Who Owns Intelligence?

*Three unresolved issues will
dominate the discussion of intelligence:
whether intelligence is one thing or many things;
whether intelligence is inherited;
and whether any of its elements
can accurately be measured.
The debate, a prominent psychologist argues,
is really over proprietary rights to
a fundamental concept of our age.*

Almost a century ago Alfred Binet, a gifted psychologist, was asked by the French Ministry of Education to help determine who would experience difficulty in school. Given the influx of provincials to the capital, along with immigrants of uncertain stock, Parisian officials believed that they needed to know who might not advance smoothly through the system. Proceeding in an empirical manner, Binet posed many questions to youngsters of different ages. He ascertained which questions when answered correctly predicted success in school, and which questions when answered incorrectly foretold school difficulties. The items that discriminated most clearly between the two groups became, in effect, the first test of intelligence.

Binet is a hero to many psychologists. He was a keen observer, a careful scholar, an inventive technologist.

Perhaps even more important for his followers, he devised the instrument that is often considered psychology's greatest success story. Millions of people who have never heard Binet's name have had aspects of their fate influenced by instrumentation that the French psychologist inspired. And thousands of psychometricians — specialists in the measurement of psychological variables — earn their living courtesy of Binet's invention.

Although it has prevailed over the long run, the psychologists' version of intelligence is now facing its biggest threat. Many scholars and observers — and even some iconoclastic psychologists — feel that intelligence is too important to be left to the psychometricians. Experts are extending the breadth of the concept — proposing many intelligences, including emotional intelligence and moral intelligence. They are experimenting with new methods of ascertaining intelligence, including some that avoid tests altogether in favor of direct measures of brain activity. They are forcing citizens everywhere to confront a number of questions: What is intelligence? How ought it to be assessed? And how do our notions of intelligence fit with what we value about human beings? In short, experts are competing for the "ownership" of intelligence in the 21st century.

The outline of the psychometricians' success story is well known. Binet's colleagues in England and Germany contributed to the conceptualization and instrumentation of intelligence testing — which soon became known as

IQ tests. (An IQ, or intelligence quotient, designates the
ratio between mental age and chronological age. Clearly
we would prefer that a child in our care have an IQ of
120, being smarter than average for his or her years, than
an IQ of 80, being older than average for his or her
intelligence). Like other Parisian fashions of the period,
the intelligence test migrated easily to the United States.
First used to determine who was "feeble-minded," it was
soon used to assess "normal" children, to identify the
"gifted," and to determine who was fit to serve in the
Army. By the 1920s, the intelligence test had become a
fixture in educational practice in the United States and
much of Western Europe.

Early intelligence tests were not without their critics.
Many enduring concerns were first raised by the influen-
tial journalist Walter Lippmann, in a series of published
debates with Lewis Terman, of Stanford University, the
father of IQ testing in America. Lippmann pointed out
the superficiality of the questions, their possible cultural
biases, and the risks of trying to determine a person's
intellectual potential with a brief oral or paper-and-pencil
measure.

Perhaps surprisingly, the conceptualization of intelli-
gence did not advance much in the decades following
Binet's and Terman's pioneering contributions. Intelli-
gence tests came to be seen, rightly or wrongly, as
primarily a tool for selecting people to fill academic
or vocational niches. In one of the most famous — if

irritating — remarks about intelligence testing, the influential Harvard psychologist E. G. Boring declared, "Intelligence is what the tests test." So long as these tests did what they were supposed to do (that is, give some indication of school success), it did not seem necessary or prudent to probe too deeply into their meaning or to explore alternative views of the human intellect.

