to understand and process. For example, well-written and well-organized memos receive more attention than poorly written and poorly organized memos, regardless of the message content. At meetings, information presented in a colorful and interesting way receives more attention and weight than information presented in a dry or unappealing manner. Unfortunately, manner of presentation is unrelated to informational relevance. If highly relevant information is presented in a dry manner, it tends to be neglected. In contrast, if less relevant information is presented in an interesting manner, it tends to have a greater impact on a final decision.

**Salient information** stands out from its context or background. In the context of a sea of numbers, verbal information really sticks out. The same verbal information would not stand out, however, if an entire report or presentation were in the form of a narrative. In the context of a series of speakers wearing gray flannel suits, a presenter with a double-breasted aquamarine suit and multicolored tie really stands out. This same flashy presenter, however, would not stick out if all presenters were equally showy in their attire. In sum, salient information sticks out in one particular setting, but not in all possible settings.

**Vivid information**, on the other hand, always stands out regardless of the context or background in which it is presented. Vivid information is emotionally interesting, concrete, and image-provoking and has immediate or direct implications for the decision maker. Consumers’ goals, hobbies, and interests determine what information is vivid to them personally. Of course, stimuli that are emotionally interesting to one individual may not be vivid to another. Thus, marketers must pay careful attention to their target markets.

Another factor that influences emotional impact and vividness is information concreteness. **Concrete information** pertains to only one particular object or issue, while abstract information is general and applies to a wide variety of objects or issues. Specific, concrete information has a much greater emotional impact than general, abstract information. A newspaper article about one poor victim’s fight with cancer appears much more disturbing than an article about millions who die from cancer each year. Concrete information is also much easier to think about. It is easier to imagine the plight of one individual with cancer than the plight of millions with cancer. Emotional information has a greater impact on our decisions than abstract information. This is unfortunate in some situations. For example, one influential study showed that American voters tend to vote for the candidate who makes them feel good, even if they recognize intellectually that this candidate might make a very poor president and that the other candidate has much more to say about the issues.

Information that has immediate and direct implications for the decision maker is more vivid and attention-drawing than information that has distant and indirect implications. For example, events occurring in one’s own company, sales district, or market are much more vivid than events occurring in some other company, district, or market. Federal regulations, competitors’ activities, and consumer preferences that affect an individual’s company today are more vivid and attention-drawing than regulations, competitor’s activities, and shifts in consumer preferences that will affect an individual’s company sometime in the future. Similarly, short-term profits are more vivid and attention-drawing than long-term profits; consequently, many managers and investors tend to overemphasize short-term performance.
Finally, information obtained from firsthand experience is more vivid and compelling than secondhand information. Consumers and managers believe what they see and hear with their own eyes and ears more readily than what others have seen or heard. This practice is often wise because other people often simplify what they have seen and heard to tell a more comprehensible and informative story. Moreover, people often exaggerate to tell a more entertaining story. It would be unwise to believe hearsay rumors that Osama bin Laden owns Snapple Beverages or that playing video games causes brain damage. On the other hand, con artists and charlatans count on consumers to believe what they see and hear—otherwise their rigged demonstrations would be ineffective.

Regardless of whether information is salient or vivid, information that captures attention is likely to be stored in memory, retrieved, and have a disproportionate impact on subsequent judgments and decisions. Regrettably, salience and vividness are poor criteria for information usage because the extent to which information captures attention is often unrelated to the relevance and usefulness of that information. In other words, the most attention-drawing information is not always the most relevant.

Context Effects

Judgments pertaining to one piece of information, one object, or one particular issue are often influenced by other pieces of information, objects, or issues that happen to be present at the time of judgment. Unfortunately, these background factors often influence judgment even when they are irrelevant to the judgment task. In addition, judgments about the importance of an issue depend on other issues being considered. For example, after deciding when to hold a firm’s annual picnic, deciding which print ad to run seems like a critical decision. However, after making a decision regarding the five-year strategic mission of a firm, the decision regarding a print ad seems relatively trivial. Thus, an issue can seem important or unimportant depending on the context in which it is judged.

The most common types of context effects are contrast, assimilation, and framing. A contrast effect is a shift in judgment away from a contextual reference point. Cold tap water seems warm after your hands have been exposed to the bitter cold of a midwinter’s day. A $70 silk tie appears inexpensive after buying a $1,000 suit. A decision pertaining to a single product offered by a firm seems less important than a decision affecting all product offerings of a firm. Whenever two very different objects or issues are compared, judgments of the target are displaced away from the reference point. Conversely, when two similar objects or issues are compared, judgments of the target are displaced toward the reference point. This type of context effect is known as an assimilation effect. For example, people who express opinions somewhat similar to ours are perceived to express identical opinions to our own. Consequently, we tend to agree too readily with similar others because we tend to perceive them as more similar to us than they actually are. In other words, perceived similarity tends to be greater than actual similarity, and this increases susceptibility to persuasion.

