Feeling Smart: The Science of Emotional Intelligence

A new idea in psychology has matured and shows promise of explaining how attending to emotions can help us in everyday life

Daisy Grewal and Peter Salovey

Over the past decade almost everyone tuned in to American popular culture has heard the term *emotional intelligence*. As a new concept, emotional intelligence has been a hit: It has been the subject of several books, including a best seller, and myriad talk-show discussions and seminars for schools and organizations. Today you can hire a coach to help you raise your "EQ," your emotional quotient—or your child's.

Despite (or perhaps because of) its high public profile, emotional intelligence has attracted considerable scientific criticism. Some of the controversy arises from the fact that popular and scientific definitions of emotional intelligence differ sharply. In addition, measuring emotional intelligence has not been easy. Despite these difficulties, research on emotional intelligence has managed to sustain itself and in fact shows considerable promise as a serious line of scientific inquiry. It turns out that emotional intelligence can indeed be measured, as a set of mental abilities, and that doing so is an informative exercise that can help individuals understand the role of emotions in their everyday lives.

Ten years after the appearance of that bestselling book and a *TIME* magazine cover that asked "What's your EQ?" it seems sensible to ask what is known, scientifically, about emotional intelligence. In the history of modern psychology, the concept represents a stage in the evolution of our thinking about the relation between passion and reason and represents an important outgrowth of new theories of intelligence. Work in this subfield has produced a four-factor model of emotional intelligence that serves as a guide for empirical research. In this article we will explain ways of assessing emotional intelligence using ability-based tests and some of the findings that have resulted from this method.

Daisy Grewal is a doctoral student in the social psychology program at Yale University. She received her B.A. in psychology from the University of California, Los Angeles in 2002 and her M.S. in psychology from Yale in 2004. Her research focuses on gender stereotypes and prejudice, particularly in organizational contexts. Peter Salovey, who earned his Ph.D. from Yale in 1986, is Dean of Yale College and Chris Argyris Professor of Psychology at Yale, where he directs the Health, Emotion, and Behavior Laboratory and holds additional professorships in management, epidemiology and public health, and social and policy studies. His research emphases are the psychological significance and function of mood and emotion, and the application of principles from social and personality psychology to promoting healthy behavior. Address for Salovey: Yale University, Department of Psychology, 2 Hillhouse Avenue, New Haven, CT 06520-8205. Internet for both: daisy.grewal@yale.edu, peter.salovey@yale.edu

Before "Emotional Intelligence"

Philosophers have debated the relation between thought and emotions for at least two millennia. The Stoics of ancient Greece and Rome believed emotion far too heated and unpredictable to be of much use to rational thought. Emotion was also strongly associated with women, in their view, and therefore representative of the weak, inferior aspects of humanity. The stereotype of women as the more "emotional" sex is one that persists today. Even though various romantic movements embraced emotion over the centuries, the Stoic view of emotions as more or less irrational persisted in one form or another well into the 20th century.

But many notions were upended during the rapid development of modern psychology in the 20th century. Setting the stage for a new way of thinking about emotions and thought, psychologists articulated broader definitions of intelligence and also new perspectives on the relation between feeling and thinking. As early as the 1930s, psychometrician Robert Thorndike mentioned the possibility that people might have a "social intelligence"—an ability to perceive their own and others' internal states, motivations and behaviors, and act accordingly. In 1934 David Wechsler, the psychologist whose name today attaches to two well-known intelligence tests, wrote about the "nonintellective" aspects of a person that contribute to overall intelligence. Thorndike's and Wechsler's statements were, however, speculations. Even though social intelligence seemed a definite possibility, Thorndike admitted that there existed little scientific evidence of its presence. A similar conclusion was reached by psychometric expert Lee Cronbach, who in 1960 declared that, after half a century of speculation, social intelligence remained "undefined and unmeasured."

But the 1980s brought a surge of new interest in expanding the definition of intelligence. In 1983 Howard Gardner of Harvard University became famous overnight when, in the book *Frames of Mind*, he outlined seven distinct forms of intelligence. Gardner proposed an "intrapersonal intelligence" very similar to the current conceptualization of emotional intelligence. "The core capacity at work here," he wrote, "is access to one's own feeling life—one's range of affects or emotions: the capacity instantly to effect discriminations among these feelings and, eventually, to label them, to enmesh them in symbolic codes, to draw upon them as a means of understanding and guiding one's behavior."

