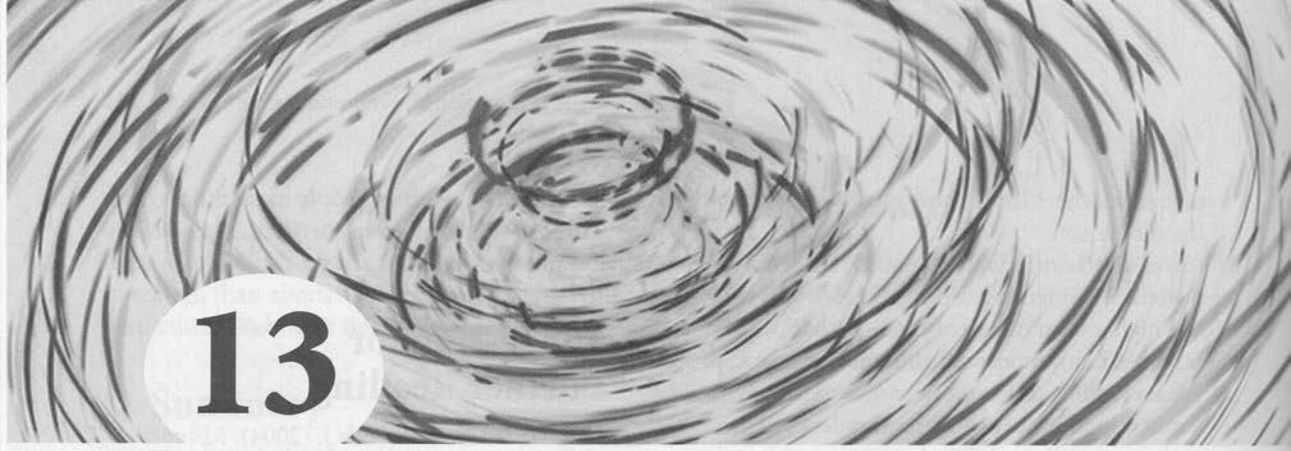


13

Emotional Decisions and Emotional Intelligence

When we are facing an important decision, people often advise us to think calmly and rationally, not to let our emotions get in the way of our logic. That advice implies that emotions lead to bad decisions. Sometimes they do. For example, during the first three months after the terrorist attacks of September 11, 2001, a great many Americans were afraid to get onto planes, so they drove to their destinations instead. During those three months, the number of people killed in U.S. traffic accidents increased enormously compared with similar periods of time. The increase in the number of traffic fatalities during those few months was greater than the number of people killed in the terrorist attacks themselves (Gigerenzer, 2004).

On the other hand, recall from the definition of emotion, presented in Chapter 1, that emotion is *functional.* That is, emotion should lead to productive, useful behavior more often than not. For example, fear of snakes, spiders, and grizzly bears keeps us away from unnecessary dangers. As it turned out, avoiding airplane flights after September 11, 2001, was a mistake, but no one could have known that at the time. Sometimes fear is exaggerated, but a total lack of fear would be disastrous. (Perhaps the lesson from the increase in automobile fatalities during the months after 9/11 is not that we should fear airplanes less, but that we should fear cars more.) So, overall, do emotions help us make good decisions, or do they interfere?

The answer (of course) is "it depends." But "it depends" on what? One hypothesis is that mild or moderate emotion helps reasoning whereas higher amounts hurt. As we have seen in several earlier chapters, emotion is often accompanied by autonomic nervous system arousal. According to one of the oldest findings in psychological research, the **Yerkes-Dodson law,** learning is at its best when stimulation or arousal is intermediate (not too strong, not too weak). The original study of this law demonstrated that mice learned to enter one box instead of another faster if their errors were punished with medium-strength shocks than with very strong or very weak ones (Yerkes & Dodson, 1908). Moreover, the "best" shock level varied, depending on the difficulty of the task. Weak shocks were best when learning a difficult task, but stronger shocks were effective for an easy task. The original Yerkes-Dodson research used an experimental design that would not satisfy today's standards. Still, the idea

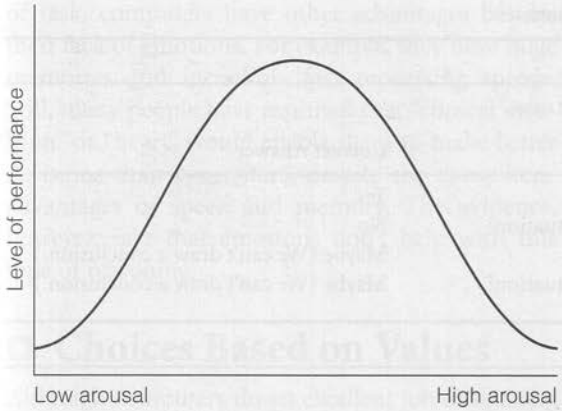


FIGURE 13.1 According to the Yerkes-Dodson law, performance is best at an intermediate level of stimulation or arousal.

caught on. Psychologists later broadened the idea to say that learning, memory, performance, and reasoning are most enhanced under medium levels of arousal, motivation, or emotion (Teigen, 1994). Figure 13.1 shows the idea.

The idea strikes most people as reasonable: "I do my best if I'm a little aroused, but not too much." Certainly at the extremes the principle is obvious: If your arousal is so low that you might fall asleep, you won't accomplish much, and if it reaches panic levels, you won't pause to choose a reasonable course of action. However, with arousal levels anywhere in the vast middle ground between utter boredom and absolute frenzy, the evidence does not clearly indicate a consistent "best" level of arousal (Bäumler, 1994). Support is even less clear for the idea that good performance requires intermediate levels of motivation or anxiety. In short, the Yerkes-Dodson law is probably too broad a generalization to be useful (Mendl, 1999).

There is another way to think about the benefits and harms of emotion. Maybe benefit or harm in making decisions depends not on the amount of emotion, but on the type of reasoning we are talking about. Let's consider some different kinds of reasoning.

Emotion and Logical Reasoning

Questions in formal logic are about as unemotional as one could imagine: "If A is true, then B is true. If B is true, then C is true. Therefore, if A, then C." This sequence seems ridiculously obvious when dealing with an unemotional topic. Does logic proceed as smoothly when the elements A, B, and C have emotional connotations?

To address this question, researchers posed to participants a series of logical questions of this kind, half of them emotional and half unemotional. Reasoning about an emotional situation is not the same as reasoning while experiencing an emotion, but the assumption is that while we read about an emotional situation, we identify with the person and therefore feel a bit of the emotion ourselves. Each question consisted of one if-then statement, four additional statements, and a question for each statement. Table 13.1 shows an emotional example and an unemotional example. Each case shows the correct answer.

Before proceeding, you should work out why the answers given are correct. For example, according to the first if-then statement, people in a tragic situation cry. It doesn't say anything about people in an untragic situation, so logically we can't draw a conclusion about Christine, who is happy.

In each case, items 3 and 4 (where the correct answer is that we can't draw a conclusion) tend to be more difficult. Many people answer "no" to item type 3, and they are more likely to make that error on emotional than on unemotional items. About 49 percent of people say that Christine, who is happy, will not cry, whereas only about 31 percent say that Daniel, who is not in a library, will not see books. Many also say "yes" on item type 4, and again the results depend on emotional content. About 30 percent say that Laura, who is crying, must be in a tragic situation, whereas only 21 percent say that Kareem, who sees books, must be in a library (Blanchette & Richards, 2004).

TABLE 13.1 Reasoning in emotional and unemotional situations

Emotional example		
If-then statement: "If someone is in a tragic situation, then she cries."		
Additional statement	**Question**	**Correct Answer**
1. Anne is in a tragic situation.	Does she cry?	Yes
2. Gayle is not crying.	Is she in a tragic situation?	No
3. Christine is in a happy situation.	Does she cry?	Maybe (We can't draw a conclusion.)
4. Laura is crying.	Is she in a tragic situation?	Maybe (We can't draw a conclusion.)
Unemotional example		
If-then statement: "If one is in a library, then one sees books."		
Additional statement	**Question**	**Correct Answer**
1. Scott is in a library.	Does he see books?	Yes
2. Max does not see books.	Is he in a library?	No
3. Daniel is not in a library.	Does he see books?	Maybe (We can't draw a conclusion.)
4. Kareem sees books.	Is he in a library?	Maybe (We can't draw a conclusion.)