Framing effects represent shifts in judgment that occur when managers focus on different possible reference points. For example, imagine that you are a hospital administrator preparing for an epidemic that, without medical intervention, is expected to kill 600 people in the local community. Your staff has developed two programs to combat the disease, and you can implement only one of these two programs. If Program A is adopted, 200 people will be saved. If Program B is adopted, there is a one-third probability that all 600 will be saved and a two-thirds probability that no one will be saved.
When the decision problem is framed or presented this way, most managers prefer Program A to Program B. Now consider the very same problem with a slight variation in wording. If Program A is adopted, 400 people will die. If Program B is adopted, there is a one-third probability that no one will die and a two-thirds probability that 600 will die. When the decision problem is framed this way, most managers prefer Program B over Program A. This is curious because the expected outcomes described by Programs A and B are identical in both scenarios. The only difference is that in the first scenario, outcomes are framed in terms of lives saved, but in the second scenario, outcomes are framed in terms of lives lost.

Why does something as trivial as the wording of a scenario produce such a large effect on decision making? Several empirical studies have shown that when outcomes are framed in terms of gains—such as lives saved, sales gained, or increased profits and market share—people are risk-averse. That is, when people focus on gains and two alternative courses of action yield similar results in terms of expected utility, people prefer the sure thing over the riskier option. If a manager can save 200 lives for sure, then why should she take the risk of losing 600 lives? In contrast, when outcomes are described in terms of losses—such as lives lost, decreased sales, diminished profits, and market share—people behave in a risk-seeking manner.

Traditional economic theories suggest that the amount of “pain” experienced from losing $100 should be equivalent to the amount of “pleasure” experienced from winning $100, i.e., the respective positive and negative utilities should be symmetrical. However, recent research has shown that the amount of displeasure associated with losing $100 is greater than the amount of pleasure associated with winning $100. In short, losses loom larger than gains and consequently create loss aversion. Furthermore, pleasure and displeasure increase as gains and losses increase, respectively, but displeasure increases at a much faster rate than pleasure. Consequently, decision makers are risk-averse when outcomes are framed in terms of gains and risk-seeking when outcomes are framed in terms of losses. Moreover, both gains and losses appear smaller as the distance between these relative outcomes and the reference point increases (diminishing sensitivity). For example, when zero serves as the reference point, the difference between $100 and $200 seems larger than the difference between $1,100 and $1,200. Similarly, the difference between a loss of $100 and a loss of $200 appears greater than the difference between a loss of $1,100 and a loss of $1,200.

**Biased Assimilation**

Managers’ expectations frequently have a profound effect on the way they interpret events. When an event is ambiguous (i.e., when many possible interpretations exist), expectations guide interpretations. For example, imagine you are participating in a board meeting in which you offer some suggestions about an upcoming promotional campaign. Immediately after you offered these suggestions, one of your fellow participants aggressively voices several problems with your ideas. How would you interpret the behavior of this board member? Several interpretations are possible. First, he may be an aggressive individual by nature and has always behaved this way at board meetings. Second, he may have had a bad day and is in a foul mood. Third, there really are serious problems with your suggestions, and his concerns are valid. However, if you have known this person for a long time, you are likely to have well-defined expectations of his behavior based on prior experience and to use these expectations to interpret his behavior. For instance, if you expect this person to behave aggressively based on a personality trait, you interpret his behavior at this meeting simply as another of
his typically aggressive displays and assume that there are no fundamental problems with your suggestions. This interpretation is known as biased assimilation.

Consider another scenario. In a classic example of biased assimilation, Lord and his colleagues presented “research evidence” on the effectiveness of capital punishment to subjects who already had strong opinions about the topic. Attitude strength was operationalized in terms of the extremity of participants’ ratings on standardized attitude scales. Half the subjects exhibited strong support for capital punishment, and half strongly opposed it. Both groups read descriptions of two studies, one supporting and one failing to support the deterrent efficacy of the death penalty. The descriptions contained detailed information about the procedures and the results of the studies. Although the results were held constant, two very different procedures that were counterbalanced across the two studies were described. For half the participants, Procedure A was paired with Study A, and Procedure B was paired with Study B. For the remaining participants, Procedure A was paired with Study B, and Procedure B was paired with Study A.

Although participants were exposed to mixed evidence, i.e., one study supported and one refuted the effectiveness of capital punishment, participants were even more confident about the validity of their initial beliefs after reading both studies. Regardless of whether Procedure A or B was used in the study that supported their initial beliefs, participants perceived the procedure as scientifically sound and viewed the study as providing important scientific evidence concerning the effectiveness of capital punishment (positive for those in support and negative for those against). Conversely, regardless of whether Procedure A or B was used in the study that contradicted their initial beliefs, subjects identified many fatal flaws in the procedure, and the study was perceived to be so poorly conducted that the results were virtually ignored.

Similarly, Lee, Acito, and Day (1987) showed MBA students two different ads and asked them to indicate which ad they thought would be more effective. After making their predictions, students received marketing research data that indicated that the ad they selected was ineffective and that the other ad was much more effective. Nevertheless, students persisted in believing that the ad they selected would actually be more effective over time. Their beliefs and expectations colored how they interpreted the research evidence and led them to ignore evidence that was inconsistent with their viewpoints.