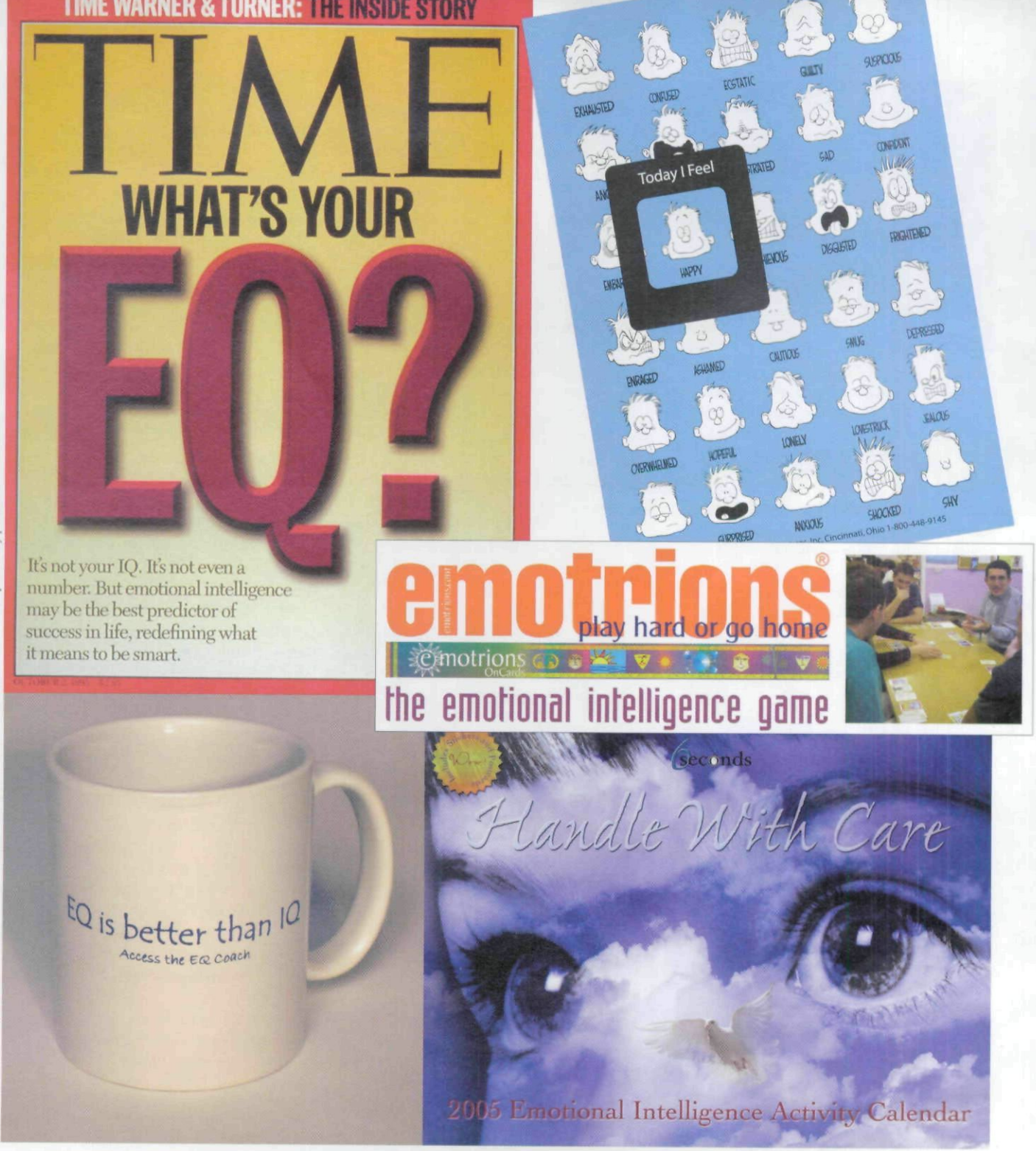


Figure 1. Society has embraced the concept of emotional intelligence since it was introduced in the 1990s. Parents can learn about enhancing their children's "EQ"—the emotional counterpart to IQ—and businesses sometimes hire EQ coaches. The authors report that research has validated tests of emotional intelligence and defined it as a set of skills useful in guiding thinking and social interactions. The *TIME* cover that popularized EQ was published in 1995; other images are examples of products currently available on the Internet. (Product images courtesy of, clockwise from top right: Creative Therapy Associates, Inc.; Triangol Strategy SL; Six Seconds Emotional Intelligence Network; and Susan Dunn.)

Is "emotional intelligence," then, simply a new name for social intelligence and other already-defined "intelligences"? We hope to clear up this thorny question by explaining just what we attempt to measure when assessing emotional intelligence. Certainly it can be seen as a type of social intelligence, but we prefer to explicitly focus on the processing of emotions and knowledge about emotion-related information and suggest that this constitutes its own form of intelligence. Social intelligence is very broadly defined, and partly for this reason the pertinent skills involved have remained elusive to scientists.

Emotional intelligence is a more focused concept. Dealing with emotions certainly has important implications for social relationships, but emotions also contribute to other aspects of life. Each of us has a need to set priorities, orient positively toward future endeavors and repair negative moods before they spiral

Everett Collection; ©Paramount

Figure 2. Emotion was considered irrational by the Stoics, a view that has persisted into modern times and is epitomized by the character of Spock, played by Leonard Nimoy on the *Star Trek* television series. Spock hailed from the planet Vulcan, where pure logic is exalted, making him the consummate Starfleet science officer; yet his Vulcan father had married a human schoolteacher, giving Spock a vulnerable emotional side.

into anxiety and depression. The concept of emotional intelligence isolates a specific set of skills embedded within the abilities that are broadly encompassed by the notion of social intelligence.

Emotion and Thinking

New understandings of the relation between thought and emotion have strengthened the scientific foundation of the study of emotional intelligence. Using a simple decision-making task, neurologist Antonio R. Damasio and his colleagues at the University of Iowa have provided convincing evidence that emotion and reason are essentially inseparable. When making decisions, people often focus on the logical pros and cons of the choices they face. However, Damasio has shown that without feelings, the decisions we make may not be in our best interest.

In the early 1990s Damasio had people participate in a gambling task in which the goal is to maximize profit on a loan of play money. Participants were instructed to select 100 cards, one at a time, from four different decks. The experimenter arranged the cards such that two of the decks provided larger payoffs ($100 compared to only $50) but also doled out larger penalties at unpredictable intervals. Players who chose from the higher-reward, higher-risk decks lost a net of $250 every 10 cards; those choosing the $50 decks gained a net of $250 every 10 cards.

One group of participants in this study had been identified as having lesions to the ventromedial prefrontal cortex of the brain. Patients with this type of brain damage have normal intellectual function but are unable to use emotion in making decisions. The other group was normal, meaning that their brains were fully intact. Because there was no way for any of the players to calculate precisely which decks were riskier, they had to rely on their "gut" feelings to avoid losing money.

Damasio's group demonstrated that the brain-lesion patients failed to pay attention to these feelings (which he deems "somatic markers") and subsequently lost significantly more money than the normal participants. Therefore, defects in the brain that impair emotion and feeling detection can subsequently impair decision-making. Damasio concluded that "individuals make judgments not only by assessing the severity of outcomes, but also and primarily in terms of their emotional quality." This experiment demonstrates that emotions