Psychologists who study intelligence have argued chiefly about three questions. The first: Is intelligence singular, or does it consist of various more or less independent intellectual faculties? The purists — ranging from the turn-of-the-century English psychologist Charles Spearman to his latter-day disciples Richard J. Herrnstein and Charles Murray (of *The Bell Curve* fame) — defend the notion of a single overarching "g," or general intelligence. The pluralists — ranging from L. L. Thurstone, of the University of Chicago, who posited seven vectors of the mind, to J. P. Guilford, of the University of Southern California, who discerned 150 factors of the intellect — construe intelligence as composed of some or even many dissociable components. In his much cited *The Mismeasure of Man* (1981), the paleontologist Stephen Jay Gould argued that the conflicting conclusions reached on this issue reflect alternative assumptions about statistical procedures rather than the way the mind is. Still, psychologists continue the debate, with a majority sympathetic to the general-intelligence perspective.

The public is more interested in the second question:

Is intelligence (or are intelligences) largely inherited? This is by and large a Western question. In the Confucian societies of East Asia, individual differences in endowment are assumed to be modest, and differences in achievement are thought to be due largely to effort. In the West, however, many students of the subject sympathize with the view — defended within psychology by Lewis Terman, among others — that intelligence is inborn and one can do little to alter one's intellectual birthright.

Studies of identical twins reared apart provide surprisingly strong support for the "heritability" of psychometric intelligence. That is, if one wants to predict someone's score on an intelligence test, the scores of the biological parents (even if the child has not had appreciable contact with them) are more likely to prove relevant than the scores of the adoptive parents. By the same token, the IQs of identical twins are more similar than the IQs of fraternal twins. And, contrary to common sense (and political correctness), the IQs of biologically related people grow closer in the later years of life. Still, because of the intricacies of behavioral genetics and the difficulties of conducting valid experiments with human child-rearing, a few defend the proposition that intelligence is largely environmental rather than heritable, and some believe that we cannot answer the question at all.

Most scholars agree that even if psychometric intelligence is largely inherited, it is not possible to pinpoint the sources of differences in average IQ between groups, such

as the fifteen-point difference typically observed between African-American and white populations. That is because in our society the contemporary — let alone the historical — experiences of these two groups cannot be equated. One could ferret out the differences (if any) between black and white populations only in a society that was truly color-blind.

One other question has intrigued laypeople and psychologists: Are intelligence tests-biased? Cultural assumptions are evident in early intelligence tests. Some class biases are obvious — who except the wealthy could readily answer a question about polo? Others are more subtle. Suppose the question is what one should do with money found on the street. Although ordinarily one might turn it over to the police, what if one had a hungry child? Or what if the police force were known to be hostile to members of one's ethnic group? Only the canonical response to such a question would be scored as correct.

Psychometricians have striven to remove the obviously biased items from such measures. But biases that are built into the test situation itself are far more difficult to deal with. For example, a person's background affects his or her reaction to being placed in an unfamiliar locale, being instructed by someone dressed in a certain way, and having a printed test booklet thrust into his or her hands. And as the psychologist Claude M. Steele (1992) has argued in "Race and the Schooling of Black Americans," the biases prove even more acute when people know that their academic potential is being

measured and that their racial or ethnic group is widely considered to be less intelligent than the dominant social group.

The idea of bias touches on the common assumption that tests in general, and intelligence tests in particular, are inherently conservative instruments — tools of the establishment. It is therefore worth noting that many testing pioneers thought of themselves as progressives in the social sphere. They were devising instruments that could reveal people of talent even if those people came from "remote and apparently inferior backgrounds," to quote from a college catalogue of the 1950s. And occasionally the tests did discover intellectual diamonds in the rough. More often, however, they picked out the privileged. The still unresolved question of the causal relationship between IQ and social privilege has stimulated many a dissertation across the social sciences.

Paradoxically, one of the clearest signs of the success of intelligence tests is that they are no longer widely administered. In the wake of legal cases about the propriety of making consequential decisions about education on the basis of IQ scores, many public school officials have become test-shy. By and large, the testing of IQ in the schools is restricted to cases involving a recognized problem (such as a learning disability) or a selection procedure (determining eligibility for a program that serves gifted children).