**Pseudodiagnosticity**

The appearance or illusion of diagnosticity (perceived relevance) is referred to as pseudodiagnosticity. Managers exhibit the pseudodiagnosticity effect any time they treat nondiagnostic (irrelevant) information as if it were diagnostic (relevant). Marketers are especially likely to do this when they focus on one possible hypothesis, one possible interpretation of ambiguous evidence, or one possible categorization of a novel object to the exclusion of others. Focusing on only one possibility and ignoring other possibilities is known as selective hypothesis testing. Selective or one-sided information search and interpretation often lead to the perception that there is strong support for a focal hypothesis or conclusion. This perception often leads to premature hypothesis confirmation, and managers come to the conclusion that they were right all along. Selective hypothesis testing causes weakly supportive evidence to appear strongly supportive, encouraging marketers to conclude that their preferred product concept, promotional campaign, distribution plan, or pricing strategy is a good one.
Information diagnosticity or relevance depends on the extent to which information supports one hypothesis over others. Unfortunately, managers often entertain only one hypothesis rather than many. Under these circumstances, the true diagnosticity or relevance of information cannot be established. Diagnosticity depends on the extent to which information implies one hypothesis over other possible hypotheses. For example, an executive for a prominent industrial firm was having lunch with a representative from a management consulting firm. The R&D division of the industrial firm had recently developed a new product, and the executive was looking for the right consulting firm to assist him in formulating an effective market entry strategy. The consultant provided data demonstrating that his firm enjoyed a 70 percent success rate with products similar to the one that the industrial firm had developed. The executive was so impressed that he hired the consultant.

Although it is true that a 70 percent success rate is impressive for a new product venture, this figure becomes considerably less awe-inspiring if other consulting firms also report a 70 percent success rate in this product category. It becomes even less impressive if the industrial firm has a record of 70 percent success rates without the assistance of consultation. Thus, although the 70 percent figure appears at first to be diagnostic, it is really not diagnostic if other courses of action produce the same outcome.

Obviously, the ability to separate relevant and irrelevant information is a very important managerial skill. Unfortunately, busy decision makers tend to focus on one hypothesis, one interpretation, one perspective, or one categorization much too intensely. Other possibilities do not draw their attention; consequently, other possibilities are easily overlooked. When this occurs, managers are susceptible to the pseudodiagnosticity effect.

Group Decision Making

Managers often make decisions in groups or committees because they believe that many heads are better than one. Presumably, multiple decision makers bring different information and perspectives to the table. In reality, however, most meetings are spent discussing information and issues already familiar to all present. Relatively little sharing of unique information takes place. This is known as the common knowledge effect. In addition, group discussion often increases the extremity of the preferences shared by many individual group members. This is known as group polarization. Early research suggested that group discussion increases learning about new information favoring a specific option, and as the amount of information favoring the option increases, the collective preference for this option increases. However, more recent research demonstrates that negative arguments about unwanted options are much more persuasive than positive arguments about favored options. As evaluations of unwanted options become less favorable during group discussion, evaluations of favored options become even more favorable.

Groupthink, or excessive conformity as the result of the illusion of group invincibility, is another danger of group decision making. A powerful charismatic leader, insensitivity to information suggesting that the favored option might not be the best one, and extreme group polarization are common characteristics of groups suffering from groupthink. The best way to prevent groupthink is to frequently seek the opinion of impartial consultants who do not belong to the group and to encourage at least one group member to serve as a “devil’s advocate,” i.e., a person who provides strong counterarguments to the group’s arguments. In addition, the leader should attempt to remain impartial and should avoid revealing his or her preferences too early in the group discussion.
Selective hypothesis testing tends to be even more extreme in group decision making than in individual decision making. When only one option is considered, or when the group has a single favorite option, group members strongly prefer information consistent rather than inconsistent with the decision to choose this option. For example, managers evaluated a case study of an industrial firm that was considering investing $125 million in a developing country to relocate part of its production facility. Equally strong arguments for and against investment were presented in the case. After forming individual decisions for or against investment, the managers participated in a 10-minute discussion of the case in three-person groups. After reaching a preliminary decision, the groups were given the opportunity to obtain additional information relevant to the decision. The additional information was in the form of articles written by expert economists. Five of the articles favored the investment and five were against it. Although the groups were allowed to select all 10 articles, the groups selected more articles consistent, as opposed to inconsistent, with their preliminary decisions. This confirmation bias occurred in all groups but was more pronounced in unanimous groups. The reluctance to consider preference-inconsistent information increases group polarization and groupthink.

**Biases Resulting from Underprocessing**

The previous section focused on judgmental biases resulting from limitations in managers’ attentional and memory systems. People can attend to or recall only relatively small amounts of information at any one time. Unfortunately, people do not always attend to or recall the most diagnostic information. The previous section focused on what information is gathered or collected (because managers cannot focus on all available information at once); this section focuses on how information is used after it is gathered or collected. In particular, this section emphasizes managers’ overreliance on cognitive heuristics, or strategies designed to simplify judgment and decision making. Simplifying strategies reduces the amount of cognitive effort required to reach a judgment or decision, which is called “underprocessing.”

Decision researchers Tversky and Kahneman identified four key cognitive heuristics that people use to simplify judgment and decision making:

- Representativeness
- Availability
- Simulation
- Anchor-and-adjustment

**The Representativeness Heuristic**

Many decisions are based on beliefs about the likelihood of uncertain outcomes, such as the likelihood of a successful new product launch; the probability that a specific promotional program will be successful; the likelihood of arranging a satisfactory deal with suppliers; the probability that competitors will choose one course of action over another; and so on. How do managers estimate the probabilities of uncertain events? This is a difficult question to answer because decision makers are often unable to articulate exactly how they arrived at a particular prediction. Often, they say that their prediction is based simply on intuition, a hunch, or an educated guess. Nevertheless, Tversky and Kahneman were able to identify several key factors that influence intuitive prediction.
Judgments of Category Membership

What is the probability that object A belongs in category B? What is the probability that process X caused outcome Y? The representativeness heuristic involves assessing the likelihood that A belongs to B on the basis of the extent to which A is similar to B. If A and B are highly similar, it seems likely that A belongs in B. If A and B are dissimilar, it appears unlikely that A belongs in B. If X and Y are highly similar, it seems probable that X caused Y. If X and Y are dissimilar, however, it appears unlikely that X caused Y. In other words, the representativeness heuristic involves judging probability on the basis of similarity.