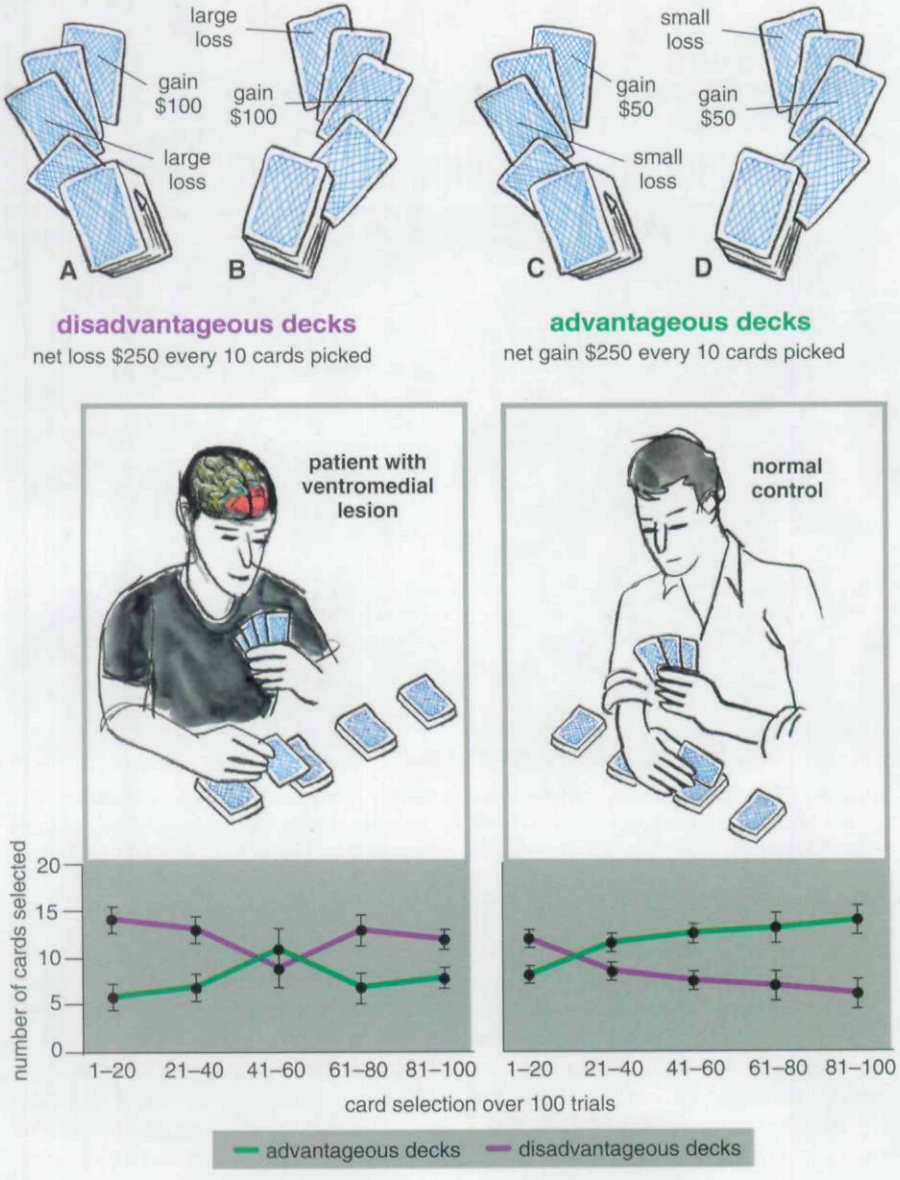


Figure 3. Recent research contradicts the Stoic view that dismisses emotion as an impediment to rational thought. In a gambling experiment at the University of Iowa, patients with brain damage that impaired their use of emotions in decision-making found themselves continually losing money. Patients with lesions to the ventromedial prefrontal cortex performed the same task as normal patients, choosing cards from four decks with the goal of maximizing a play-money profit. The decks with high-payoff cards ($100 each) also contained high-penalty cards, so that over 10 cards the net loss was $250. Other decks had low-payoff ($50) cards combined with smaller penalties, yielding a gain of $250 every 10 cards. The normal patients, paying attention to their "gut feelings," maximized their gains by taking more and more cards from the advantageous decks; the lesioned patients continued losing. (Data from Bechara *et al.* 2000.)

and thought processes are closely connected. Whatever notions we draw from our Stoic and Cartesian heritages, separating thinking and feeling is not necessarily more adaptive and may, in some cases, lead to disastrous consequences.

The Four-Branch Model

The term "emotional intelligence" was perhaps first used in an unpublished dissertation in 1986. One of us (Salovey), along with John D. Mayer of the University of New Hampshire, introduced it to scientific psychology in 1990, defining emotional intelligence as "the ability to monitor one's own and others' feelings, to discriminate among them, and to use this information to guide one's thinking and action."

Some critics have seen the concept of emotional intelligence as a mere outgrowth of the late-20th-century zeitgeist—and indeed, as we reflect in the conclusion to this article, today the term has a vibrant pop-culture life of its own. But within psychology, the concept developed out of a growing emphasis on research on the interaction of emotion and thought. In the late 1970s psychologists conducted experiments that looked at a number of seemingly unrelated topics at the interface of feeling and thinking: the effect of depression on memory, the perception of emotion in facial expressions, the functional importance of regulating or expressing emotion.

Emotional intelligence is one of the concepts that emerged from this work. It integrates a number of the results into a related set of skills that can be measured and differentiated from personality and social skills; within psychology it can be defined as an intelligence because it is a quantifiable and indeed a measurable aspect of the individual's capacity to carry out abstract thought and to learn and adapt to the environment. Emotional intelligence can be shown to operate on emotional information in the same way that other types of intelligence might operate on a broken computer or what a photographer sees in her viewfinder.

Interested in helping the field of emotions develop a theory that would organize the numerous efforts to find individual difference in emotion-related processes, Salovey and Mayer proposed a four-branch model of emotional intelligence that emphasized four domains of related skills: (a) the ability to perceive emotions accurately; (b) the ability to use emotions to facilitate thinking and reasoning; (c) the ability to understand emotions, especially the language of emotions; and (d) the ability to manage emotions both in oneself and in others. This four-branch emotional intelligence model proposes that individuals differ in these skills and that these differences have consequences at home, school and work, and in social relations.

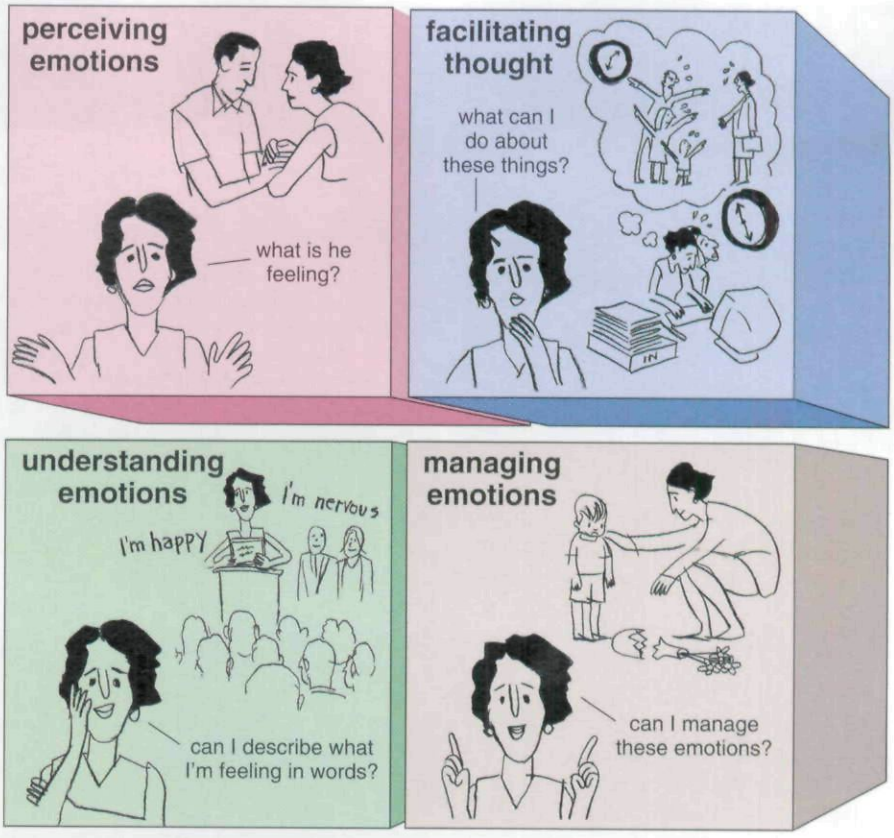


Figure 4. Emotional intelligence is a set of skills that author Peter Salovey and colleague John D. Mayer organized into four domains: the ability to perceive emotions accurately, the ability to use emotions to facilitate thinking and reasoning, the ability to understand emotions and the ability to manage emotions both in oneself and in others (Mayer and Salovey 1997). Differences in these skills are seen to have consequences at home, school and work, and in social relations.