The researchers properly worried that one set of questions might be more difficult than the other. Maybe it just seems less obvious that a person in a happy situation might cry than it does that a person outside a library could see books. So they did a second experiment in which they used only unemotional if-then sentences, such as "If a person is drinking juice, then she is getting vitamins." Some of their items included nonsense words, such as, "If someone looks like a clorious, then he is a cereful." However, before posing the logic problems, the researchers gave some of the words an emotional connotation. For example, they might present the made-up word *clorious* while showing a picture of a bloody, injured person. In this way, the researchers could use exactly the same sentences for all people but associate a given sentence with positive images for some people, neutral images for others, and unpleasant images for still others. As in the first experiment, people gave the logically correct answer more often to unemotional sentences than to those that had been associated with emotional pictures (Blanchette & Richards, 2004).

One way to take emotion completely out of the reasoning process, and see whether logic improves, is to use computers. In many situations, computers make better, more logical decisions than humans. If an insurance agent wants to figure out the fairest price to charge someone for health insurance, the best approach is to feed all known information about the person's age, activities, and health into a computer and let the computer use mathematical formulas to decide the right price. Similarly, computers outperform humans on a wide variety of other decisions, ranging from choosing the college admissions applicants with the best chance of success to choosing the right treatment for a medical patient and predicting the probable outcome (Swets, Dawes, & Monahan, 2000).

One thing all of these scenarios have in common is that they require someone to compute probabilities. To compute a fair price for insurance, you need to estimate the probability that a person will become ill or die. To choose among college applicants, you need to estimate the likelihood that a given individual will succeed, and so on. In this kind

of task, computers have other advantages besides their lack of emotions. For example, they have huge memories and incredibly fast processing speeds. Still, many people have assumed that "clinical intuition" or "heart" would enable them to make better decisions than computers, despite the computers' advantages of speed and memory. The evidence, however, says that emotions don't help with this type of reasoning.

Choices Based on Values

Although computers do an excellent job of figuring out the probability of various events, and thus can help us figure out how to reach certain goals, they don't *set* the goals. Suppose a computer tells us that some medical patient will probably survive longer with treatment A than treatment B, but will be more active and alert while undergoing treatment B. Can the computer tell us which treatment is "better?" Hardly. "Better" requires a value judgment, and a decision based on values is necessarily based on emotions. Remember the quote from Antonio Damasio (1999, p. 55) cited early in Chapter 1: "Emotions are inseparable from the idea of good and evil."

Decisions often depend on our expectations of future emotions. That is, you prefer the choice that will lead to an outcome that makes you and other people happiest. In addition, according to the **risk-as-feelings hypothesis,** people make different choices based on the emotions they feel at the time of making a decision (Loewenstein, Weber, Hsee, & Welch, 2001). Specifically, anything that enhances your fear makes you take precautions against danger, even if the objective probability of the danger is low. For example, people who are afraid of bats might avoid buying a house in a neighborhood known to have bats, even though the probability of getting any disease from bats is extremely low.

In one study, investigators asked people how much they would decrease their consumption of beef if they thought it had some small possibility of contamination with Mad Cow Disease. They asked other people how much they would decrease consumption of beef if they thought it had some small possibility of contamination with bovine spongiform encephalopathy (BSE). People expressed a stronger avoidance based on Mad Cow Disease than of BSE, even though these well-educated participants knew that Mad Cow Disease and BSE are the same thing (Sinaceur, Heath, & Cole, 2005). "Mad Cow Disease" sounds scarier, so it leads to more avoidance.

In another study, people completed measures of fear-proneness and anger-proneness and then filled out a form in which they estimated how many people per year in the United States die from floods, brain cancer, and 10 other causes. People reporting much fear estimated higher than average numbers, whereas those reporting anger estimated lower numbers (Lerner & Keltner, 2000). Evidently, fear heightens your perception of danger. Anger implies more possibility of personal control and, therefore, lowers the perception of danger.

In yet another study, volunteers who had a cold were assigned to remember vividly an event that made them feel happy, sad, or neutral. When asked about their physical cold symptoms, participants in the "sad" condition reported more severe symptoms, and less confidence that they could do things to make themselves feel better, than participants in the other two conditions (Salovey & Birnbaum, 1989). The authors argued that mood influences people's decisions about whether to seek medical care when they're ill.

Decisions about buying and selling also yield to emotions. Suppose we ask you to estimate the value of some object, such as a set of highlighter pens. Perhaps you estimate a value of $10. Now we actually give you the pens to keep, but then we ask whether you would be willing to sell them back to us for $10, the price you said they were worth. Most people in a neutral or happy mood refuse, saying they would prefer to keep the pens. Sad people are more inclined to sell; they would prefer the money. People who are disgusted (because they just finished watching a disgusting film) estimate lower values for

objects, and they don't seem to care whether they keep the object or the money. It's as if they don't want either one. They are in a mood to spit things out, to reject, to get rid of whatever they can (Lerner, Small, & Loewenstein, 2004). As we saw in Chapter 12, people actively use their current emotions as information when making decisions. If we feel good, then whatever we are currently contemplating (such as a set of pens) seems good and valuable. If we feel bad, then we assume the object is bad, too.

So emotions influence your choices. Do people ever use this idea for practical purposes? You bet they do! Stores arrange cheerful decorations and play happy music, hoping to entice you into a happy mood so you will be more likely to buy things. Television advertisers try to associate their product with happy scenes, especially if they are advertising something like cola beverages, where few facts separate one brand from another. The influences are quick and implicit. If you really thought it out, you wouldn't conclude that one kind of cola or potato chip will make you more fun or popular or attractive than another cola or potato chip. Political candidates want you to like them and dislike their opponents. In the constraints of a brief television advertisement, they can't explain the complexities of a difficult issue, so they try to associate themselves with smiles and cheerful music while associating their opponents with frightening, unpleasant images.

The Role of Emotions in Judgment: Evidence From Brain-Damaged Patients

Let's return to the point that computers can choose a good way to achieve a goal, but they cannot set the goals. People select goals based on values and, therefore, emotions. What kind of decisions would people make if they could not take emotion into consideration? Would they be highly logical or utterly clueless?

Certain kinds of brain damage greatly impair the use of emotion in decision making. The most prominent example is damage to the prefrontal cortex (Figure 13.2). People who survive strokes in this area show diminished facial expressions of emotion, and an observer has trouble recognizing what emotion they are expressing. They are especially weak on expressing fear and disgust. If they are asked to imitate someone else's facial expression, they respond only weakly. They also have trouble recognizing other people's expressions or picking out the photo that best expresses the probable emotion someone would feel in a particular situation (Kolb & Taylor, 2000). In many ways, these results resemble those of damage to the amygdala, and the prefrontal cortex has rich interconnections with the amygdala (Hariri, Mattay, Tessitore, Fera, & Weinberger, 2003).

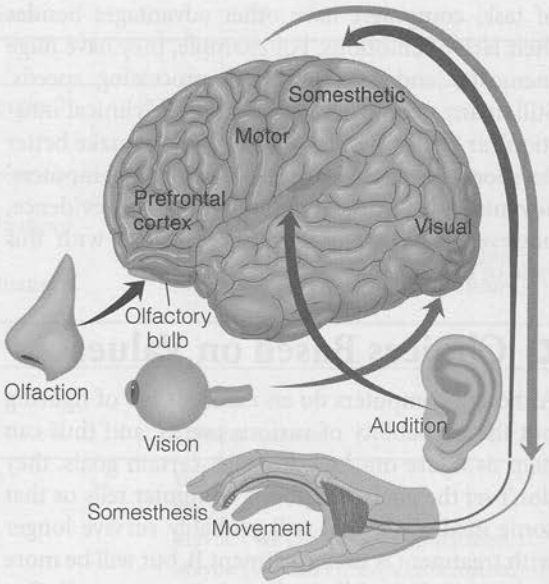


FIGURE 13.2 The prefrontal cortex is the most anterior portion of the human brain. Unlike many other cortical areas that receive a particular kind of sensation or control movement (as shown), the prefrontal cortex has functions that relate to working memory and other functions that are hard to summarize. People with damage in certain parts of the prefrontal cortex show decreased emotional expression and decreased understanding of other people's expressions.