For example, it is important to be able to predict whether consumers will categorize a new product as a fad or as an innovation capable of replacing a previous generation of products. If the new product is judged to be a fad, it will have a short life cycle (usually less than a year), and a satisfactory return on investment for such a product will be difficult to achieve. If the new product is viewed as a legitimate innovation, however, it will likely have a lengthy life cycle and require greater long-term investment. Using the representativeness heuristic, brand managers at Procter & Gamble categorized Pringles potato chips as a new innovation during the 1970s. Pringles appeared to be very similar to other successful innovations: It looked different from other products in the snack foods category; it was preferred over other brands in taste tests; and it had a long shelf life and complemented soft drinks and beer, and so on. After one year, however, market results indicated that Pringles was just a fad, and Procter & Gamble failed to recoup its extremely high initial investment in the product. Ironically, Pringles re-emerged as a dominant competitor in 1996 as a fat-free snack made with Olean.

Causal Judgments

The representativeness heuristic influences causal judgments as well as judgments of category membership. It seems likely that process X caused outcome Y if X and Y are highly similar. Conversely, it appears unlikely that process X caused outcome Y if X and Y are dissimilar. For example, if process X is an expensive promotional campaign and outcome Y is large revenues, then X and Y resemble each other in the sense that both involve large amounts of money. So, on the basis of the representativeness heuristic, large causes are expected to produce large effects. However, although the representativeness heuristic often leads to accurate and useful predictions, whenever managers rely too heavily on a heuristic, they run the risk of overlooking something important. Imagine the difficulty Louis Pasteur had convincing people that invisible germs (a very small cause) produce disease, death, and epidemics (very large effects)!

Underprocessing leads managers to overlook things such as the prior probability or base rate of an outcome. A new product may have all the appearances of quality and success but it will still fail if the base rate or incidence of success in the product category is very low. Sample size is also neglected when managers rely too heavily on the representativeness heuristic. Extreme judgments are formed on the basis of a few observations, even though a large database is needed for accurate prediction. Misconceptions of chance are also likely when people rely heavily on the representativeness heuristic. After several new product failures, a marketer may believe that he or she is “due” for a success (the gambler’s fallacy) because chance is expected to involve a mix of successes and failures (not just failures). Of course, this is true only in the very long run when an extremely large sample is examined and only if the marketer in question possesses at least average skills and judgment.
Quality of Information  Managers also overlook the quality of the information they use as a basis for their decisions when they rely too heavily on the representativeness heuristic. Information quality is determined by two factors: reliability (repeatability) and validity (accuracy in measurement). If a competitor’s prices for a given product offering remain fairly stable over time, and if a marketer learns that the competitor’s current retail price is $25.99, this information is reliable and useful. On the other hand, if another competitor’s prices fluctuate dramatically over time, and a marketer learns that this competitor’s current retail price is $25.99, this information is unreliable and not particularly useful. Information validity refers to the extent to which information is associated with one and only one concept. For example, if a marketer learns for certain that a competitor’s list price is $25.99, then this information can be valid and useful. However, if it is unclear whether the $25.99 represents the list price, a list price minus the retailer’s discount, or a manufacturer’s suggested retail price, then the $25.99 is not very informative. It would be much more useful to know the exact breakdown of prices.

Nonregressiveness  Finally, intuitive judgments based on the representativeness heuristic tend to be nonregressive. That is, when managers rely too heavily on representativeness, they overlook the fact that extreme events tend to shift toward the mean (statistical average) on subsequent occasions. For example, when one employee performs extremely well on one occasion, her supervisors tend to expect too much from her in the future. The employee’s performance on one occasion may have been artificially inflated because of many random events. Perhaps the employee was in a particularly good mood, slept well the night before, or stumbled on information that turned out to be extremely useful. Subsequently, the employee will not perform as well because she is unlikely to accrue so many fortuitous events. Conversely, when an employee performs extremely poorly on one occasion, this employee tends to perform more satisfactorily on subsequent occasions. Perhaps on the first occasion the employee was in a bad mood, lacked sleep, was unable to obtain the right information, and so on. Similarly, a product that breaks sales records in its first year because of favorable external conditions or chance factors typically performs less impressively in subsequent years. A product that performs poorly during its first year (because of external factors) typically performs better in subsequent years. Unfortunately, the second product is often withdrawn from the marketplace prior to regressing toward its mean performance. In sum, extremely good or bad performances tend to be artificially high or low as a result of exogenous events or unusual circumstances that are not likely to be repeated.