Despite this apparent setback, intelligence testing and

the line of thinking that underlies it have actually triumphed. Many widely used scholastic measures, chief among them the SAT (renamed the Scholastic Assessment Test in the 1990s), are thinly disguised intelligence tests that correlate highly with scores on standard psychometric instruments. Virtually no one raised in the developed world today has gone untouched by Binet's seemingly simple invention of a century ago.

Multiple Intelligences

The concept of intelligence has in recent years undergone its most robust challenge since the days of Walter Lippmann. Some who are informed by psychology but not bound by the assumptions of the psychometricians have invaded this formerly sacrosanct territory. They have put forth their own ideas of what intelligence is, how (and whether) it should be measured, and which values should be invoked in considerations of the human intellect. For the first time in many years the intelligence establishment is clearly on the defensive — and the 21st century seems likely to usher in quite different ways of thinking about intelligence.

One evident factor in the rethinking of intelligence is the perspective introduced by scholars who are not psychologists. Anthropologists have commented on the parochialism of the Western view of intelligence. Some cultures do not even have a concept called intelligence, and others define intelligence in terms of traits that we in

the West might consider odd — obedience, good listening skills, or moral fiber, for example. Neuroscientists are skeptical that the highly differentiated and modular structure of the brain is consistent with a unitary form of intelligence. Computer scientists have devised programs deemed intelligent; these programs often go about problem-solving in ways quite different from those embraced by human beings or other animals.

Even within the field of psychology, the natives have been getting restless. Probably the most restless is the Yale psychologist Robert J. Sternberg (1949 ~). A prodigious scholar, Sternberg has written dozens of books and hundreds of articles, the majority of them focusing in one or another way on intelligence. Sternberg began with the strategic goal of understanding the actual mental processes mobilized by standard test items, such as the solving of analogies. But he soon went beyond standard intelligence testing by insisting on two hitherto neglected forms of intelligence: the "practical" ability to adapt to varying contexts (as we all must in these days of divorcing and downsizing), and the capacity to automate familiar activities so that we can deal effectively with novelty and display "creative" intelligence.

Sternberg has gone to greater pains than many other critics of standard intelligence testing to measure these forms of intelligence with the paper-and-pencil laboratory methods favored by the profession. And he has found that a person's ability to adapt to diverse contexts or to

deal with novel information can be differentiated from success at standard IQ-test problems. His efforts to create a new intelligence test have not been crowned with easy victory. Most psychometricians are conservative — they like the tests that have been in use for decades, and if new ones are to be marketed, these must correlate well with existing instruments. So much for openness to novelty within psychometrics.

Others in the field seem less bound by its strictures. The psychologist and journalist Daniel Goleman has achieved worldwide success with his book *Emotional Intelligence* (1995). Contending that this new concept (sometimes nicknamed EQ) may matter as much as or more than IQ, Goleman draws attention to such pivotal human abilities as controlling one's emotional reactions and "reading" the signals of others. In the view of the noted psychiatrist Robert Coles, author of *The Moral Intelligence of Children* (1997), among many other books, we should prize character over intellect. He decries the amorality of our families, hence our children; he shows how we might cultivate human beings with a strong sense of right and wrong, who are willing to act on that sense even when it runs counter to self-interest. Other, frankly popular accounts deal with leadership intelligence (LQ), executive intelligence (EQ or ExQ), and even financial intelligence.

Like Coles's and Goleman's efforts, my work on "multiple intelligences" (Gardner, 1993, 1999) eschews

the psychologists' credo of operationalization and test-making. I began by asking two questions: (1) How did the human mind and brain evolve over millions of years? (2) How can we account for the diversity of skills and capacities that are or have been valued in different communities around the world?

Armed with these questions and a set of eight criteria, I have concluded that all human beings possess at least eight intelligences: linguistic and logical-mathematical (the two most prized in school and the ones central to success on standard intelligence tests), musical, spatial, bodily-kinesthetic, naturalist, interpersonal, and intrapersonal.

I make two complementary claims about intelligence. The first is universal. We all possess these eight intelligences — and possibly more. Indeed, rather than seeing us as "rational animals," I offer a new definition of what it means to be a human being, cognitively speaking: *Homo sapiens sapiens* is the animal that possesses these eight forms of mental representation.