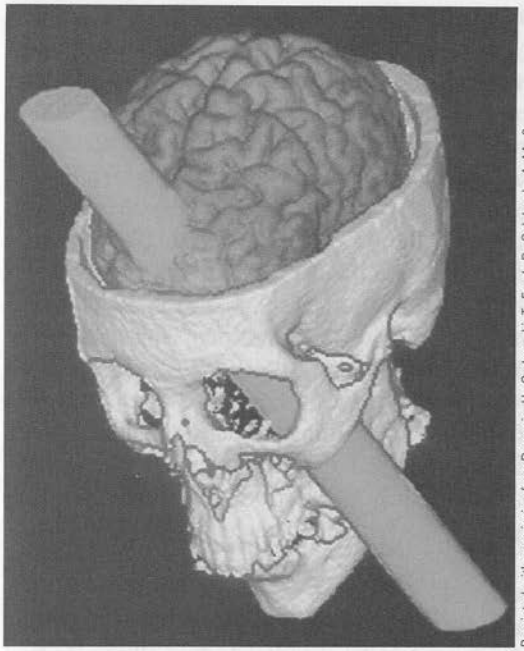


FIGURE 13.3 A modern, computer-based reconstruction of the path the iron bar took through the brain of Phineas Gage in 1848. Gage survived, but he became unreliable, lost self-control, and made poor decisions. Source: H. Damasio et al. (1994).

A famous early case of someone with prefrontal-lobe damage was Phineas Gage, who in 1848 survived an explosion that sent an iron pole through his head. In the 1990s, researchers studied his skull (which is on exhibit in a Boston museum) and reconstructed the pole's probable route through his head, as shown in Figure 13.3 (H. Damasio, Grabowski, Frank, Galaburda, & Damasio, 1994). Gage's prefrontal cortex suffered severe damage, particularly to an area known as the orbitofrontal cortex. After the accident, Gage changed dramatically. Previously a conscientious worker, he could no longer keep a job. He became impulsive, often rude and vulgar, took no sense of responsibility toward others, and seemed unable to plan for the future.

In the 1990s, researchers reported extensive tests on a new patient with prefrontal damage (A. R. Damasio, 1994; H. Damasio, 2002). This patient, known in the literature as "Elliot," suffered prefrontal damage from a surgical operation to remove a tumor. Afterward he seemed normal in many regards, but he consistently had trouble making decisions. He would deliberate endlessly about unimportant details, only to end with what appeared to be a haphazard (and often harmful) decision. He could neither plan for the future nor follow plans that others suggested. He would interrupt an important task to do something trivial or continue doing something unimportant when he should quit.

For example, at work, when he was supposed to be sorting documents, he once stopped to read one of the documents very carefully for the rest of the afternoon. All of us get distracted occasionally, but for Elliot this event was part of a pattern. As a result, he kept losing jobs. He divorced his first wife, married a woman who was clearly a bad choice, and then divorced her. He invested all his savings in a project that seemed sure to fail, and it did. Of course, many people make terrible decisions, even lots of them, without having brain damage. How do we know Elliot's problems with decisions are related to the surgery, and what does that mean for the relationship between emotion and decision making?

Part of the answer to this comes from the difference between Elliot's behavior before and after the surgery. Eventually these differences seemed serious enough to other people that he was brought to psychologists for testing (A. R. Damasio, 1994). He was about normal in tests of vision, memory, language, and intelligence. Even on memory tests that are sensitive to damage in certain parts of the prefrontal cortex, he performed surprisingly well. His only prominent abnormality was a lack of emotional reactivity. When he described terrible events from his own life, he was calm and relaxed. Even when he looked at photos of people injured in gory accidents, he showed none of the revulsion or distress that most people display.

The researchers tried to identify more precisely where Elliot's decision-making process went wrong. They presented him with a variety of hypothetical

situations, such as "Imagine you went to a bank and the teller gave you too much change," or "Suppose you broke someone's flower pot," or "Suppose you owned stock in a company and you learned that it was doing badly." In each case, Elliot was asked to suggest various actions that he might take and then to predict the consequences of each. In another set of scenarios, he was also asked what was the morally right thing to do. To all these questions he gave normal answers; he seemed to understand the possible courses of action and their consequences as well as anyone else. There was no problem with Elliot's logic—he could reason through scenarios like these easily, as long as they weren't actually happening. The explanation of his problems with real-life decisions came from Elliot's own words. In one case, after describing all the possible actions he might take and all the probable consequences of each action, he remarked, "And after all this, I still wouldn't know what to do!" (A. R. Damasio, 1994, p. 49). It was as if he did not value one possible outcome more than another.

Researchers have tried to specify more precisely the ways in which the prefrontal cortex relates to decision making. According to some researchers, many decisions are based upon the magnitude of possible rewards and punishments, their likelihood, and how soon they will occur. For example, you might have to choose between a small reward now and a larger one later, or between a definite, small penalty and an uncertain but larger penalty. The prefrontal cortex is a large, complex area, but one part of it may be specialized for calculations about rewards and punishments. The orbitofrontal cortex and adjacent areas (located just above the "orbits" that hold the eyes) are activated by taste, smell, and touch stimuli (which are generally experienced as either "pleasant" or "unpleasant") as well as by rewards and punishments of all kinds, including winning or losing money and gaining or losing social approval (Clark, Cools, & Robbins, 2004; Krawczyk, 2002; Rolls, 2004). Antonio Damasio (1994) has described a dozen patients with prefrontal damage whose symptoms included flat emotions and poor decision making. People with damage in this area often act impulsively, taking the first choice that looks reasonable instead of checking for a better one. They also express less empathy than average for other people in distress (Shamay-Tsoory, Tomer, Goldsher, Berger, & Aharon-Peretz, 2004). Two patients who suffered prefrontal damage during infancy never developed any sense of right and wrong; they frequently stole, lied, and hurt other people, without any signs of guilt (S. W. Anderson, Bechara, Damasio, Tranel, & Damasio, 1999).

One interpretation is that such patients are insensitive to the possible emotional consequences of their decisions (Berlin, Rolls, & Kischka, 2004). Several studies have documented a difficulty in shifting decision-making strategy based on rewards and punishments. For example, suppose your task is to choose button A or button B. Button A produces a monetary reward on 70 percent of trials and a loss on 30 percent; button B produces a reward on 40 percent and a loss on 60 percent. By trial and error, you learn to choose A. Then (without your being told), the rules change so that B produces reward more often than A. Every time you learn which button to choose, the rules switch to favor the other one. Most people learn to reverse their preferences quickly, but people with damage to the orbitofrontal cortex are slow to do so, and over the course of many trials, they choose the wrong stimulus more often than the right one (Berlin et al., 2004).

Also, suppose you had to choose between two decks of cards, each of which produces a gain or loss of money. At first you try both decks, and you discover that deck A has larger rewards than deck B. Soon, however, it becomes clear that deck A also has larger and more frequent losses, so in the long run you would do better with the slow, steady gains from deck B. Most people gradually shift their preference to deck B, but people with orbitofrontal damage continue choosing mostly from deck A (Bechara, 2004; Bechara, Damasio, Damasio, & Lee, 1999).

A plausible interpretation is that those with orbitofrontal damage do not anticipate the negative emotions associated with a loss and, therefore, do not adjust their preferences. According to this interpretation, the patient "Elliot" cannot make decisions because he has a difficult time anticipating

how he might feel after various outcomes. Think of it this way: In response to the question about getting extra change at the bank, you could say that you could return the extra change and have the bank thank you, or you could try to walk away with it, probably get caught, and get a reputation for dishonesty. You prefer the first outcome because you anticipate feeling bad if you get caught running away with extra money. Your decision would be based in part on the emotions you anticipate feeling as a result of the consequences. Elliot doesn't know what to do because he does not anticipate his future emotions, especially the negative ones. Without the ability to imagine future feelings, one outcome seems as good as another.