It is extremely difficult to learn the true relationship between events when random events are confused with nonrandom events. For example, Tversky and Kahneman (1974) found that Israeli Air Force pilots observed that trainees frequently performed better following a punishment and frequently performed worse after a reward was delivered. The officers concluded that punishment was effective but rewards were ineffective. However, they overlooked the fact that extremely bad or good performances are likely to be influenced heavily by chance factors. All trainees have their bad days and their good days; in the long run, people typically perform at their mean level of performance, rather than extremely good or extremely bad. Consequently, an extremely poor performance is likely to be followed by a more typical performance, which is better than an extremely poor performance (regression to the mean). An outstanding
performance is likely to be followed by a more typical performance, which is worse than an outstanding performance. Because poor performances are punished and outstanding performances are rewarded, regression to the mean creates the illusion that punishment is effective and reward is ineffective. In reality, however, both are effective in raising trainees’ mean performance levels over time.22

Similarly, Cox and Summers (1987) found that industrial buyers underestimate the influence of random factors on sales. Stores that experience extremely low sales in one sales period typically perform better in the next sales period. Stores that experience extremely high sales in one sales period typically perform worse in the next sales period. This is because extreme and atypical outcomes are likely to be followed by more moderate and typical outcomes. One of the main responsibilities of industrial buyers is to produce accurate sales forecasts to help store managers control inventory costs. When random fluctuations in sales are misinterpreted as meaningful, extreme predictions, overordering for successful stores, and underordering for unsuccessful stores result.23

The Availability Heuristic

Managers’ predictions are also influenced by the availability heuristic. This heuristic involves searching memory for relevant examples of the event one is trying to predict and basing that prediction on the ease with which these examples come to mind. If examples come to mind quickly and easily, the event seems highly likely to occur. However, if examples do not come to mind readily, then the event seems highly unlikely to occur. For instance, suppose a homeowner is trying to predict the likelihood that an earthquake will damage his home. If he easily remembers earthquakes that occurred in the past, he will predict that future earthquakes are likely to occur. If he does not recall any earthquakes, he will predict that future earthquakes are unlikely. Of course, the cost of earthquake insurance will be much higher if earthquakes are expected in an area as opposed to their being unexpected.

However, memory for earthquakes is influenced by many factors besides objective frequency. Earthquakes are highly publicized by the media; consequently, earthquakes are very memorable. This makes earthquakes seem more likely to occur than is actually the case. Even in the San Francisco Bay Area of California, homes are more likely to be damaged by fire than by earthquakes. However, outside California, people are more likely to see San Francisco Bay Area earthquakes reported in the media than Bay Area fires. Moreover, events that occurred recently are much more memorable than events that occurred long ago, and events that occurred nearby are more memorable than events that occurred far away. Memory is influenced by many factors; consequently, basing predictions on memory can lead to highly erroneous predictions. It is better to base one’s predictions on carefully recorded facts, which is why most insurance companies rely on actuarial data rather than on memory to price policies.

The Simulation Heuristic

Just as a single event that is easy to retrieve from memory seems very likely to occur again (the availability heuristic), a single event or sequence of events that is easy to imagine (or to simulate) also seems very likely to occur, according to the simulation heuristic. Simply imagining the occurrence of a hypothetical event increases the perceived likelihood of the event. Consumers who are asked to imagine using and enjoying cable television believe they are more likely to actually subscribe to cable television.24
Voters who are asked to imagine a particular political candidate winning an election believe that the candidate is actually more likely to win.25 Sports fans who are asked to imagine one team winning believe that the team is actually more likely to win.26 People who are asked to imagine contracting a disease believe that they are actually more likely to contract the disease.27 Virtually any event seems more likely after one imagines its occurrence (“I can see that happening”). An event that is difficult to imagine, however, does not seem more likely after one attempts (and fails) to imagine its occurrence (“I can’t see that happening”).28 Thus, imagining appears to make it so, even when what consumers imagine is not closely linked to reality.

In the same vein, imagining the occurrence of a complex sequence of events—a scenario—makes this sequence of events seem more likely. The finding that an imagined sequence of events seems more likely is known as the scenario effect.29 When managers are asked how likely it is that a new product that sells very poorly in its first year will become the market leader by the end of its second year, most respond that this scenario is not likely. But consider a second scenario: How likely is it that a new product will sell poorly in its first year, be acquired by a larger firm with greater resources, be redesigned and marketed more effectively, and, finally, become the market leader by the end of its second year? The second scenario seems much more likely than the first, even though in reality, it is less probable.

The second scenario is more likely simply because it includes the first scenario, along with many other possible scenarios to turn the failing product around. The outcome, “becomes the market leader by the end of its second year,” includes the sequence “will be acquired by a larger and more successful firm that redesigns the product, markets it more effectively, and turns it into the market leader by the end of its second year,” and many other possible sequences as well. One specific sequence cannot be more likely than any one of many possible different specified and unspecified sequences.

Even if each of the individual events described in the second scenario is quite likely, the probability of their joint occurrence is surprisingly low. Suppose, for example, that the likelihood of each individual event in the sequence is 80 percent. That is, the probability of failure in the first year is 0.80, the probability of acquisition is 0.80, the probability of redesign is 0.80, the probability of developing a more effective marketing plan is 0.80, and the probability of becoming the market leader is 0.80. Subjectively, the likelihood of this particular scenario seems like it should be a little less than 0.80. Objectively, the likelihood of this particular scenario is \(0.80 \times 0.80 \times 0.80 \times 0.80 \times 0.80 = 0.33\). Just as managers’ imaginations make it seem that a single event is more likely to occur, their imaginations also make it seem that a complex sequence of events is more likely to occur. Managers recognize that imagination allows them to depart from reality, but they fail to realize how far these departures really are. This leads to poor predictions when they imagine the occurrence of a single event and even poorer predictions when they attempt to predict by imagining that a complex sequence of events will happen.

