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.

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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.

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,

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 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.

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

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.

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.

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 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

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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