The EQ Factor

New brain research suggests that emotions, not IQ, may be the true measure of human intelligence

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I T TURNS OUT THAT A SCIENTIST CAN SEE THE FUTURE by watching four-year-olds interact with a marshmallow. The researcher invites the children, one by one, into a plain room and begins the gentle torment. You can have this marshmallow right now, he says. But if you wait while I run an errand, you can have two marshmallows when I get back. And then he leaves.

Some children grab for the treat the minute he’s out the door. Some last a few minutes before they give in. But others are determined to wait. They cover their eyes; they put their heads down; they sing to themselves; they try to play games or even fall asleep. When the researcher returns he gives the children their hard-earned marshmallows. And then, science waits for them to grow up.

By the time the children reach high school, something remarkable has happened. A survey of the children’s parents and teachers found that those who as four-year-olds had the fortitude to hold out for the second marshmallow generally grew up to be better adjusted, more popular, adventurous, confident and dependable teenagers. The children who gave in to temptation early on were more likely to be lonely, easily frustrated and stubborn. They buckled under stress and shied away from challenges. And when some of the students in the two groups took the Scholastic Aptitude Test, the kids who held out longer scored an average of 210 points higher.

When we think of brilliance we see Einstein, deep-eyed, woolly haired, a thinking machine with skin and mismatched socks. High achievers, we imagine, were wired for greatness from birth. But then you have to wonder why, over time, natural talent seems to ignite in some people and dim in others. This is where the marshmallows come in. It seems that the ability to delay gratification is a master skill, a triumph of the reasoning brain over the impulsive one. It is a sign, in short, of emotional intelligence. And it doesn’t show up on an IQ test.

For most of this century, scientists have worshiped the hardware of the brain and the software of the mind; the messy powers of the heart were left to the poets. But cognitive theory could simply not explain the questions we wonder about most: why some people just seem to have a gift for living well; why the smartest kid in the class will probably not end up the richest; why we like some people virtually on sight and distrust others; why some people remain buoyant in the face of troubles that would sink a less resilient soul. What qualities of the mind or spirit, in short, determine who succeeds?

The phrase “emotional intelligence” was coined by Yale psychologist Peter Salovey and the University of New Hampshire’s John Mayer five years ago to describe qualities like understanding one’s own feelings, empathy for the feelings of others and “the regulation of emotion in a way that enhances living.” Their notion is about to bound into the national conversation, handily shortened to EQ, thanks to a new book, Emotional Intelligence (Bantam; $23.95) by Daniel Goleman, a Harvard psychology Ph.D. and a New York Times science writer with a gift for making even the chewiest scientific theories digestible to lay readers, has brought together a decade’s worth of behavioral research into how the mind processes feelings. His goal, he announces on the cover, is to redefine what it means to be smart. His thesis: when it comes to predicting people’s success, brainpower as measured by IQ and standardized achievement tests may actually matter less than the qualities of mind once thought of as “character” before the word began to sound quaint.

At first glance, there would seem to be little that’s new here to any close reader of fortune cookies. There may be no less original idea than the notion that our hearts hold dominion over our heads. “I was so angry,” we say, “I couldn’t think straight.” Neither is it surprising that “people skills” are useful, which amounts to saying, it’s good to be nice. “It’s so true it’s trivial,” says Dr. Paul McHugh, director of psychiatry at Johns Hopkins University School of Medicine. But if it were that simple, the book would not be quite so interesting or its implications so controversial.

This is no abstract investigation. Goleman is looking for antidotes to restore “civility to our streets and caring to our communal life.” He sees practical applications everywhere for how companies should decide whom to hire, how couples can increase the odds that their marriages will last, how parents should raise their children and how schools should teach them. When street gangs substitute for families and schoolyard insults end in stabbings, when more than half of marriages end in divorce, when the majority of the children murdered in this country are killed by parents and stepparents, many of whom say they were trying to discipline the child for behavior like blocking the TV or crying too much, it suggests a demand for remedial emotional education. While children are still young, Goleman argues, there is a “neurological window of opportunity” since the brain’s prefrontal circuitry, which regulates how we act on
what we feel, probably does not mature until mid-adolescence.

And it is here the arguments will break out. Goleman’s highly popularized conclusions, says McHugh, “will chill any veteran scholar of psychotherapy and any neuroscientist who worries about how his research may come to be applied.” While many researchers in this relatively new field are glad to see emotional issues finally taken seriously, they fear that a notion as handy as EQ invites misuse. Goleman admits the danger of suggesting that you can assign a numerical yardstick to a person’s character as well as his intellect; Goleman never even uses the phrase EQ in his book. But he (begrudgingly) approved an “unscientific” EQ test in USA Today with choices like “I am aware of even subtle feelings as I have them,” and “I can sense the pulse of a group or relationship and state unspoken feelings.”