The Anchoring-and-Adjustment Heuristic

Probability estimates or predictions can be based on many different types of information, such as the degree of similarity between a causal factor and the target event (the representativeness heuristic), how easily examples of the target event can be retrieved from memory (the availability heuristic), and how easily the target event can be imagined to occur (the simulation heuristic). Often, however, a situation is so ambiguous that the manager does not know where to begin when attempting to make a prediction.
In these cases, even random anchors, or “starting points,” can influence him or her. This phenomenon is known as the anchoring-and-adjustment heuristic.

For example, suppose a manager is interested in introducing a product popular in the United States to an international market. The manager is responsible for one specific international market, the African market. However, he or she recognizes that the product is inappropriate for all African nations and believes that the safest strategy is to introduce the product to only African nations belonging to the United Nations (UN). Most managers do not know how many or which African nations belong to the UN. However, if they are given an anchor, or a “starting point,” they can usually guess whether the actual number is greater or smaller than the starting point. Tversky and Kahneman (1974) presented subjects with a spinning wheel with numbers ranging from 1 to 100; the wheel was rigged to stop at either a high (65) or a low (10) number. Although the subjects thought that the wheel was random, the high and low starting points had a profound effect on their estimates. In the high-starting-point (65) condition, subjects guessed that the actual percent was slightly lower, but their average estimate was that 45 percent of African nations belong to the UN. In the low-starting-point (10) condition, subjects guessed that the actual percent was somewhat higher, but their average estimate was only 25 percent. In both conditions, subjects’ estimates were too close to the initial anchor. That is, their adjustments from the initial anchor were insufficient (underadjustment). Consequently, subjects in the high-starting-point condition overestimated the percent of African nations belonging to the UN, while subjects in the low-starting-point condition underestimated the percent of African nations belonging to the UN (the correct answer is 35 percent).30

Even expert decision makers are strongly influenced by anchors, or initial estimates. In an important study, expert real estate agents were asked to estimate the value of a house. Even though the agents spent several hours examining the same house, their final estimates were remarkably close to the anchor list price that was provided to them by the experimenter. The agents who randomly received a low list price seriously undervalued the house, while agents who were given a high list price significantly overvalued the house.31

Anchoring and adjustment is also involved in evaluating a risky decision, or a gamble. A gamble has two components: an outcome (e.g., the amount of money potentially available) and a probability (i.e., the likelihood of obtaining the outcome). For example, suppose Gamble A has an 11/36 probability of winning $16 and a 25/36 probability of losing $1.50, while Gamble B has a 35/36 probability of winning $4 and a 1/36 probability of losing $1 (the expected values of both gambles are about $3.85). When asked to indicate a “selling price” for each gamble (i.e., the amount of money they would charge others to play each gamble), most subjects focus on the outcomes and charge more for Gamble A because it has a greater outcome. However, when asked to indicate which gamble they themselves would prefer to play, most subjects anchor on the probabilities and choose Gamble B because the likelihood of winning is greater.32 This is known as a preference reversal, because subjects prefer one gamble when they anchor on outcomes but another gamble when they anchor on probabilities.

This phenomenon is inconsistent with subjective expected utility theory, which suggests that preferences are stable and that people should always choose the gamble with the maximum expected utility.33 Although managers do not like to think of their alternative courses of action as gambles, an option is always linked to an outcome that can be achieved with some probability of success—which is the definition of a gamble. For example, product managers must decide which new product concepts (or ideas) should be launched and which should be abandoned.
These decisions should be based on estimates of the probability of success for each new product concept and on estimates of profit potential if a particular new product concept is successful. In one study, subjects were asked to choose between pairs of new product concepts where one concept had a greater probability of success and the other concept had greater profit potential. When subjects were asked to indicate which option of each pair of options should be launched, they preferred the options with the greater probability of success. By contrast, when subjects were asked to assign dollar values to each option of each pair of options, they preferred the options with the greater profit potential. This pattern of response suggests that managers anchor on probabilities when deciding whether to launch or abandon a new product concept. However, they anchor on profit potential when assessing the value of a new product concept. Focusing on different anchors in different situations leads to inconsistent preferences.

How serious is the problem of preference reversal? Consider the decision faced regularly by oil company executives. Any given drilling site has some probability of success and some level of profit potential if oil is found. Kerr (1979) found that oil companies paid more than $1 billion for the privilege of drilling in the Baltimore Canyon in the Atlantic Ocean, even though leading oil geochemists determined that the probability of finding oil there was extremely low. Kerr (1979) suggested that oil company executives focused on the extremely large size of potential trapping structures in the Baltimore Canyon (profit potential) and neglected the probabilities provided by the geochemists. Ideally, of course, billion-dollar decisions should be based on both probabilities and potential.

Biases Resulting from Overprocessing

Busy decision makers are often unmotivated or unable to consider each and every piece of information that appears relevant to a particular judgment or decision. Under these circumstances, a relatively small sample of information is considered and cognitive heuristics are used to simplify judgment and decision making. Of course, “under-processing” leads to poor decisions when key pieces of information are overlooked or when the implications of information are not carefully considered. Ironically, “overprocessing” can also lead to poor decisions. When decision makers are motivated and able to consider large amounts of information very carefully, they may read too much into irrelevant information. When irrelevant information is overinterpreted, it may seem relevant. Consequently, overprocessing may result in overuse of irrelevant evidence.