Perceiving and Using Emotions

The first domain of emotional intelligence, *perceiving emotions*, includes the abilities involved in identifying emotions in faces, voices, pictures, music and other stimuli. For example, the individual who excels at perceiving emotions can quickly tell when his friend is upset by accurately decoding his friend's facial expressions.

One might consider this the most basic skill involved in emotional intelligence because it makes all other processing of emotional information possible. In addition, our skill at reading faces is one of the attributes humans share across cultures. Paul Ekman of the University of California, San Francisco showed pictures of Americans expressing different emotions to a group of isolated New Guineans. He found that the New Guineans could recognize what emotions were being expressed in the photographs quite accurately, even though they had never encountered an American and had grown up in a completely different culture.

But emotion perception does vary across individuals. A study by Seth D. Pollak at the University of Wisconsin-Madison in 2000, for example, demonstrated that physical abuse might interfere with children's ability to adaptively perceive facial expressions.

Pollak asked abused and nonabused children, aged 8 to 10, to come into the laboratory to play "computer games." The children were shown digitally morphed faces that displayed emotional expressions that ranged from happy to fearful, happy to sad, angry to fearful, or angry to sad. In one of the games, the children were shown a single picture and asked to identify which emotion it expressed. Because all the faces expressed varying degrees

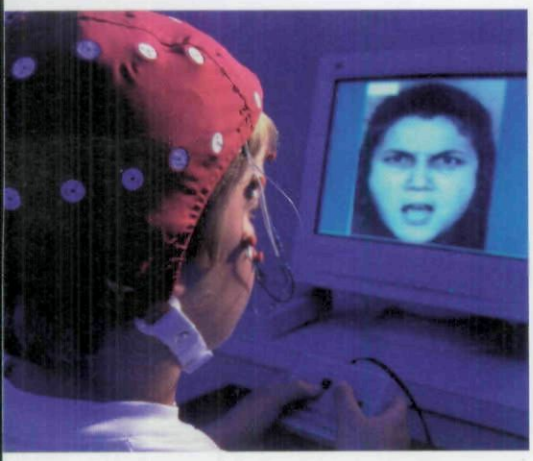


Figure 5. Perceiving emotions might seem to be a basic skill shared by all human beings. Cross-cultural studies show that people perceive emotions in predictable ways. But individual skills can vary—for instance, in children who have suffered abuse. In a Wisconsin experiment, abused children encountering digitally morphed faces *(above)* in a computer "game" were more prone than normal children to categorize the faces as angry. Electrodes attached to their scalps *(left)* recorded higher brain activity in these children when they viewed an angry face. (Images courtesy of the University of Wisconsin-Madison.)

of a certain emotion, the investigators were able to discover how the children perceived different facial expressions. They found that the abused children were more likely to categorize a face as angry, even when it showed only a slight amount of anger.

In addition, Pollak measured the brain activity of the children while completing this task using electrodes attached to their scalps. The abused children also exhibited more brain activity when viewing an angry face. This research shows that life experiences can strongly shape the recognition of facial expression. We can speculate that this difference in likelihood to perceive anger may have important consequences for the children's interactions with other people.

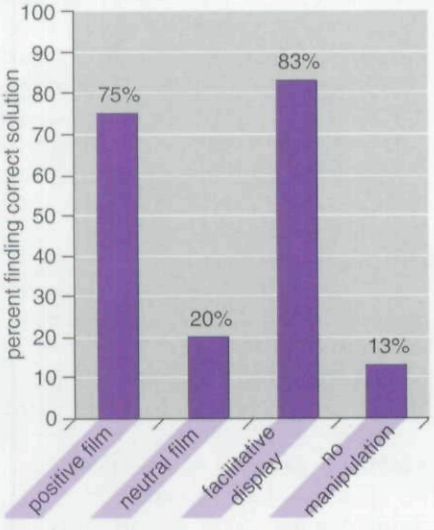


Figure 6. Positive emotions can improve performance on a task. In a Cornell University experiment, students were given a simple problem-solving task after they had watched a comedy film or a neutral film. The students who had viewed the comedy film had a much higher success rate than those who had watched a neutral film or seen no film. Viewing a comedy film was almost as "helpful" as a display providing useful clues. (Data from Isen *et al.* 1987.)

The second branch of emotional intelligence, *using emotions*, is the ability to harness emotional information to facilitate other cognitive activities. Certain moods may create mind-sets that are better suited for certain kinds of tasks.

In a clever experiment done during the 1980s, Alice Isen of Cornell University found that being in a happy mood helps people generate more creative solutions to problems. Isen brought undergraduates into the laboratory and induced either a positive mood (by showing them comedy clips) or a neutral mood (by showing them a short segment from a math film).

After watching one of the films, each student was seated at an individual table and given a book of matches, a box of tacks and a candle. Above the table was a corkboard. The students were given 10 minutes to provide a solution to the following challenge: how to affix the candle to the corkboard in such a way that it would burn without dripping wax onto the table. Those students who had watched the comedy films, and were therefore in a happier mood, were more likely to come up with an adequate solution to the problem: They realized that the task can be easily accomplished by emptying the box, tacking it to the wall and using it as a platform for the candle. It appears that emotional intelligence can facilitate certain tasks; the emotionally intelligent person can utilize pleasant feelings most effectively.

Understanding and Managing Emotion

Mayer and Salovey classified the third and fourth branches of the emotional intelligence model as "strategic" (rather than "experiential") intelligence. The third branch, *understanding emotions*, is the ability to comprehend information about relations between emotions, transitions from one emotion to another, and to label emotions using emotion words. A person who is good at understanding emotions would have the ability to see differences between related emotions, such as between pride and joy. The same individual would also be able to recognize, for instance, that irritation can lead to rage if left unattended.