“You don’t want to take an average of your emotional skill,” argues Harvard psychology professor Jerome Kagan, a pioneer in child-development research. “That’s what’s wrong with the concept of intelligence for mental skills too. Some people handle anger well but can’t handle fear. Some people can’t take joy. So each emotion has to be viewed differently.”

EQ is not the opposite of IQ. Some people are blessed with a lot of both, some with little of either. What researchers have been trying to understand is how they complement each other; how one’s ability to handle stress, for instance, affects the ability to concentrate and put intelligence to use. Among the ingredients for success, researchers now generally agree that IQ counts for about 20%; the rest depends on everything from class to luck to the neural pathways that have developed in the brain over millions of years of human evolution.

It is actually the neuroscientists and evolutionists who do the best job of explaining the reasons behind the most unreasonable behavior. In the past decade or so, scientists have learned enough about the brain to make judgments about where emotion comes from and why we need it. Primitive emotional responses held the keys to survival: fear drives the blood into the large muscles, making it easier to run; surprise triggers the eyebrows to rise, allowing the eyes to widen their view and gather more information about an unexpected event. Disgust wrinkles up the face and closes the nostrils to keep out foul smells.

Emotional life grows out of an area of the brain called the limbic system, specifically the amygdala, whence come delight and disgust and fear and anger. Millions of years ago, the neocortex was added on, enabling humans to plan, learn and remember. Lust grows from the limbic system; love, from the neocortex. Animals like reptiles that have no neocortex cannot experience anything like maternal love; this is why baby snakes have to hide to avoid being eaten by their parents. Humans, with their capacity for love, will protect their offspring, allowing the brains of the young time to develop. The more connections between limbic system and the neocortex, the more emotional responses are possible.

It was scientists like Joseph LeDoux of New York University who uncovered these cerebral pathways. LeDoux’s parents owned a meat market. As a boy in Louisiana, he first learned about his future specialty by cutting up cows’ brains for sweetbreads. “I found them the most interesting part of the cow’s anatomy,” he recalls. “They were visually pleasing—lots of folds, convolutions and patterns. The cerebellum was more interesting to look at than steak.” The butchers’ son became a neuroscientist, and it was he who discovered the short circuit in the brain that lets emotions drive action before the intellect gets a chance to intervene.

A hiker on a mountain path, for example, sees a long, curved shape in the grass out of the corner of his eye. He leaps out of the way before he realizes it is only a stick that looks like a snake. Then he calms down; his cortex gets the message a few milliseconds after his amygdala and “regulates” its primitive response.

Without these emotional reflexes, rarely conscious but often terribly powerful, we would scarcely be able to function. “Most decisions we make have a vast number of possible outcomes, and any attempt to analyze all of them would never end,” says University of Iowa neurologist Antonio Damasio, author of Descartes’ Error: Emotion, Reason and the Human Brain. “I’d ask you to lunch tomorrow, and when the appointed time arrived, you’d still be thinking about whether you should come.”

What tips the balance, Damasio contends, is our unconscious assigning of emotional values to some of those choices. Whether we experience a somatic response—a gut feeling of dread or a giddy sense of elation—emotions are helping to limit the field of any choice we have to make. If the prospect of lunch with a neurologist is unnerving or distasteful, Damasio suggests, the invitee will conveniently remember a previous engagement.

When Damasio worked with patients in whom the connection between emotional brain and neocortex had been severed because of damage to the brain, he discovered how central that hidden pathway is to how we live our lives. People who had lost that linkage were just as smart and quick to reason, but their lives often fell apart nonetheless. They could not make decisions because they didn’t know how they felt about their choices. They couldn’t react to warnings or anger in other people. If they made a mistake, like a bad investment, they felt no regret or shame and so were bound to repeat it.

If there is a cornerstone to emotional intelligence on which most other emotional skills depend, it is a sense of self-awareness, of being smart about what we feel. A person whose day starts badly at home may be grouchy all day at work without quite knowing why. Once an emotional response comes into awareness—or, physiologically, is processed through the neocortex—the chances of handling it appropriately improve. Scientists refer to “metamood,” the ability to pull back and recognize that “what I’m feeling is anger,” or sorrow, or shame.

Metamood is a difficult skill because emotions so often appear in disguise. A person in mourning may know he is sad, but he may not recognize that he is also angry at the person for dying—because this seems somehow inappropriate. A parent who yells at the child who ran into the street is expressing anger at disobedience, but the degree of anger may owe more to the fear the parent feels at what could have happened.