The Down Side of Relying on Emotions

After discussing the benefits of emotions in decision making, let's consider some disadvantages. As we said earlier, people typically choose the course of action that they expect will bring them the greater happiness or the lesser distress. However, sometimes their estimates of future happiness or distress are seriously mistaken (Mellers & McGraw, 2001). Also, people can pay so much attention to the potential emotional payoff of some event that they overlook how likely or unlikely the event may be.

Consider gambling. Would you risk $1 on a 50 percent chance of winning $2? Most people would not. What about betting $1 on a 1 percent chance of winning $100? Statistically, this is the same as the first bet; you should come out even in the long run. But most people find this second bet more appealing, because winning $100 sounds like much more fun than winning $2. Would you bet $1 on a 0.0001 percent (that is, one in a million) chance of winning $1 million? Again, statistically this is a break-even bet in the long run; however, far more people are willing to make this bet than the 50 percent chance of winning a dollar.

In fact, almost half of U.S. college students say they would bet $10 on a one-in-a-million chance of winning $1 million (Rachlin, Siegel, & Cross, 1994). Statistically, this is a terrible bet. You would have to take a one-in-a-million bet about 700,000 times to have a 50 percent chance of winning at least once, and by that time you would have already lost close to $7 million. People in other countries show the same tendency to prefer bets with a very small chance of a very high payoff (Birnbaum, 1999). (See Figure 13.4.) The low-probability, high-payoff bet seems appealing because we anticipate enormous pleasure from the possible win, and the low probabilities do not weaken our emotions.

Curiously, people who are in a good mood become less interested in gambling, especially if they see some possibility of incurring large losses (Nygren, Isen, Taylor, & Dulin, 1996). One interpretation is that they try to protect their current happiness by avoiding something that might weaken it.

Scott Olson/AFP/Getty Images

FIGURE 13.4 State lotteries entice many people by the lure of a very high (though very unlikely) win.

Emotions and Moral Reasoning

Given the link between emotions and our understanding of good and bad, we should expect emotions to be particularly important in moral reasoning. Let's begin with two examples of difficult moral decisions, which have been of interest to both philosophers and psychological researchers.

Making Quick Decisions

The Trolley Dilemma. A trolley car's brakes have failed, and it is plunging toward five people who cannot move. You are standing at a switch that controls which track the trolley will enter at a junction. If you leave the switch alone, the five people will be killed. If you pull the switch, you send the trolley onto another track, where only one person is standing. Then that person will be killed. Should you pull the switch? If so, your action will kill one person but save five, who are all strangers to you. (See Figure 13.5a.) Compare this dilemma to the next one.

The Footbridge Dilemma. An out-of-control trolley is, again, plunging downhill toward five people. Again, there is no hope that they will jump out of the way. This time there is no switch and only one track, but you are standing on a footbridge above the track. For a split second, you consider diving onto the trolley track to stop the trolley, sacrificing your life to save the other five. Unfortunately (or

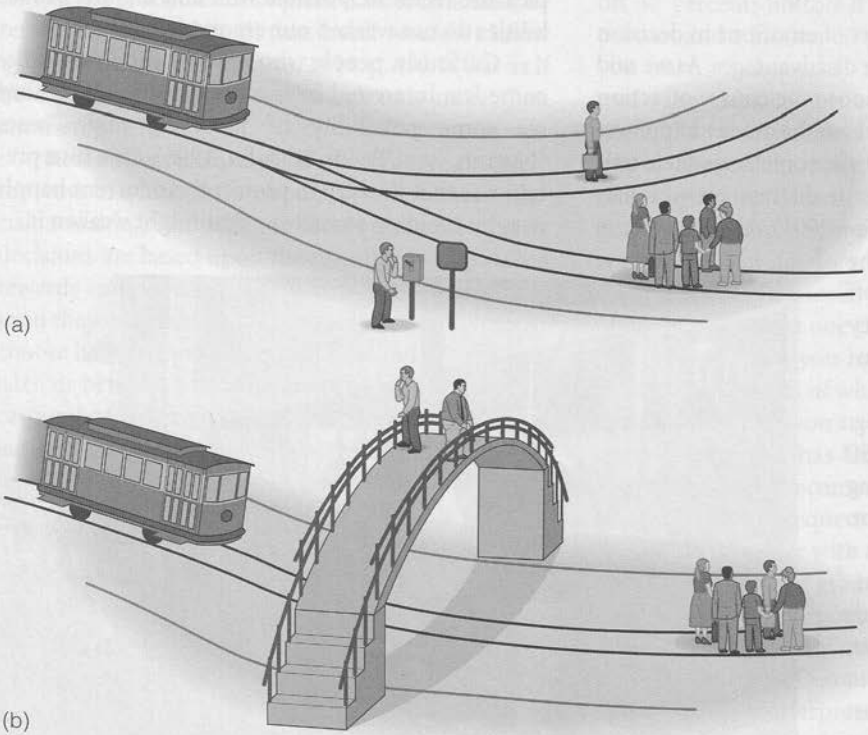


FIGURE 13.5 (a) Would it be right to flip a switch to divert the trolley to a different track in the trolley dilemma? (b) Would it be right to push a stranger off a bridge to block a trolley in the footbridge dilemma? In either case, your action would kill one person but save five others.

fortunately, depending on your point of view), you are not heavy enough to stop the trolley, so your sacrifice would accomplish nothing. However, standing right next to you is a very large wrestler, whose mass would surely stop the trolley. Should you push this person off the bridge to stop the trolley and save the five people's lives? (See Figure 13.5b.)

From a practical standpoint, these are the same dilemma, as you would be killing one person to save five, yet far more people say it is okay to pull the switch in the first example than to push the stranger off the bridge in the second. Even those who decide it is morally right to push the stranger in the footbridge dilemma are slow and hesitant about making that decision, as if they are fighting hard against an impulse to say no (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001). Why is pulling the switch morally better than pushing the stranger? The idea of putting your hands on a stranger to push that person to a painful death is emotionally repugnant, even if the consequences seem good overall. (Of course, you may also hesitate to push a stranger off the bridge for other reasons, including being uncertain that doing so will save the others.)

The Lifeboat Dilemma. Consider a third situation: You are one of six people on a lifeboat in icy waters. The boat was built to hold only five, and it is beginning to sink. The only way to survive is to push someone overboard. Right now the person sitting next to you is precariously balanced on the edge of the boat and not paying attention. You could easily push this person overboard, saving yourself and four others. Should you do it?

Again, your action would kill one person but save five others. One big difference is that now *you* are one of those to be saved. You might decide to push, but even if you do, you will find it a difficult decision. And you will feel guilty afterward. Researchers have found that when people are even thinking about these decisions, as you are now, the process strongly activates the prefrontal cortex and other brain areas known to react to emotional arousal (Greene et al., 2001).