Boston College psychologist Lisa Feldman Barrett has demonstrated that the ability to differentiate one's emotional states has important implications for well-being. Feldman Barrett and her colleagues asked a group of 53 undergraduates to keep a daily diary of their emotions for two weeks. Specifically, they assessed the most intense emotional experience they had each day by rating the intensity of their experience of nine emotions, represented by words, on a scale from 0, *not at all*, to 4, *very much*. Four of the emotion words related to positive emotion (happiness, joy, enthusiasm, amusement); five related to negative emotion (nervous, angry, sad, ashamed, guilty).

Feldman Barrett and her colleagues then calculated the correlations between reported experiences of positive emotions and also looked at how correlated were reported experiences of negative emotions. A subject whose reports of positive emotions are highly correlated is perceiving less differentiation between positive states. Similarly, larger correlations between the reports of each negative emotion indicate less differentiation between negative states.

At the end of the study, all participants completed a questionnaire assessing the extent to which they engaged in various emotion-regulation

strategies during the previous two weeks (for example, "talking to others"). Greater differentiation between positive emotional states had no effect on regulation strategies. But differentiation of negative states clearly did. That is, participants who were able to more specifically pinpoint *what* negative emotion they were feeling each day also engaged in more strategies for managing their emotions. This shows that the ability to distinguish and label emotions may represent an important skill in learning how to handle emotions successfully.

The fourth branch of emotional intelligence is the ability to manage one's emotions as well as the emotions of others. This skill of *managing emotions* is perhaps the most commonly identified aspect of emotional intelligence. Emotional intelligence is far more than simply being able to regulate bad moods effectively. It can also be important to maintain negative emotions when needed. For example, a speaker trying to persuade her audience of some injustice should have the ability to use her own outrage to stir others to action.

An example of how using different strategies for managing emotions can have different consequences is found in the work of James S. Gross of Stanford University. In experiments during the mid-1990s, Gross showed undergraduates video clips from medical procedures, such as amputation, that elicit disgust. The students were divided into three different groups. In the suppression condition, the students were instructed to hide their emotions during the film as much as possible by limiting their facial expressions. In the reappraisal condition, students were instructed to view the film as objectively as possible and to remain emotionally detached from what they were seeing. The third group was given no special instructions before viewing the film. All of the students' reactions to the films were recorded by video camera, and their physiological reactions, such as heart rate and skin conductance, were also measured. In addition, participants were asked to make self-reports of their feelings before, during and after watching the film.

The students in the suppression and reappraisal conditions had strikingly different experiences from watching the film. In the suppression condition, participants were able to successfully reduce the outward experience of their emotions by reducing their facial expressions and other behavioral reactions to the film. However, they showed heightened physiological arousal and reported feeling as much disgust as controls. The participants in the reappraisal condition reported lower levels of disgust upon watching the film while not displaying any heightened physical arousal (compared to controls). Gross's work demonstrates that there might be important, and sometimes hidden, physical costs for those individuals who chronically suppress expression of their negative emotions; nevertheless, monitoring and evaluating one's emotions may be strategically useful.

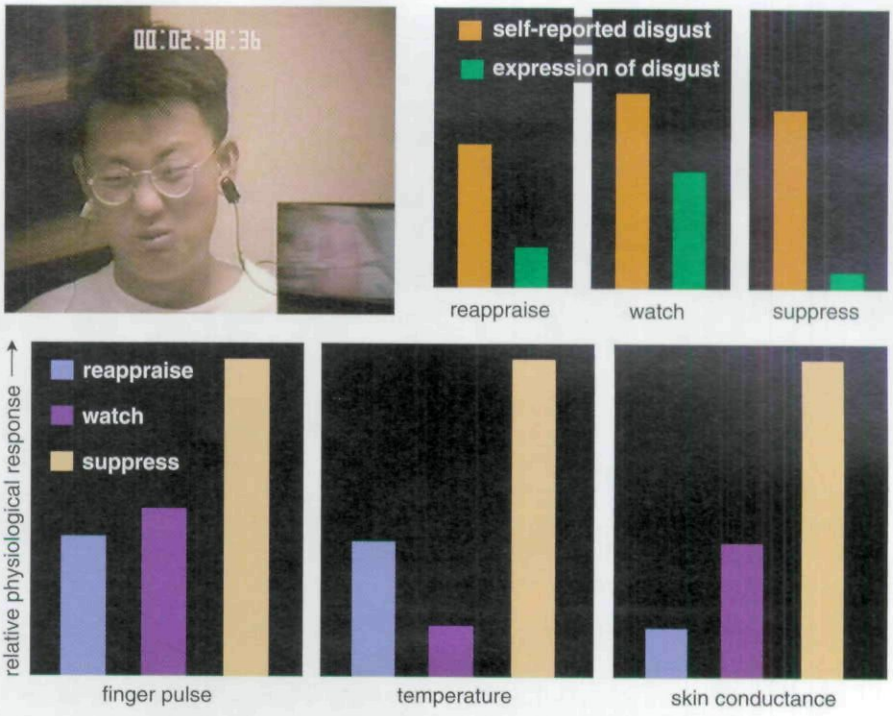


Figure 7. Studies have shown that people skilled at managing emotions are not necessarily suppressing negative emotions or controlling their expression. A Stanford experiment showed the results of following two intentional strategies in dealing with an unpleasant experience: remaining objective and detached ("reappraise"), and hiding emotion by limiting facial expression ("suppress"). Students were shown a medical video chosen to elicit disgust. Controls (the "watch" group) were observed to have disgusted expressions *(top left)*; they reported feeling disgusted and displayed spikes in physiological reaction measures *(bottom panels)*. The reappraisal group generally scored lower on observed and self-reported behavioral reactions and had comparable physiological responses; the suppression group controlled their facial expressions but had unusually strong physiological responses. (Image courtesy of James Gross, Stanford University; data from Gross 1998.)

Measuring Emotional Intelligence

Any attribute being suggested as a form of intelligence must meet the standards of psychometrics, the field of psychological measurement. Scientists must be able to show that tests do not merely capture personality traits or information about other abilities. Three approaches to measuring emotional intelligence have been used: self-report tests, reports made by others and ability-based tests. Self-report tests were developed first and continue to be widely used, owing to the ease with which they can be administered and scored. Test-takers agree or disagree with items that attempt to capture various aspects of perceived emotional intelligence. For example, the popular Self-Report Emotional Intelligence Test (SREIT), authored by Nicola Schutte, asks respondents to rate how much they agree with such items as "I have control over my emotions," and "Other people find it easy to confide in me."

Reports made by others are commonly collected using "360" instruments. People who frequently interact with one another (such as friends and colleagues) are asked to rate one another's apparent degree of emotional intelligence. These instruments commonly contain items similar to those used in self-report tests, such as the statement "This person has control over his or her emotions."