In Goleman’s analysis, self-awareness is perhaps the most crucial ability because it allows us to exercise some self-control. The idea is not to repress feeling (the reaction that has made psychoanalysts rich) but rather to do what Aristotle considered the hard work of the will. “Anyone can become angry—that is easy,” he wrote in the Nicomachean Ethics. “But to be angry with the right person, to the right degree, at the right time, for the right purpose, and in the right way—that is not easy.”

Some impulses seem to be easier to control than others. Anger, not surprisingly, is one of the hardest, perhaps because of its evolutionary value in priming people to action. Researchers believe anger usually arises out of a sense of being trespassed against—the belief that one is being robbed of what is rightfully his. The body’s first response is a surge of energy, the release of a cascade of neurotransmitters called catecholamines. If a person is already aroused or under stress, the threshold for release is lower, which helps explain why people’s tempers shorten during a hard day.

Scientists are not only discovering where anger comes from; they are also exposing myths about how best to handle it. Popular wisdom argues for “letting it all hang out” and having a good cathartic rant. But Goleman cites studies showing that dwelling on anger actually increases its power; the body needs a chance to process the adrenaline through exercise, relaxation techniques, a well-timed intervention or even the old admonition to count to 10.

Anxiety serves a similar useful purpose, so long as it doesn’t spin out of control. Worrying is a rehearsal for danger; the act of fretting focuses the mind on a problem so it can search efficiently for solutions. The danger comes when worrying blocks thinking, becoming an end in itself or a path to resignation instead of perseverance. Over-wor-
rying about failing increases the likelihood of failure; a salesman so concerned about his failing sales that he can't bring himself to pick up the phone guarantees that his sales will fall even further.

But why are some people better able to "snap out of it" and get on with the task at hand? Again, given sufficient self-awareness, people develop coping mechanisms. Sadness and discouragement, for instance, are "low arousal" states, and the dispirited salesman who goes out for a run is triggering a high arousal state that is incompatible with staying blue. Relaxation works better for high energy moods like anger or anxiety. Either way, the idea is to shift to a state of arousal that breaks the destructive cycle of the dominant mood.

The idea of being able to predict which salesmen are most likely to prosper was not an abstraction for Metropolitan Life, which in the mid-'80s was hiring 5,000 salespeople a year and training them at a cost of more than $30,000 each. Half quit the first year, and four out of five within four years. The reason: selling life insurance involves having the door slammed in your face over and over again. Was it possible to identify which people would be better at handling frustration and take each refusal as a challenge rather than a setback?

The head of the company approached psychologist Martin Seligman at the University of Pennsylvania and invited him to test some of his theories about the importance of optimism in people's success. When optimists fail, he has found, they attribute the failure to something they can change, not some innate weakness that they are helpless to overcome. And that confidence in their power to effect change is self-reinforcing.

Seligman tracked 15,000 new workers who had taken two tests. One was the company's regular screening exam, the other Seligman's test measuring their levels of optimism. Among the new hires was a group who flunked the screening test but scored as "superoptimists" on Seligman's exam. And sure enough, they did the best of all; they out-sold the pessimists in the regular group by 21% in the first year and 57% in the second. For years after that, passing Seligman's test was one way to get hired as a MetLife salesperson.

Perhaps the most visible emotional skills, the ones we recognize most readily, are the "people skills" like empathy, graciousness, the ability to read a social situation. Researchers believe that about 90% of emotional communication is nonverbal. Harvard psychologist Robert Rosenthal developed the PONS test (Profile of Nonverbal Sensitivity) to measure people's ability to read emotional

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### One Way to Test Your EQ

Unlike IQ, which is gauged by the famous Stanford-Binet tests, EQ does not lend itself to any single numerical measure. Nor should it, say experts. Emotional intelligence is by definition a complex, multifaceted quality representing such intangibles as self-awareness, empathy, persistence and social deftness.

Some aspects of emotional intelligence, however, can be quantified. Optimism, for example, is a handy measure of a person's self-worth. According to Martin Seligman, a University of Pennsylvania psychologist, how people respond to setbacks—optimistically or pessimistically—is a fairly accurate indicator of how well they will succeed in school, in sports and in certain kinds of work. To test his theory, Seligman devised a questionnaire to screen insurance salesmen at MetLife.

In Seligman's test, job applicants were asked to imagine a hypothetical event and then choose the response (A or B) that most closely resembled their own. Some samples from his questionnaire:

**You forget your spouse's (boyfriend's/girlfriend's) birthday.**
A. I'm not good at remembering birthdays.
B. I was preoccupied with other things.