The Framing Effect

Researchers have found that they can shift people's choices in a two-choice situation just by reframing (rephrasing) the question. This observation is known as the **framing effect.** For example, consider the following choice: You are the health director in a small town where 600 people have contracted a potentially deadly illness. If you adopt Health Plan A, you will definitely save the lives of exactly 200 people. If you adopt Plan B, you have a 33 percent chance of saving all 600, but a 67 percent chance of saving no one. Which do you choose? (*Please decide before reading further.*)

Compare the following situation: Again you are the health director in a small town and 600 people are ill. You must choose between two plans. If you adopt Plan C, 400 of these people are sure to die. If you adopt Plan D, there is a 33 percent chance that no one will die, but a 67 percent chance that all 600 will die. Which do you choose? (*Again, please decide before reading on.*)

When these choices were offered to one group of people, 72 percent chose Plan A instead of B, guaranteeing that they would save 200 people. However, 78 percent chose D over C, taking a risk to try to save them all (Tversky & Kahneman, 1981). Note that Plan A is identical to Plan C (200 live and 400 die), whereas Plan B equals Plan D (33 percent chance that all live, 67 percent chance that all die). (See Figure 13.6.) Logically, anyone who prefers Plan A should also prefer Plan C. Why then do so many prefer A and D? The answer has to do with their emotions. In the first scenario, we imagine saving 200 people. That feels good, and the possible joy of saving even more wouldn't feel that much better, so we go with the choice certain to provide a good feeling. In the second situation, the framing of the question focuses on harm. Now we imagine causing the death of 400 people. That would feel terrible, and the thought of killing 600 wouldn't feel that much worse, so we take a gamble to try to avoid the bad feeling of killing anyone. It is emotionally painful to take an action that will kill even

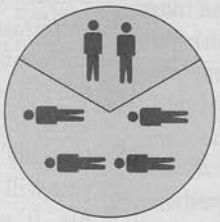
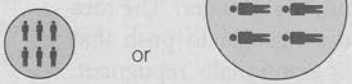
Plan	How question was framed	Plan preferred by	Outcome
A	Save 200 people	72%	 200 live, 400 die
C	400 people will die	22%	
B	33% chance of saving all 600; 67% chance of saving no one	28%	
D	33% chance no one will die; 67% chance all 600 will die	78%	 33% chance 600 live or 67% chance 600 die

FIGURE 13.6 Plan A produces the same effect as Plan C, and Plan B produces the same effect as Plan D. However, Amos Tversky and Daniel Kahneman (1981) found that most people preferred Plan A to Plan B and Plan D to Plan C. The framing of the question suggests different emotional outcomes and alters people's decisions.

one person, and multiplying the number of deaths does not multiply that emotional pain.

Judgments of Right and Wrong

Let's consider yet another moral decision. Here you don't have to decide what you should do, just whether other people have made an acceptable decision: Mark and Julie are brother and sister, college students, traveling together on a summer vacation. One night they are staying alone in a beach cabin, and they decide to have sex with each other. Julie is already taking birth control pills, but Mark uses a condom anyway. They both enjoy the experience, although they decide they will not do it again. They keep this night as their special secret, and neither one feels hurt by the experience. In fact, they grow even closer together. So, what do you think? Was it okay for them to have sex?

Most people immediately scream, "Oh, no!!! Wrong, wrong, wrong!"

Well, okay, but *why* was it wrong? When asked, people begin searching for rational explanations of their reaction (Haidt, 2001). "It's wrong because if Julie got pregnant, that kind of inbreeding would probably produce a deformed child." But the scenario specified that they used two dependable forms of birth control, so pregnancy is not a realistic worry.

"But surely they would be emotionally scarred by the experience." This objection doesn't seem fair, either. The scenario explicitly stated that they both

enjoyed it and neither was emotionally hurt. It is understandable that you might be skeptical, but if you accept what the scenario said, then Mark and Julie enjoyed the experience and were not hurt. Do you still think their act was wrong?

Even then, nearly everyone insists it was morally wrong. If you try long enough, you might propose some new, better explanation for why Mark and Julie were wrong. (For example, "Okay, you say they didn't get hurt, but the risk was huge, and people shouldn't do things with such a huge risk.") However, if you are honest, you will admit that the explanation you eventually thought of was not your reason for saying they were wrong. Your reason was that emotionally it *feels* wrong. The idea of sex between siblings is repulsive to most people in every culture, and some psychologists have even suggested that it is a built-in taboo that evolved in prehistoric times. What is striking is how hard people try to find a logical explanation for what is really an emotional decision.

Emotions also enter into many political attitudes. Consider the death penalty. Are you for it or against it? How much do you actually know about it? Is the murder rate lower in states that have the death penalty? Does the murder rate drop after a highly publicized execution? If a convicted murderer is sent to prison instead of being executed, how soon if ever would he or she be eligible for parole? How often have people been sentenced to death and later found to be innocent? How much more likely are poor people to get the death penalty than rich people, for similar crimes? On questions such as these, most people admit they "don't know" on many of the questions, and when they think they do know, they are almost as likely to be wrong as right. Moreover, most say that the facts do not matter; they could not imagine any fact that would change their attitude (Ellsworth & Ross, 1983). It is understandable that our emotions should be a major part of our attitudes here. What is striking is that facts seem almost irrelevant. Even when people do cite facts, it is as if they made up their minds first and then looked for facts to back up their opinion (Haidt, 2001).

Is it wrong to rely on emotions in decisions like these? That is really a philosophical question rather than a scientific one. If you think the "right" moral decision is the one that a computer would have reached (say, that it is morally right to save five lives by sacrificing one, even if it means shoving the wrestler off the bridge), then emotions are just getting in the way of the "right" decision. And, given people's questionable skills at estimating probabilities, our emotions sometimes push us toward some bad gambles or investments. Keep in mind, though, that scenarios like the footbridge dilemma describe unusual situations, designed so that carefully reasoned logic opposes our instincts. Presumably, emotions evolved because they provide benefits in *most* situations, and one major benefit is that they help us make quick decisions when we do not have time to analyze all the relevant data. These decisions help us to survive and produce healthy offspring. It *feels* wrong to push someone off a lifeboat or to have sex with your brother or sister, and almost all the time it really *is* a bad idea. Your emotions are not always right, but often enough they prepare you for a quick, probably useful response.

◘ Emotional Intelligence

Emotions have gotten something of a bad rap. People often think of emotions as disruptive or dangerous and pushing us toward undesirable behavior. They can certainly feel turbulent and overwhelming. Sometimes they push us toward an illogical course of action. But as we have seen, emotions also help us to make quick, generally useful decisions.

You may be wondering, "If emotions sometimes help me make decisions and sometimes interfere, how do I know when to follow my gut feelings and when to override them?" It's a good question to which there is no consistent answer, except to say that some people seem to know more often than others do. If you know when to follow your emotions, or when to show your emotions and when to suppress them, you are showing a kind of intelligence. Beginning in the 1990s, many psychologists

began discussing **emotional intelligence,** the ability to recognize the meanings of emotions and their relationships and to use emotions effectively in reasoning and problem solving (Mayer, Caruso, & Salovey, 2000). The implication is that people's differences in this ability are consistent over time and situations and that emotional intelligence resembles academic intelligence in some ways but also differs in important ways.

Emotional intelligence might be important when dealing with situations like these:

- You are walking down the street when you notice a young woman sitting alone and crying on a park bench. You pause and look at her. She looks up briefly, curtly says, "Hello," and resumes crying. Should you go over and offer to help, or would she prefer to be left alone?
- You need to get to an appointment fast, and your roommate has promised to drive you. But your roommate is slow in getting ready, and you are starting to feel tense. Do you try to speed up your roommate or do you try to calm yourself down? In either case, how do you do it?
- Someone has just told you a joke that you find insulting. Do you say that the joke offends you or just fail to laugh and hope the person takes the hint?
- An attractive person smiles at you and says hello in a cheerful voice. Was this a flirtation and a signal of a potential romantic relationship? Or was it mere friendliness?
- You are sitting quietly with someone you have been dating for months. You are thinking romantic thoughts but you don't know what your partner is thinking. Would this be a good time to say for the first time, "I love you"? Or is the other person about to break up with you?

In each of these cases, the correct answer is obviously "it depends." In the first example, before you decide whether to offer help to the woman crying on the park bench, you might consider her facial expression, body language, tone of voice, any clues you can see about why she is crying, and so forth. The right answer also depends on who you are. For example, she might be more willing to talk with a woman her own age than with a child or a middle-aged man. Similarly, in any of the other situations, you would assess the whole situation before deciding what to do. The point, however, is that you probably can think of people you know who usually make good decisions in cases like these. They look at someone and quickly discern that person's emotional state. They usually know the right thing to say or do. On the other hand, no doubt you also can think of people who make consistently bad decisions in emotional situations and invariably ignore or misread other people's emotional expressions.