Unfortunately, self-report tests assess self-estimates of attributes that often extend beyond definitions of emotional intelligence. They tend to

incorporate facets of personality and character traditionally measured by existing personality tests.

Assessing emotional intelligence through self-report measures also presents the same dilemma one would face in trying to assess standard analytic intelligence by asking people, "Do you think you're smart?" Of course most people want to appear smart. Also, individuals may not have a good idea of their own strengths and weaknesses, especially in the domain of emotions. Similarly, although reports made by others seem more promising in providing accurate information, they are also highly vulnerable to biased viewpoints and subjective interpretations of behavior.

In an attempt to overcome these problems, the first ability-based measure of emotional intelligence was introduced in 1998 in the form of the Multi-factor Emotional Intelligence Scale (MEIS). An improved and professionally published version of the MEIS, from which problematic items were eliminated, was released in 2002 in the form of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT, named for Mayer, Salovey and collaborator David R. Caruso of the EI Skills Group).

The MSCEIT consists of eight different tasks—two tasks devoted to each of the four branches of emotional intelligence. For example, the first branch, perceiving emotions, is tested by presenting participants with a photograph of a person and then asking them to rate the amount of sadness, happiness, fear etc. that they detect in the person's facial expression. Skill in using emotions is tested by having people indicate how helpful certain moods, such as boredom or happiness, would be for performing certain activities, such as planning a birthday party. The understanding-emotions portion of the test includes questions that ask participants to complete sentences testing their knowledge of emotion vocabulary and how emotions can progress from one to another. The test section addressing the fourth branch, managing emotions, presents participants with real-life scenarios. Participants are asked to choose, from several options, the best strategy for handling the emotions brought up in each scenario. After completing the MSCEIT, scores are generated for each of the four branches as well as an overall total score.

How Good Is the Test?

Marc A. Brackett of Yale University and Mayer calculated the extensive overlap between self-report tests of emotional intelligence and commonly used tests of personality. Many studies of personality are organized around The Big Five model of personality; they ask participants to self-rate how much they exhibit the following traits: neuroticism, extraversion, openness, agreeableness and conscientiousness.

Brackett and Mayer administered scales assessing The Big Five to a group of college students along with the MSCEIT and the SREIT. They found that scores on Big Five personality traits were more highly correlated with participants' scores on the SREIT than on the MSCEIT. The trait of "extraversion," for example, had a correlation of 0.37 with scores on the SREIT but only correlated 0.11 with scores on the MSCEIT. Therefore, it appears that self-report tests of emotional intelligence may offer limited information about a person above and beyond standard personality questionnaires.

The biggest problem one faces in trying to use an ability-based measure of emotional intelligence is how to determine correct answers. Unlike traditional intelligence tests, emotional intelligence tests can lack clear right or wrong solutions. There are dozens of ways one could handle many emotion-laden situations, so who should decide which is the emotionally intelligent way of doing things? Intrinsic to the four-branch model of emotional intelligence is the hypothesis that emotional skills cannot be separated from their social context. To use emotions in a useful way, one must be attuned to the social and cultural norms of the environment in which one interacts. Therefore, the model proposes that correct answers will depend highly upon agreement with others of one's own social group. Furthermore, experts on emotion research should also have the ability to identify correct answers, since scientific methods have provided us with good knowledge on correct alternatives to emotion-related problems.

Consequently, the MSCEIT is scored using two different methods: general consensus and expert scoring. In consensus scoring, an individual's answers are statistically compared with the answers that were provided by a diverse worldwide sample of 5,000 respondents aged 18 or older who completed the MSCEIT prior to May 2001. The sample is both educationally and ethnically diverse, with respondents from seven different countries including the United States.

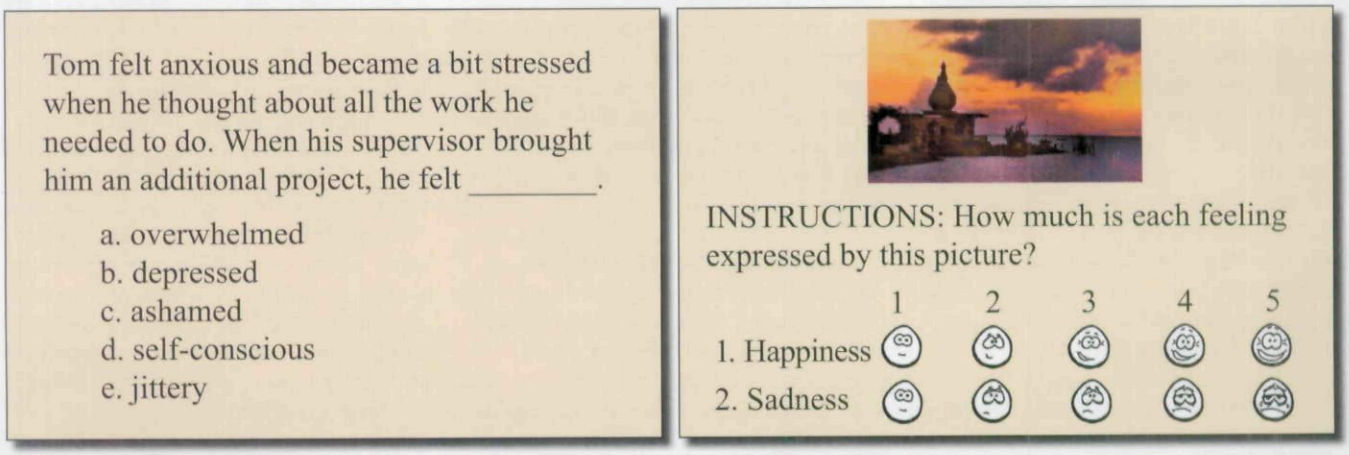


Figure 8. Many attempts at testing emotional intelligence rely on self-reporting or the ratings of friends and colleagues. These tests often capture personality or character attributes. The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), released in 2002, attempts to provide an ability-based measure less susceptible to bias. These panels show sample questions similar to those used in the MSCEIT.