My second claim concerns individual differences. Owing to the accidents of heredity, environment, and their interactions, no two of us exhibit the same intelligences in precisely the same proportions. Our "profiles of intelligence" differ from one another. This fact poses intriguing challenges and opportunities for our education system. We can ignore these differences and pretend that we are

all the same; historically, that is what most education systems have done. Or we can fashion an education system that tries to exploit these differences, individualizing instruction and assessment as much as possible.

Intelligence and Morality

As the century of Binet and his successors draws to a close, we would be wise to take stock of, and to anticipate, the course of thinking about intelligence. Although my crystal ball is no clearer than anyone else's (the species may lack "future intelligence"), it seems safe to predict that interest in intelligence will not go away.

To begin with, the psychometric community has scarcely laid down its arms. New versions of the standard tests continue to be created, and occasionally new tests surface as well. Researchers in the psychometric tradition churn out fresh evidence of the predictive power of their instruments and the correlations between measured intelligence and one's life chances. And some in the psychometric tradition are searching for the biological basis of intelligence: the gene or complex of genes that may affect intelligence, the neural structures that are crucial for intelligence, or telltale brain-wave patterns that distinguish the bright from the less bright.

Beyond various psychometric twists, interest in intelligence is likely to grow in other ways. It will be fed by the creation of machines that display intelligence and by

the specific intelligence or intelligences. Moreover, observers as diverse as Richard Herrnstein and Robert B. Reich, ex-President Clinton's first Secretary of Labor, have agreed that in coming years a large proportion of society's rewards will go to those people who are skilled symbol analysts — who can sit at a computer screen (or its technological successor), manipulate numbers and other kinds of symbols, and use the results of their operations to contrive plans, tactics, and strategies for enterprises ranging from business to science to war games. These people may well color how intelligence is conceived in decades to come — just as the need to provide good middle-level bureaucrats to run an empire served as a primary molder of intelligence tests in the early years of the 20th century.

Surveying the landscape of intelligence, I discern three struggles between opposing forces. The extent to which, and the manner in which, these various struggles are resolved will influence the lives of millions of people. I believe that the three struggles are interrelated; that the first struggle provides the key to the other two; and that the ensemble of struggles can be resolved in an optimal way.

The first struggle concerns the breadth of our definition of intelligence. One camp consists of the purists, who believe in a single form of intelligence — one that basically predicts success in school and in school-like activities. Arrayed against the purists are the progressive

pluralists, who believe that many forms of intelligence exist. Some of these pluralists would like to broaden the definition of intelligence considerably, to include the abilities to create, to lead, and to stand out in terms of emotional sensitivity or moral excellence.

The second struggle concerns the assessment of intelligence. Again, one readily encounters a traditional position. Once chiefly concerned with paper-and-pencil tests, the traditionally oriented practitioner is now likely to use computers to provide the same information more quickly and more accurately. But other positions abound. Purists disdain psychological tasks of any complexity, preferring to look instead of reaction time, brain waves, and other physiological measures of intellect. In contrast, simulators favor measures closely resembling the actual abilities that are prized. And skeptics warn against the continued expansion of testing. They emphasize the damage often done to individual life chances and self-esteem by a regimen of psychological testing, and call for less technocratic, more humane methods — ranging from self-assessment to the examination of portfolios of student work to selection in the service of social equity.

The final struggle concerns the relationship between intelligence and the qualities we value in human beings. Although no one would baldly equate intellect and human worth, nuanced positions have emerged on this issue. Some (in the *Bell Curve* mold) see intelligence as closely related to a person's ethics and values; they believe that

brighter people are more likely to appreciate moral complexity and to behave judiciously. Some call for a sharp distinction between the realm of intellect on the one hand, and character, morality, or ethics on the other. Society's ambivalence on this issue can be discerned in the figures that become the culture's heroes. For every Albert Einstein or Bobby Fischer who is celebrated for his intellect, there is a Forrest Gump or a Chauncey Gardiner who is celebrated for human — and humane — traits that would never be captured on any kind of intelligence test.