The idea of emotional intelligence began attracting a good deal of attention in the 1990s, both among psychologists and in the popular press, and many people seem to agree that emotional intelligence is important, even though they are not exactly sure what it is. After all, emotions are important and intelligence is good, so emotional intelligence must be valuable too. The term has been used in many ways, however, so we need to work toward a clearer definition. Typically, researchers and theorists emphasize three major components (Mayer et al., 2000):

Perceiving emotions in facial expressions, music, art, and so forth

Understanding and reasoning about emotions

Managing emotions, such as calming oneself down or relieving someone else's anxiety

Measurements of Emotional Intelligence

As we have seen so often in this textbook, understanding and measurement of some concept support each other: The better we understand the concept, the better we know what to measure; and as we make better measurements, we increase our understanding. If we find that we cannot measure something effectively, then we have reason to question

the concept itself. How has emotional intelligence been measured, and what do studies of these measures suggest about the concept?

Self-Report Measures

Psychologists have attempted to measure emotional intelligence in several ways (Ciarrochi, Chan, Caputi, & Roberts, 2001; Conte, 2005). One approach is to treat it like a personality trait and measure it with self-reports. For example, to measure the personality trait *extraversion*, psychologists ask people questions such as these:

> True or false: I have the time of my life at parties.
>
> or
>
> On a scale from 1 to 7, how much do you enjoy meeting new people?

Similarly, some psychologists have tried to measure emotional intelligence with self-report inventories. Here are a few true-false items from one such questionnaire (Austin, Saklofske, Huang, & McKenney, 2004):

> I sometimes can't tell whether someone is serious or joking.
>
> Other people find it easy to confide in me.
>
> I know what other people are feeling just by looking at them.
>
> I help other people feel better when they are down.

As you would guess, a "false" answer on the first of these items counts the same as a "true" on the next three. One problem with a test of this sort is the uncertain accuracy of people's answers. When psychologists measure extraversion, they generally trust people to report honestly how much they enjoy going to parties or meeting new people. But when someone claims to know people's feelings just by looking at them, how much should we trust that answer? Some people give themselves high ratings on social sensitivity but get low ratings from their friends (Carney & Harrigan, 2003). It is possible to be socially insensitive and not realize it. In fact, the more insensitive you are, the less likely you are to notice your mistakes.

The best way to evaluate self-report tests of emotional intelligence is to check their predictive validity. That is, people's scores on a good test of emotional intelligence should predict how well they handle real emotional situations. Most of the research on self-reported emotional intelligence has measured its relationship to how well people *say* they handle emotional situations. That is, the studies compare one self-report to another. This approach is not ideal, but it is better than nothing. According to such studies, people with high self-reported emotional intelligence also rate themselves high on social adjustment (Engelberg & Sjöberg, 2004). They tend to be extraverted and agreeable (Warwick & Nettelbeck, 2004), and they recover better than most people do after a traumatic experience (Hunt & Evans, 2004). Workers with high self-reported emotional intelligence report higher work morale and lower job stress (Dulewicz, Higgs, & Slaski, 2003). Men with low emotional intelligence scores are more likely than others to have psychological disorders (Hemmati, Mills, & Kroner, 2004). Some studies find a significant relationship between overall emotional intelligence and overall positive mood (Schutte, Malouff, Simunek, McKenley, & Hollander, 2002), although other studies do not (Spence, Oades, & Caputi, 2004).

A few studies have related scores to actual (as opposed to self-reported) performance. In one study, people filled out an emotional intelligence questionnaire and also participated in tests of their ability to recognize as quickly as possible the emotional expressions in people's faces. People with higher emotional intelligence scores generally outperformed most other people on this task (Austin, 2004).

In short, the self-report measures do appear to be measuring something, and that something is beneficial. Problems remain, however. One is that,

on the average, men in prison have higher self-reported emotional intelligence than men outside prison (Hemmati, Mills, & Kroner, 2004). The best guess is that some of the questions simply mean something different to prisoners than to others. For example, consider the item, "I know what other people are feeling just by looking at them." Maybe emotional expression in prisons is more intense and, therefore, easier to read. An alternative hypothesis is that prisoners are more confident in their ability to "read" other people, even though they are actually reading them incorrectly. Whatever the explanation, we need to worry about exactly what the test is measuring.

Another problem is that scores on self-report measures of emotional intelligence correlate fairly strongly with measurements of personality traits, such as agreeableness, extraversion, openness to new experiences, and lack of neuroticism (De Raad, 2005; Warwick & Nettelbeck, 2004). If emotional intelligence is to be a useful concept, it needs to be more than a new name for personality traits that psychologists were already measuring.

Ability Measures

The other approach to measuring emotional intelligence is to develop an ability test, comparable to IQ tests or other standardized tests. The best-known and most widely used test of this type is the **Mayer-Salovey-Caruso Emotional Intelligence Test** (MSCEIT, pronounced "mes-keet"). Here are examples, reworded slightly from items in actual use (Mayer, Caruso, & Salovey, 2000):

1. On a scale from 1 to 5, rate the amount of each emotion in the photos you will see. For each emotion, 1 indicates "Definitely Not Present" and 5 indicates "Definitely Present."

   ____Happiness
   ____Anger
   ____Fear
   ____Sadness
   ____Disgust
   ____Surprise

2. A middle-aged man says his work has been piling up and he is falling behind. He works late at night and spends little time with his family. He feels guilty for spending so little time with his wife and daughter, and they feel left out. Recently a relative moved in with them after he got divorced and lost his job. After a while they told him he had to leave because they needed their privacy, but they felt bad about kicking him out.

   On a scale from 1 to 5, where 5 is highest, rate how much this man feels:

   ____ Depressed
   ____ Frustrated
   ____ Guilty
   ____ Energetic
   ____ Liking
   ____ Joyous
   ____ Happy

3. A dog runs into the street and gets hit by a car. The driver stops and the dog's owner hurries to check on the dog.

   On a scale from 1 to 5, where 5 means "extremely likely" and 1 means "extremely unlikely," how would the driver and the dog's owner probably feel?

   ____ The owner would feel angry at the driver
   ____ The owner would feel embarrassed at not training the dog better
   ____ The driver would feel guilty for not driving more carefully
   ____ The driver would feel relieved that it was dog and not a child

4. Someone you know at work looks upset. He asks you to have lunch with him, alone, in a quiet place. After a few minutes, he confides in you that he got his job by lying on his applica-

tion. Now he feels guilty and he is afraid of getting caught. What do you do?

The crucial question here is, *what are the correct answers?* On each item, you might like to answer, "It depends. I need more information!" However, you're not allowed that answer; you have to do your best with the meager information you have. We can imagine several ways of determining the right answers, but each faces serious problems (Roberts, Zeidner, & Matthews, 2001). One way is **expert scoring,** relying on the answers chosen by experts in the field, just as we would ask outstanding mathematicians to determine the correct answers on a mathematics test. However, we are not sure who are the "experts" at emotional intelligence. For want of any better choice, the psychologists doing research on emotional intelligence nominated themselves. But then something strange happened. According to their answer key, men showed slightly higher emotional intelligence than women did. That result gives us reason to scratch our heads. Most people agree that they can think of more women than men who seem to be good at emotional intelligence, given admittedly casual observations and unsystematic criteria. Also, a variety of studies show female superiority at such diverse tasks as identifying facial expressions of emotion from brief presentations (Hall & Matsumoto, 2004), interpreting other kinds of nonverbal communication (Hall, 1978; Hall & Halberstadt, 1994), foreseeing likely breakups in a dating relationship (Z. Rubin, Peplau, & Hill, 1981), and even guessing people's emotions from their smells (Chen & Haviland-Jones, 2000). On the average, women also score higher than men on self-report measures of emotional intelligence (Van Rooy, Alonso, & Viswesvaran, 2005).