expert opinion

general consensus

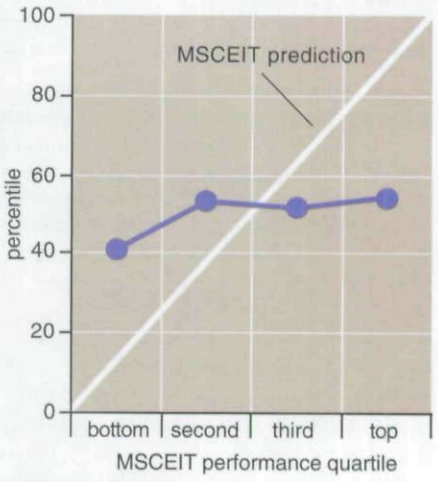
		perceiving		facilitating		understanding		managing	
		faces	pictures	facilitation	sensations	changes	blends	emotion management	emotional relationships
perceiving	faces	1.000	0.356	0.300	0.315	0.191	0.157	0.191	0.179
	pictures	0.347	1.000	0.288	0.400	0.286	0.263	0.282	0.271
	facilitation	0.340	0.328	1.000	0.313	0.283	0.242	0.262	0.262
facilitating	sensations	0.336	0.402	0.352	1.000	0.388	0.374	0.384	0.415
	changes	0.225	0.282	0.255	0.382	1.000	0.575	0.437	0.417
understanding	blends	0.171	0.260	0.224	0.375	0.589	1.000	0.425	0.424
	emotion management	0.232	0.300	0.299	0.395	0.417	0.416	1.000	0.542
managing	emotional relationships	0.191	0.275	0.269	0.411	0.395	0.409	0.575	1.000

In the consensus approach, greater statistical overlap with the sample's answers reflects higher emotional intelligence. In expert scoring, a person's answers are compared with those provided by a group of emotion experts, in this case 21 emotion investigators elected to the International Society for Research on Emotions (ISRE).

The amount of overlap between consensus and expert scoring has been carefully examined. Participants' responses have been scored first using the consensus method and then the expert method, and these results are then correlated with each other. The average correlation between the two sets of scores is greater than 0.90, indicating sizable overlap between the opinions of experts and the general consensus of test-takers. Laypeople and emotion experts, in other words, converge on the most "emotionally intelligent" answers. The scores of the experts tend to agree with one another more than do those of the consensus group, indicating that emotion experts are more likely to possess a shared social representation of what constitutes emotional intelligence.

The MSCEIT has demonstrated good reliability, meaning that scores tend to be consistent over time and that the test is internally consistent. In sum, given its modest overlap with commonly used tests of personality traits and analytic intelligence, the MSCEIT seems to test reliably for something that is distinct from both personality and IQ.

Figure 9. To be considered an intelligence by psychologists, a set of abilities must meet several criteria. For starters, the abilities tested must form a related set. The table above shows intercorrelations among the eight abilities tested by the MSCEIT based on a worldwide sample ("general consensus") and the opinions of emotion experts asked to choose best answers. Both measures show convergence. By comparison, self-report measures do not correlate well with performance on the MSCEIT. At right the self-report scores of test takers *(purple)* are plotted against their MSCEIT performance by quartile. People tend to overestimate (bottom quartile) or underestimate (top quartile) their skills in self-report tests. (Data above from Mayer *et al.* 2003; data at right courtesy of Marc Brackett.)



Putting Research to Work

Research on emotional intelligence has been put to practical use with unusual speed. The reason may be simple: Experiments suggest that scores on ability-based measures of emotional intelligence are associated with a number of important real-world outcomes.

Emotional intelligence may help one get along with peers and supervisors at work. Paulo N. Lopes of the University of Surrey in the United Kingdom spearheaded a study conducted at a Fortune 500 insurance company where employees worked in teams. Each team was asked to fill out surveys that asked individuals to rate other team members on personal descriptors related to emotions such as, "This person handles stress without getting too tense," or "This person is aware of the feelings of others."

Supervisors in the company were also asked to rate their subordinates on similar items. Everyone who participated in the study also took the MSCEIT. Although the sample of participants was small, employees who scored higher on the MSCEIT received more positive ratings from both their peers and their supervisors. Their peers reported having fewer conflicts with them, and they were perceived as creating a positive atmosphere at work. Supervisors rated their emotionally intelligent employees as more interpersonally sensitive, sociable, tolerant of stress and possessing more leadership potential. Higher scores were also positively associated with rank and salary in the company.

Emotional intelligence may also be important for creating and sustaining good relationships with peers. A different study conducted by Lopes and his collaborators asked German college students to keep diaries that described their everyday interactions with others over a two-week period. For every social interaction that lasted at least 10 minutes, students were asked to record the gender of the person they interacted with, how they

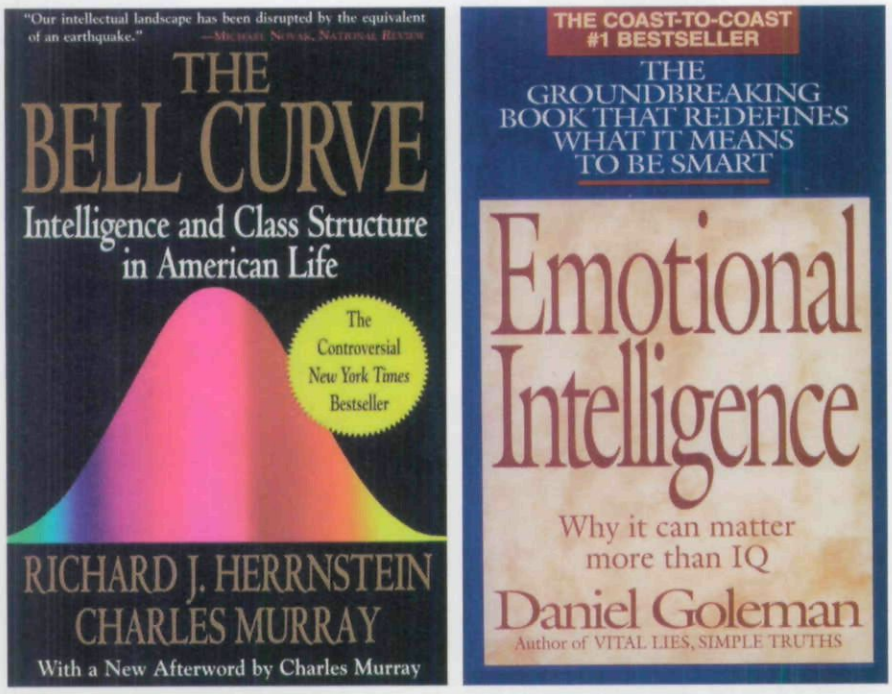


Figure 10. Emotional intelligence is sometimes dismissed as an expression of the zeitgeist of the 1990s. When published in 1995, Daniel Goleman's book *Emotional Intelligence* quickly became a best seller. The controversy provoked by *The Bell Curve* (1994) had left many people with the unhappy sense that their life prospects were doomed by their relatively immutable IQ. The chance to succeed by building and harnessing emotional skills was appealing. Although popularization of the concept has distorted the original scientific definition, the authors conclude that publicity has been more beneficial than harmful, stimulating interest in emotion among employers and educators.

felt about the interaction, how much they had wanted to make a certain impression, and to what extent they thought they succeeded in making that impression.