Correspondence Bias

Managers are often unable to express their true opinions about a job-related topic because, in most firms, strong situational pressures exist that prevent managers from expressing them. Written and unwritten rules exert a powerful influence on managers. When situational constraints or norms (i.e., social rules) require people to behave a certain way, norm-consistent behaviors provide little or no information about personal dispositions (personality characteristics and personal opinions). Nevertheless, managers tend to overinterpret the behavior of other individuals and, consequently, tend to draw strong inferences based on weak evidence. This phenomenon is known as the correspondence bias because observable behaviors are perceived to correspond closely with unobservable dispositions (personality traits, personal opinions) even when the behaviors are actually influenced only by a situation.
Consider the job interview, for example. Job applicants are not free to behave as they typically behave. Instead, most job applicants form impressions about the traits and characteristics required to perform a particular job effectively (e.g., salespeople are supposed to be gregarious; market researchers are supposed to be analytical; brand managers are supposed to be confident, etc.). Consequently, during the job interview, applicants tend to behave in a manner that implies that they possess these traits and characteristics. The interview situation imposes powerful constraints on the behavior of job applicants; consequently, normative behaviors are uninformative (of course, counternormative behaviors, such as showing up at the interview in dirty jeans, are very informative). Nonetheless, most interviewers believe that they can learn a lot about the dispositions of most interviewees on the basis of situation-constrained behaviors.

Situational constraints force brand managers to emit an air of confidence. This is necessary, of course, because their assistants work much harder if they believe their brands are likely to be successful (if success is impossible, why work hard?). However, executives who observe the confident behaviors of their brand managers are likely to infer that the brand managers really believe their brands will succeed. This inference is incorrect because their confident behavior is actually determined by the situation, not by the managers’ beliefs. However, if an executive infers that a brand manager really believes a brand will succeed and the brand fails, the executive may conclude that the brand manager exhibited overconfidence and poor judgment. This conclusion is likely to influence the executive’s performance evaluation of the brand manager.

**Using Irrelevant Analogies**

Often people we meet remind us of old acquaintances because their looks, speech, clothing, or mannerisms are similar. When this happens, we often infer that two people who appear to be similar on some irrelevant dimension are also likely to possess similar traits and characteristics. For example, an interviewer may feel reluctant to hire a particular job candidate because the candidate is from the same hometown as a previous employee who was extremely unsuccessful. A brand manager may decide to launch a new product that performs poorly in pretest markets because it reminds him or her of another similarly packaged product that performed poorly in pretest markets but nevertheless turned out to be successful. An executive may decide to engage in a price war with an aggressive competitor because the competitor reminds him or her of a previous competitor with a similar corporate name that was driven out of business by a price war. Although focusing on similarities and reasoning by analogy can be useful analytic strategy, reasoning based on irrelevant analogies can lead to poor decisions.

**The Perseverance Effect**

Decision makers often continue to perceive a belief as true even when the basis for the belief is disproved. In the classic study on the **perseverance effect**, subjects received false feedback bearing on their performance on a judgment task. Half the subjects were told they performed extremely well on the task (success condition), and half were told they performed extremely poorly (failure condition). Subjects were randomly assigned to success or failure conditions; consequently, performance feedback was unrelated to actual performance. Later, subjects were told that the feedback was false and that they were randomly assigned to experimental conditions. The results indicated
that even though subjects recognized that the feedback was false, those who were randomly assigned to success condition continued to believe that they would perform well on this task in the future, and those who were randomly assigned to the failure condition continued to believe that they would perform poorly. Ross et al. (1975) suggest that random feedback is uninformative and should be ignored. Nevertheless, people tend to overinterpret uninformative feedback and generate explanations for the feedback (e.g., “I’m the type of person who would do well on this type of judgment task”). Subsequently, if the feedback is eliminated but the explanations for the feedback are not eliminated, the explanations continue to provide support for the original belief. As a result, the belief is remarkably persistent even when the basis for the belief is removed.38

Unfortunately, the perseverance effect applies to any belief the decision maker may form, even erroneous ones. For example, a brand manager who worked with an ad agency to develop a novel advertising execution observed that sales increased dramatically after the ad was launched (success feedback). The brand manager concluded that this type of advertising execution is extremely effective. A good brand manager tries to understand why an ad is effective, and usually comes up with a number of reasons it was so successful. Of course, many factors influence sales, and advertising is just one factor. In this particular case, the increase in sales was actually indirectly caused by a distribution problem that affected a major competitor at the time the ad was launched; the ad itself was completely ineffective. Nevertheless, the brand manager continued to believe the ad execution was effective and planned to use this execution in future ad campaigns. Of course, by that time, he or she might have been fired for running ineffective ads in the face of skyrocketing media costs.