What if the researchers' answers to the various questions were wrong? We shouldn't necessarily assume that researchers themselves have high emotional intelligence. After all, people who do research on vision or memory don't necessarily have outstanding vision or memory. Also, people who do research on marriage are not particularly good at identifying which couples have a happy marriage. In one study, people watched videotapes of married couples having short conversations and then guessed how happy the marriage was. The couples themselves had reported their own marital satisfaction, so there was a reasonably clear "right answer." Of all the groups tested, psychologists who had done research on marriage were *least* accurate in estimating the couples' marital satisfaction (Ebling & Levenson, 2003). People who had recently married or recently divorced did much better, on the average. The point is, if we want to use expert judgment as the criterion for some test, we have to be very careful in deciding who the experts are.

A related problem is that most people doing research on emotional intelligence have been men—mostly middle-aged white men. Therefore the "expert scoring" is based on the judgments by one kind of person. A big question is whether emotional intelligence items have any correct answer or whether the answers vary from one group to another. If we are going to rely on expert scoring, then we first need to get a diverse and representative group of "experts," and determine what kind of question, if any, has similar "correct" answers across cultures and subcultures.

A different way to determine the correct answers is **consensus-based scoring**—using the answer given by the largest number of people. That is, the most common answer is considered correct. In most cases, the consensus answer is the same as that chosen by the researchers (Mayer, Salovey, Caruso, & Sitarenios, 2003). (The emotion researchers aren't always wrong.) However, the consensus doesn't always agree with the researchers, and by consensus scoring, women consistently score higher than men do (Kafetsios, 2004). If men are motivated to "try harder," their scores improve, but on the average they still don't catch up with women (Ciarrochi, Hynes, & Crittenden, 2005).

The problem with the consensus method of scoring is that if the right answer is whatever the majority says, then the test can't include any difficult items that only "emotional geniuses" get right. For

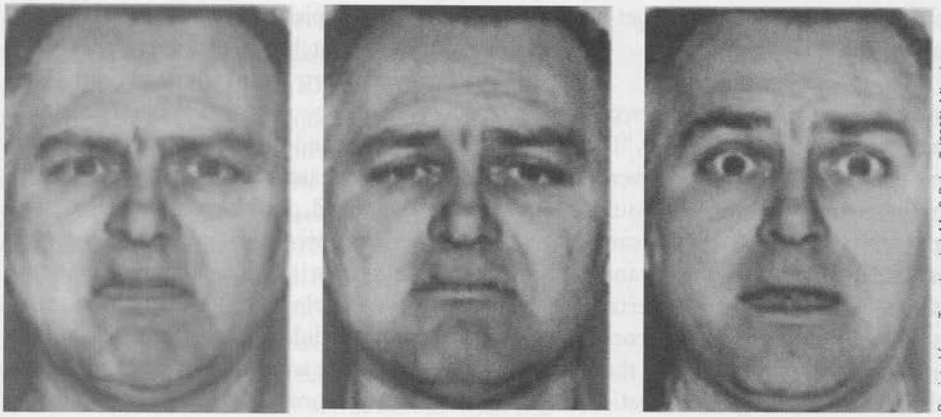


FIGURE 13.7 One way of testing people's ability to interpret facial expressions: Each of these faces is "morphed" (computer combined) between expressions of two emotions. How much happiness, sadness, anger, fear, surprise, and disgust do you see in each of these? Compare your ratings to the answer given at the end of this chapter. Source: Townshend and Duka (2003).

comparison, imagine a mathematics test in which we let people vote to determine the right answer. Because the test could not reward someone who was right when most people were wrong, it could not identify the best mathematicians. It could, however, identify the worst—those who consistently missed even easy questions that almost everyone else got right. Similarly, although the MSCEIT does not identify those with especially outstanding emotional intelligence, it does pick out those with the worst. Some have suggested that we rename it as a test of "emotional stupidity" (Roberts et al., 2001; Zeidner, Matthews, & Roberts, 2001).

In fact, there is merit in identifying people with low emotional intelligence. For example, if we ask people to identify other people's emotions from their facial expressions, as in Figure 13.7, or tone of voice, the people whose answers differ most strongly from the majority consist largely of people known to have problems with social relationships, such as:

- People with schizophrenia (Edwards, Jackson, & Pattison, 2002; Kohler et al., 2003)
- Psychopaths (Blair et al., 2004)
- People with brain damage in and near the amygdala (Adolphs, Baron-Cohen, & Tranel, 2002; H. J. Rosen et al., 2002)
- Alcoholics and recovering alcoholics (who tend to overstate the amount of fear they see in other people's faces) (Kornreich et al., 2001; Townshend & Duka, 2003)
- People who themselves have high anxiety levels (and who tend to overstate the fear they see in others) (Dowden & Allen, 1997; A. Richards et al., 2002)

It is possible to modify the consensus approach to make it a bit more flexible (McCann, Roberts, Matthews, & Zeidner, 2004). For example, suppose you read a paragraph about someone and then try to rate his depression on a 1-to-5 scale. The consensus answer is "5." The scoring system could give you full credit for an answer of 5, part credit for an answer of 4, less for 3, and so on. Another possibility: Suppose on some multiple-choice question, 55 percent choose answer C, 40 percent choose A, 4 percent choose B, and 1 percent choose D. One system would be to give .55 points to everyone who answers C, .4 points for A, and so on. In other words, the scoring system acknowledges that some "wrong" answers are better than others.

An alternative to either expert or consensus scoring is to base the correct answers on responses from **targets**—people who have had the experiences

described in the test questions. For example, for the item about how a driver would feel after accidentally hitting someone's dog, we could find people who have had that experience and ask them. We could show videotapes of interviews with crime suspects, some of whom were later demonstrated to have been lying. The question then would be, "Can you identify who is lying?" We could show videotapes of discussions between married couples, some of whom later got divorced, and ask which couples appeared to be getting along better. We could show videotapes of psychiatric patients, some of whom attempted suicide a few days or weeks later, and ask what emotions each patient expressed. Target-based scoring has great potential, but so far it has not been used extensively.

Reliability and Validity of Emotional Intelligence Tests

Evaluating a test requires more than just being sure the answers are correct. Recall from Chapter 1 that psychologists evaluate tests in terms of reliability (the consistency of an individual's scores) and validity (the relationship between the scores and the behaviors we are trying to predict).

Tests of emotional intelligence, when graded according to consensus answers, yield reliabilities reported to be about .9, which is similar to other standardized psychological tests (Mayer, Salovey, Caruso, & Sitarenios, 2001). We can therefore accept that the test is measuring something, at least for the culture in which it has been used (the United States). Of course, demonstrating reliability indicates only that the test is measuring *something*, which may or may not be emotional intelligence. (For example, it might be measuring conformity.)

The issue of validity is a little different. A test has **predictive validity** if a test score accurately predicts people's behavior in another setting. In the case of emotional intelligence, valid test scores might predict how well people make decisions in emotional and social situations. One preliminary study identified teenagers with high or low scores on a test of emotional intelligence and then asked them to describe an emotional situation in their own lives and how they handled it. First, here is an example from a 14-year-old girl with one of the lowest scores:

> "We were at a birthday party. A game was played. It was stupid, because it made me look like an idiot." [Question: How did you handle it?] "I cried and left." (Mayer, Perkins, Caruso, & Salovey, 2001, p. 135)

In contrast, here is an example from a 16-year-old girl with a very high score:

> "Once my friends wanted to sneak in someone's room and paint them while he slept. It began as joking around. . . . Then it slowly evolved into dares. . . . I felt like it was betraying the trust I had with the other person. . . . I know how little pranks like this could really hurt someone's feelings." [Question: How did you handle it?] "Told them straight out that it was a degrading thing to do and they shouldn't be so cruel." (Mayer, Perkins, Caruso, & Salovey, 2001, p. 136)

This result is promising because the person with the higher score certainly appears to be operating at a higher level. However, this was a preliminary study with just a few participants. Also, it is not obvious whether the test is specifically measuring emotional skills or just verbal skills.