**You owe the library $10 for an overdue book.**
A. When I am really involved in what I am reading, I often forget when its due.
B. I was so involved in writing the report, I forgot to return the book.

**You lose your temper with a friend.**
A. He or she is always nagging me.
B. He or she was in a hostile mood.

**You are penalized for returning your income-tax forms late.**
A. I always put off doing my taxes.
B. I was lazy about getting my taxes done this year.

**You've been feeling run-down.**
A. I never get a chance to relax.
B. I was exceptionally busy this week.

**A friend says something that hurts your feelings.**
A. She always hurts things out without thinking of others.
B. My friend was in a bad mood and took it out on me.

**You fall down a great deal while skiing.**
A. Skiing is difficult.
B. The trails were icy.

**You gain weight over the holidays, and you can't lose it.**
A. Diets don't work in the long run.
B. The diet I tried didn't work.

Seligman found that those insurance salesman who answered with more B's than A's were better able to overcome bad sales days, recovered more easily from rejection and were less likely to quit. People with an optimistic view of life tend to treat obstacles and setbacks as temporary (and therefore surmountable). Pessimists take them personally; what others see as fleeting, localized impediments, they view as pervasive and permanent.

The most dramatic proof of his theory, says Seligman, came at the 1988 Olympic Games in Seoul, South Korea, after U.S. swimmer Matt Biondi turned in two disappointing performances in this first two races. Before the Games, Biondi had been favored to win seven golds—as Mark Spitz had done 16 years earlier. After those first two races, most commentators thought Biondi would be unable to recover from his setback. Not Seligman. He had given some members of the U.S. swim team a version of his optimism test before the races; it showed that Biondi possessed an extraordinarily upbeat attitude. Rather than losing heart after turning in a bad time, as others might, Biondi tended to respond by swimming even faster. Sure enough, Biondi bounced right back, winning five gold medals in the next five races.

—By Alice Park
PONS scores tend to be more successful in subtle cues. Once again, people with higher PONS scores tend to be more successful in their work and relationships; children who score well are more popular and successful in school, even [though] their IQs are quite average.

Like other emotional skills, empathy is an innate quality that can be shaped by experience. Infants as young as three months old exhibit empathy when they get upset at the sound of another baby crying. Even very young children learn by imitation; by watching how others act when they see someone in distress, these children acquire a repertoire of sensitive responses. If, on the other hand, the feelings they begin to express are not recognized and reinforced by the adults around them, they not only cease to express those feelings but they also become less able to recognize them in themselves or others.

Empathy too can be seen as a survival skill. Bert Cohler, a University of Chicago psychologist, and Fran Stott, dean of the Erikson Institute for Advanced Study in Child Development in Chicago, have found that children from psychically damaged families frequently become hyper vigilant, developing an intense attunement to their parents’ moods. One child they studied, Nicholas, had a horrible habit of approaching other kids in his nursery-school class as if he were going to kiss them, then would bite them instead. The scientists went back to study videos of Nicholas at 20 months interacting with his psychotic mother and found that she had responded to his every expression of anger or independence with compulsive kisses. The researchers dubbed them “kisses of death,” and their true significance was obvious to Nicholas, who arched his back in horror at her approaching lips—and passed his own rage on to his classmates years later.

Empathy also acts as a buffer to cruelty, and it is a quality conspicuously lacking in child molesters and psychopaths. Goleman cites some chilling research into brutality by Robert Hare, a psychologist at the University of British Columbia. Hare found that psychopaths, when hooked up to electrodes and told they are going to receive a shock, show none of the visceral responses that fear of pain typically triggers: rapid heartbeat, sweating and so on. How could the threat of punishment deter such people from committing crimes?

It is easy to draw the obvious lesson from these test results. How much happier would we be, how much more successful as individuals and civil as a society, if we were more alert to the importance of emotional intelligence and more adept at teaching it?

From kindergartens to business schools to corporations across the country, people are taking seriously the idea that a little more time spent on the “touchy-feely” skills so often derided may in fact pay rich dividends.

In the corporate world, according to personnel executives, IQ gets you hired, but EQ gets you promoted. Goleman likes to tell of a manager at AT&T’s Bell Labs, a think tank for brilliant engineers in New Jersey, who was asked to rank his top performers. They weren’t the ones with the highest IQs; they were the ones whose E-mail got the cooperation they needed to reach
their goals than the socially awkward, lone-wolf geniuses.