Scores on the using-emotions branch of the MSCEIT were positively related to how enjoyable and interesting students found their interactions to be, as well as how important and safe they felt during them. Scores on the managing-emotions branch seemed most important in interactions with the opposite sex. For these interactions, students scoring high on managing emotions reported more enjoyment, intimacy, interest, importance and respect. In addition, managing emotions was positively related to the students' beliefs that they had made the desired impression on their opposite-sex partners (coming across as friendly, say, or competent).

Brackett also investigated how scores on the MSCEIT relate to the quality of social relationships among college students. American college students completed the MSCEIT along with questionnaires assessing the quality of their friendships and their interpersonal skills. In addition, these students were asked to recruit two of their friends to evaluate the quality of their friendship. Individuals scoring high in managing emotions were rated as more caring and emotionally supportive by their friends. Scores on managing emotions were also negatively related to friends' reports of conflict with them. In another recent study by Nicole Lerner and Brackett, Yale students who scored higher in emotional intelligence were evaluated more positively by their roommates; that is, their roommates reported experiencing less conflict with them.

Emotional intelligence may also help people more successfully navigate their relationships with spouses and romantic partners. Another study headed by Brackett recruited 180 young couples (mean age 25 years) from the London area. The couples completed the MSCEIT and then filled out a variety of questionnaires asking about aspects of the couples' relationships, such as the quality of the interactions with their partners and how happy they were with the relationship. Happiness was correlated with high scores for both partners, and where one partner had a high score and the other a low score, satisfaction ratings tended to fall in the intermediate range.

The Future of Emotional Intelligence

Context plays an important role in shaping how these skills are put into action. We can all name people—certain notable politicians come to mind—who seem extremely talented in using their emotions in their professional lives while their personal lives seem in shambles. People may be more adept at using the skills of emotional intelligence in some situations than in others. A promising direction for future research is a focus on fluid skills rather than crystallized knowledge about emotions.

Although it has proved valuable so far as a test of general emotional intelligence, the MSCEIT requires refinement and improvement. We view the MEIS and the MSCEIT as the first in a potentially long line of improved ways of assessing emotional abilities.

We believe research on emotional intelligence will be especially valuable if focused on individual differences in emotional processes—a topic we hope will continue to generate more empirical interest. The science of emotion thus far has stressed principles of universality. Ekman's work on faces, mentioned above, and similar cross-cultural findings offer important insights into the nature of human emotional experience. However, in any given culture, people differ from one another in their abilities to interpret and use emotional information. Because individual deficits in emotional skills may lead to negative outcomes, anyone interested in improving emotional skills in various settings should focus on how and why some people, from childhood, are better at dealing with emotions than others. Such knowledge provides the hope of being able to successfully teach such skills to others.

The Popularization of "EQ"

Media interest in emotional intelligence was sparked by *New York Times* science writer Daniel Goleman's bestselling book *Emotional Intelligence* in 1995. In October of the same year came the *TIME* magazine cover and additional media coverage proclaiming emotional intelligence the new way to be smart and the best predictor of success in life.

The late 1990s provided the perfect cultural landscape for the appearance of emotional intelligence. The latest in a string of IQ controversies had broken out with the 1994 publication of *The Bell Curve*, which claimed that modern society has become increasingly strati-

fied not by money, power or class, but by traditionally defined intelligence.

The Bell Curve was read as advocating a view that intelligence is the most important predictor of almost everything that seems to matter to most people: staying healthy, earning enough money, even having a successful marriage. Yet half the population, by definition, has below-average IQs; moreover, IQ is seen as difficult to change over one's lifespan. For many readers, *The Bell Curve* contained an extremely pessimistic message. As if to answer the growing fear that a relatively immutable IQ is the primary predictor of success in life, Goleman's book on emotional intelligence included the phrase, "Why it can matter more than IQ," right on the cover. The public responded favorably to this new promise, and the book soon became a staple on airport newsstands worldwide.

Skepticism over narrow definitions of the word "intelligence" resonated powerfully with a public that seemed to agree that something else—something more intangible—may more strongly determine the quality of one's life. Evidence that the Scholastic Aptitude Test (SAT), which is highly correlated with IQ, fails to predict academic success especially well beyond the first year of college continued to fuel interest in how emotional skills, or something else beside traditional intelligence, may more significantly determine one's future accomplishments. Americans have always prided themselves on a strong work ethic; the motto that "slow and steady wins the race" represents an attitude that fits well with public conceptions of emotional intelligence as a mark of good character. Americans also have a strong collective self-image of equality, which popular views of emotional intelligence support by characterizing success as dependent on a set of skills that anyone can learn.

Goleman's book continues to be one of the most successful and influential of its genre, and other trade books concerned with emotional intelligence (or EQ, as it is referred to in the popular literature) have appeared in recent years. More than just a passing fad, or temporary backlash against standardized testing, emotional intelligence has captured the long-term interest of employers and educators. In just a few years, what started as a somewhat obscure area of science-driven research in psychology burgeoned into a multi-million-dollar industry marketing books, tapes, seminars and training programs aimed at increasing emotional intelligence.

Popularization has in some cases distorted the original scientific definition of emotional intelligence. Many people now equate emotional intelligence with almost everything desirable in a person's makeup that cannot be measured by an IQ test, such as character, motivation, confidence, mental stability, optimism and "people skills." Research has shown that emotional skills may contribute to some of these qualities, but most of them move far beyond skill-based emotional intelligence. We prefer to define emotional intelligence as a specific set of skills that can be used for either prosocial or antisocial purposes. The ability to accurately perceive how others are feeling may be used by a therapist to gauge how best to help her clients, whereas a con artist might use it to manipulate potential victims. Being emotionally intelligent does not necessarily make one an ethical person.

Although popular claims regarding emotional intelligence run far ahead of what research can reasonably support, the overall effects of the publicity have been more beneficial than harmful. The most positive aspect of this popularization is a new and much needed emphasis on emotion by employers, educators and others interested in promoting social welfare. The popularization of emotional intelligence has helped both the public and research psychology reevaluate the functionality of emotions and how they serve humans adaptively in everyday life. Although the continuing popular appeal of emotional intelligence is both warranted and desirable, we hope that such attention will stimulate a greater interest in the scientific and scholarly study of emotion. It is our hope that in coming decades, advances in cognitive and affective science will offer intertwining perspectives from which to study how people navigate their lives. Emotional intelligence, with its focus on both head and heart, may adequately serve to point us in the right direction.

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