Ideally, we would like to determine whether the emotional intelligence scores predict outcomes such as mental health, job performance, successful marriages, and overall life satisfaction. Studies of short-term outcomes are the easiest to complete, but in many ways the least satisfactory. For example, one study found that emotional intelligence scores did not correlate significantly with the impressions people made on others while working together in one brief session (Day & Carroll, 2004). Long-term studies have generally found positive but weak relationships between emotional intelligence and observed behaviors in work situations (Van Rooy & Viswesvaran, 2004). Several studies have found that people with high emotional intelligence scores have decreased probability of violence and criminal

activity (Brackett, Mayer, & Warner, 2004; Mayer, 2001). These results are promising but hardly overwhelming. Psychologists disagree sharply with one another about whether emotional intelligence tests have enough validity to be useful (Daus & Ashkanasy, 2005; Locke, 2005).

An additional criterion for a good test, after reliability and validity, is that it should not overlap too much with existing tests, because if it does, it adds nothing. Self-report tests of emotional intelligence have a moderately high correlation with measurements of personality traits, such as extraversion, agreeableness, empathy, and lack of neuroticism (De Raad, 2005; Warwick & Nettelbeck, 2004) but only a low correlation with cognitive measures, such as IQ scores (Derksen, Kramer, & Katzko, 2002). Ability tests of emotional intelligence, such as the MSCEIT, correlate moderately well with cognitive measures and less strongly with personality measures (Mayer, Caruso, & Salovey, 2000; O'Connor & Little, 2003).

One study found that a combination of IQ and personality tests correlated .62 with scores on the MSCEIT—a result that becomes even more impressive when we consider the limited reliability of each of these measures (Schulte, Ree, & Caretta, 2004). Another study found that a self-report scale of emotional intelligence correlated .49 with life satisfaction, but it also correlated just as highly with extraversion and lack of neuroticism. In turn, extraversion and lack of neuroticism correlated significantly with life satisfaction. The researchers found that a combination of emotional intelligence and personality factors predicted life satisfaction just slightly better than the personality factors by themselves could (Gannon & Ranzijn, 2005).

In short, emotional intelligence, as currently measured, goes a little beyond measures of cognition and personality but only a little. Its predictive validity for long-term outcomes is positive but not high. However, those conclusions apply only to current measures. If emotional intelligence is a valuable concept, the key is to improve our measurements. Psychologists have a long history of measuring people's abilities, attitudes, and personalities with pencil-and-paper tests, and those procedures may not be well adapted for measuring emotional abilities. In a real-life emotional situation, you see, hear, and sometimes even smell information that a pencil-and-paper test cannot capture. Perhaps an adequate measure requires more realistic situations.

Is Emotional Intelligence Teachable?

It is certainly easy to point out the harm that results from poor emotional intelligence. A husband or wife says something, the other one incorrectly interprets it as hostile, and suddenly a fight erupts for no good reason (Flury & Ickes, 2001). A child on a playground misinterprets another child's facial expression or tone of voice and retreats from the playground in tears (Halberstadt, Denham, & Dunsmore, 2001). No doubt you can think of other examples.

As the concept of emotional intelligence became popular, many people set up programs to teach it or urged the schools to teach it (Elias, Hunter, & Kress, 2001). Given that we are not exactly sure what emotional intelligence is or how to measure it, you shouldn't be surprised that the early attempts to teach it produced no apparent benefits (Izard, 2001). Emotional intelligence is not something we can learn by reading about it or listening to lectures. We probably can learn it, however, in some other way. Measurements of emotional intelligence have found higher scores, on the average, for middle-aged people than for young adults (Derksen, Kramer, & Katzko, 2002; Hemmati, Mills, & Kroner, 2004; Kafetsios, 2004). The research used a cross-sectional design, so conceivably the results could represent a cohort effect. (That is, maybe people who were born in an earlier era developed more emotional intelligence than the current younger generation.) However, the more likely explanation is that as people grow older and more experienced, they learn more emotional intelligence. In contrast, general academic intelligence ("*g*") reaches its peak in the late teens and early 20s, and then starts a long, slow decline. If emotional intelli-

gence increases over the years, it is more like expertise or "crystallized intelligence" (which can be learned) than like fluid intelligence (which is harder to increase).

If emotional intelligence can be learned, how do you learn it? One fascinating study assigned children randomly to receive drama lessons, keyboard lessons, singing lessons, or none. Afterward, the researchers tested the children's abilities to identify people's emotions from their tone of voice (which is one aspect of emotional intelligence). The children who had received either drama or keyboard lessons outperformed those with singing lessons or no lessons. The same researchers found that adults who have had musical training also excel, on the average, at recognizing emotion in other people's speech (Thompson, Schellenberg, & Husain, 2004). Presumably either drama or music lessons train people to listen carefully and attend to subtle aspects of intonation. Why keyboard lessons helped and singing lessons didn't, we don't know. We should be cautious until someone replicates this finding. The main point is that it does make sense to do research on ways of teaching emotional intelligence. Lecturing on "here's how to be emotionally intelligent" probably doesn't work, but indirect kinds of training might.

Summary

When we are confronted with a sudden stimulus or when we have a decision to make, often our emotions respond quickly, before we have consciously identified the stimulus or cognitively pondered the decision. Our emotions are often a useful guide in such cases; they alert us to danger or urge us toward a quick response that is likely to be a good one. Presumably, emotions evolved precisely for this purpose, to prepare us for vigorous, usually correct responses when we have to act quickly.

The problem, of course, is that our quick emotional impulses sometimes differ from the decisions we would make if we thought out the situation logically and leisurely. The difficulty is to know when to follow our emotions and when to override them. Making that decision well is one aspect of emotional intelligence.

Most of us agree that it seems, at least to our unsystematic observations, that some people are better than others at understanding their own emotions and those of others. They control their emotions, judge when to follow their gut feelings and when not to, and so forth. As you have seen, things get tricky when we try to go beyond casual observations and specify exactly what we mean. We have dwelt on the measurement issues because they are critical. If emotional intelligence is real, there should be a reliable and valid way to measure it, and it should be something more than academic intelligence plus personality. At this point, the available measures of emotional intelligence are measuring something but not well enough to live up to the high expectations so many people still have. Future research will determine whether some better way of measuring emotional intelligence will prove to be more useful.

Key Terms

consensus-based scoring: defining the correct answer to some question as the answer given by the largest number of people (p. 275)

emotional intelligence: ability to recognize the meanings of emotions and their relationships and to use emotions effectively in reasoning and problem solving (p. 272)

expert scoring: procedure of determining the correct answer by relying on the answers chosen by experts in the field (p. 275)

framing effect: tendency for people to change their decisions based on how a choice is phrased (p. 269)

Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT): best-known and most widely used pencil-and-paper test to measure emotional intelligence (p. 274)

predictive validity: a test that accurately predicts people's behavior in another setting (p. 277)

risk-as-feelings hypothesis: proposal that people make different choices based on the emotions they feel while making a decision (p. 263)

targets: people who have had the experiences described in the test questions (p. 276)

Yerkes-Dodson law: generalization that learning is at its best when stimulation or arousal is intermediate (p. 260)

Thought Questions

1. Happy people are less likely than others to gamble. One interpretation is that they are avoiding anything that might lower their happiness. Can you think of any other possible interpretation?
2. As discussed earlier regarding the framing effect, discussing a choice in terms of saving lives biases a decision maker toward choosing the sure success (which will feel good). Discussing the same choice in terms of people dying biases the decision maker toward taking a risk to avoid any deaths (which would feel bad). Can you imagine any way to phrase the question neutrally, so it does not favor one choice or the other?

Suggestion for Research Project

Keep a diary of occasions when you observe examples of either good or poor emotional intelligence in those around you. Look for patterns. For example, do certain friends repeatedly show good examples while others show poor examples? Do some situations seem to encourage good emotional decisions more than others?

Suggestion for Further Reading

Matthews, G., Zeidner, M., & Roberts, R. D. (2004). *Emotional intelligence: Science and myth.* Cambridge, MA: MIT Press. As the title implies, this book evaluates the evidence behind claims of emotional intelligence, separating those that the results support from those that appear unfounded.

Answers Concerning Figure 13.7

Left: Morphed to show equal parts of disgust and anger. Middle: Equal parts sadness and disgust. Right: Equal parts surprise and fear.