When David Campbell and others at the Center for Creative Leadership studied “derailed executives,” the rising stars who flamed out, the researchers found that these executives failed most often because of “an interpersonal flaw” rather than a technical inability. Interviews with top executives in the U.S. and Europe turned up nine so-called fatal flaws, many of them classic emotional failings, such as “poor working relations,” being “authoritarian” or “too ambitious” and having “conflict with upper management.”

At the center’s executive-leadership seminars across the country, managers come to get emotionally retooled. “This isn’t sensitivity training or Sunday-supplement stuff,” says Campbell. “One thing they know when they get through is what other people think of them.” And the executives have an incentive to listen. Says Karen Boylston, director of the center’s team-leadership group: “Customers are telling businesses, ‘I don’t care if every member of your staff graduated with honors from Harvard, Stanford and Wharton. I will take my business and go where I am understood and treated with respect.’ ”

Nowhere is the discussion of emotional intelligence more pressing than in schools, where both the stakes and the opportunities seem greatest. Instead of constant crisis intervention, or declarations of war on drug abuse or teen pregnancy or violence, it is time, Goleman argues, for preventive medicine. “Five years ago, teachers didn’t want to think about this,” says principal Roberta Kirshbaum of P.S. 75 in New York City. “But when kids are getting killed in high school, we have to deal with it.” Five years ago, Kirshbaum’s school adopted an emotional literacy program, designed to help children learn to manage anger, frustration, loneliness. Since then, fights at lunchtime have decreased from two or three a day to almost none.

Educators can point to all sorts of data to support this new direction. Students who are depressed or angry literally can’t learn. Children who have trouble being accepted by their classmates are 2 to 8 times as likely to drop out. An inability to distinguish distressing feelings or handle frustration has been linked to eating disorders in girls.

Many school administrators are completely rethinking the weight they have been giving to traditional lessons and standardized tests. Peter Relic, president of the National Association of Independent Schools, would like to junk the SAT completely. “Yes, it may cost a heck of a lot more money to assess someone’s EQ rather than using a machine-scored test to measure IQ,” he says. “But if we don’t, then we’re saying that a test score is more important to us than who a child is as a human being. That means an immense loss in terms of human potential because we’ve defined success too narrowly.”

This warm embrace by educators has left some scientists in a bind. On one hand, says Yale psychologist Salovey, “I love the idea that we want to teach people a richer understanding of their emotional life, to help them achieve their goals.” But, he adds, “what I would oppose is training conformity to social expectations.” The danger is that any campaign to hone emotional skills in children will end up teaching that there is a “right” emotional response for any given situation—laugh at parades, cry at funerals, sit still at church. “You can teach self-control,” says Dr. Alvin Poussaint, professor of psychiatry at Harvard Medical School. “You can teach that it’s better to talk out your anger and not use violence. But is it good emotional intelligence not to challenge authority?”

Some psychologists go further and challenge the very idea that emotional skills can or should be taught in any kind of formal, classroom way. Goleman’s premise that children can be trained to analyze their feelings strikes Johns Hopkins’ McHugh as an effort to reinvent the encounter group: “I consider that an abominable idea, an idea we have seen with adults. That failed, and now he wants to try it with children? Good grief!” He cites the description in Goleman’s book of an experimental program at the Nueva Learning Center in San Francisco. In one scene, two fifth-grade boys start to argue over the rules of an exercise, and the teacher breaks in to ask them to talk about what they’re feeling. “I appreciate the way you’re being assertive in talking with Tucker,” she says to one student. “You’re not attacking.” This strikes McHugh as pure folly. “The author is presuming that someone has the key to the right emotions to be taught to children. We don’t even know the right emotions to be taught to adults. Do you really think a child of eight or nine really understands the difference between aggressiveness and assertiveness?”

The problem may be that there is an ingredient missing. Emotional skills, like intellectual ones, are morally neutral. Just as a genius could use his intellect either to cure cancer or engineer a deadly virus, someone with great empathic insight could use it to inspire colleagues or exploit them. Without a moral compass to guide people in how to employ their gifts, emotional intelligence can be used for good or evil. Columbia University psychologist Walter Mischel, who invented the marshmallow test and others like it, observes that the knack for delaying gratification that makes a child one marshmallow richer can help him become a better citizen or—just as easily—an even more brilliant criminal.

Given the passionate arguments that are raging over the state of moral instruction in this country, it is no wonder Goleman chose to focus more on neutral emotional skills than on the values that should govern their use. That’s another book—and another debate.

—Reported by Sharon E. Epperson and Lawrence Mondi/New York, James L. Graff/Chicago and Lisa H. Towle/Raleigh