**The Dilution Effect**

The judgmental impact of diagnostic information is often diluted by the presence of nondiagnostic information.39 This is known as the *dilution effect*. For example, subjects told that John had an extremely high grade point average (GPA) predicted that John would continue to earn extremely high grades in future courses. However, subjects told that John had an extremely high GPA, drove a Honda, wore plaid shirts, and used to work part-time as a draftsman predicted that John would earn moderately high grades in future courses.40 In other words, irrelevant information (e.g., car driven, clothing style, prior work experience) reduces the effect of relevant information (e.g., extremely high GPA), and less extreme inferences are formed when irrelevant information is present (versus absent). Moreover, the dilution effect is even more pronounced when subjects expect to justify their predictions to others.41 Although irrelevant information should have no effect on judgment, managers tend to overinterpret, read too much between the lines, and weigh irrelevant information too heavily in judgment, especially when they are likely to overprocess all available information (including irrelevant information) because they expect to justify their judgments and decisions to superiors.

**Premature Cognitive Commitment**

Irrelevant information also carries too much weight in judgment when it later becomes relevant.42 For example, consumers are often exposed to ads for products that they would not consider purchasing. The information provided in these ads is likely to be accepted at face value, because consumers are unlikely to think extensively about
irrelevant products. Consequently, even conclusions supported by weak arguments are likely to be encoded incidentally into long-term memory. Later, when consumers’ attitudes, hobbies, needs, or interests change, prior beliefs are likely to be weighed heavily in judgment even if these were based originally on weak evidence. For instance, children are exposed to many automobile ads. Although they are not old enough to purchase an automobile, much of the information presented in the ads is likely to be accepted uncritically with little or no counterargument. Years later, when children grow up and need to decide which brand of automobile they should purchase, they may be influenced unduly by prior beliefs formed on the basis of weak evidence that was accepted uncritically. Of course, premature cognitive commitment is not limited to children. Anyone who pursues a new hobby or a new interest is susceptible to the effects of prior beliefs that were formed on the basis of information that was accepted uncritically with little thought or elaboration.

**Overcorrection**

The use of the anchoring-and-adjustment heuristic results in insufficient adjustment from an anchor or reference point. However, if managers recognize that an anchor can bias their judgments, they are likely to attempt to correct for the bias, and overadjustment, or overcorrection, can occur. For example, suppose an interviewer happens to be in an especially good mood one day. If the interviewer fails to recognize that this good mood might cause him to form overly favorable first impressions of job candidates, the final evaluations of these candidates are likely to be adjusted insufficiently from the first impression anchor. As a result, the candidates will be judged too favorably (an assimilation effect). However, if an interviewer recognizes and attempts to correct for the biasing effects of positive mood on judgment, he is likely to overcorrect. As a result, the final evaluations are likely to be overadjusted, and the candidates will be judged too unfavorably (a contrast effect). Overcorrection occurs when managers overanalyze and overinterpret their decision-making processes.

**Chapter Summary**

Executives, managers, and decision makers are susceptible to a relatively lengthy list of judgmental biases. Some of these biases stem from attention and memory constraints. People are unable to attend to or remember all judgment-relevant information. Unfortunately, the risk of inaccurate judgment and suboptimal decision making exists whenever relevant information is overlooked or neglected. Underprocessing bias results when managers are unmotivated or unable to integrate judgment-relevant information in a systematic fashion. Under these circumstances, managers rely too heavily on cognitive heuristics, or shortcuts, that simplify judgment and decision making. By contrast, overprocessing bias results when managers overinterpret irrelevant information. Thus, judgmental accuracy is influenced jointly by the amount of processing effort a decision maker is likely to allocate to a judgment task and by the nature of the evidence available for judgment (e.g., the amount of relevant and irrelevant information present). Fortunately, decision researchers have extensively researched the psychological processes involved in judgment and decision making. One result of this deeper understanding is the development of debiasing procedures and decision aids that dramatically improve judgment and decision making.
Key Terms

- salient information
- vivid information
- concrete information
- contrast effect
- assimilation effect
- framing effects
- risk-averse
- risk-seeking
- loss aversion
- diminishing sensitivity
- biased assimilation
- diagnosticity
- pseudodiagnosticity
- selective hypothesis testing
- group decision making
- common knowledge effect
- group polarization
- groupthink
- representativeness heuristic
- availability heuristic
- simulation heuristic
- anchoring-and-adjustment heuristic
- preference reversal
- subjective expected utility theory
- correspondence bias
- perseverence effect
- dilution effect
- premature cognitive commitment
- overcorrection

Review and Discussion

1. In what ways do salience and vividness affect managers’ decisions? Are these good criteria for managerial decisions? Why or why not?

2. After a couple decides to get married, deciding where to eat dinner that night seems minor. What type of effect does this situation illustrate? Give three other examples illustrating this effect.

3. Imagine that your best friend is assigned an end-of-term project that includes a written report as well as an oral presentation. Without naming names, predict how you think your friend would handle the project. Would he or she begin early? Do a lot of research? Wait until the last minute to begin the project? Ask the instructor for an extension? Do as little work as possible? Try an innovative approach? Ask friends for help? On what information did you base your prediction? What type of bias effect does this exercise illustrate?

4. Name and describe briefly the four key cognitive heuristics that people use to simplify judgment making.

5. How might managers in industries like financial services, insurance, and healthcare use the availability heuristic to make decisions?

6. How might the simulation heuristic help or hinder the success of a new product?

7. What do you think is the single most common reason that managers engage in underprocessing?

8. Why do personal interviews sometimes provide unreliable information?

9. Describe an instance in which you made a decision based on an irrelevant analogy.

10. How might premature cognitive commitment come into play when a person is promoted from a staff position to a managerial position?