Thanks to the work of the past decade or two, the stranglehold of the psychometricians has at last been broken. This is a beneficent development. Yet now that the psychometricians have been overcome, we risk deciding that anything goes — that emotions, morality, creativity, must all be absorbed into the "new (or even the New Age) intelligence." The challenge is to chart a concept of intelligence that reflects new insights and discoveries and yet can withstand rigorous scrutiny.

An analogy may help. One can think of the scope of intelligence as represented by an elastic band. For many years the definition of intelligence went unchallenged, and the band seemed to have lost its elasticity. Some of the new definitions expand the band, so that it has become taut and resilient; and yet earlier work on intelligence is still germane. Other definitions so expand the band that it is likely finally to snap — and the earlier work on intelligence will no longer be of use.

Until now the term "intelligence" has been limited largely to certain kinds of problem-solving involving language and logic — the skills at a premium in the bureaucrat or the law professor. However, human beings are able to deal with numerous kinds of content besides words, numbers, and logical relations — for example, space, music, the psyches of other human beings. Like the elastic band, definitions of intelligence need to be expanded to include human skills in dealing with these diverse contents. And we must not restrict attention to solving problems that have been posed by others; we must consider equally the capacity of individuals to fashion products — scientific experiments, effective organizations — that draw on one or more human intelligences. The elastic band can accommodate such broadening as well.

So long as intelligences are restricted to the processing of contents in the world, we avoid epistemological problems — as we should. "Intelligence" should not be expanded to include personality, motivation, will, attention, character, creativity, and other important and significant human capacities. Such stretching is likely to snap the band.

Let's see what happens when one crosses one of these lines — for example, when one attempts to conflate intelligence and creativity. Beginning with a definition, we extend the descriptor "creative" to those people (or works or institutions) who meet two criteria:

they are innovative, and their innovations are eventually accepted by a relevant community.

No one denies that creativity is important — and, indeed, it may prove even more important in the future, when nearly all standard (algorithmic) procedures will be carried out by computers. Yet creativity should not be equated with intelligence. An expert may be intelligent in one or more domains but not necessarily inclined toward, or successful in, innovation. Similarly, although it is clear that the ability to innovate requires a certain degree of intelligence, we do not find a significant correlation between measures of intellect and of creativity. Indeed, creativity seems more dependent on a certain kind of temperament and personality — risk-taking, tough-skinned, persevering, above all having a lust to alter the status quo and leave a mark on society — than on efficiency in processing various kinds of information. By collapsing these categories together, we risk missing dimensions that are important but separate; and we may think that we are training (or selecting) one when we are actually training (or selecting) the other.

Next consider what happens when one stretches the idea of intelligence to include attitudes and behaviors — and thus confronts human values within a culture. A few values can be expressed generically enough that they command universal respect: the Golden Rule is one promising candidate. Most values, however, turn out to be specific to certain cultures or subcultures — even such

seemingly unproblematic ones as the unacceptability of killing or lying. Once one conflates morality and intelligence, one needs to deal with widely divergent views of what is good or bad and why. Moreover, one must confront the fact that people who score high on tests of moral reasoning may act immorally outside the test situation — even as courageous and self-sacrificing people may turn out to be unremarkable on formal tests of moral reasoning or intelligence. It is far preferable to construe intelligence itself as morally neutral and then decide whether a given use of intelligence qualifies as moral, immoral, or amoral in context.

As I see it, no intelligence is moral or immoral in itself. One can be gifted in language and use that gift to write great verse, as did Johann Wolfgang von Goethe, or to foment hatred, as did Joseph Goebbels. Mother Teresa and Lyndon Johnson, Mohandas Gandhi and Niccolò Machiavelli, may have had equivalent degrees of inter-personal intelligence, but they put their skills to widely divergent uses.

Perhaps there is a form of intelligence that determines whether or not a situation harbors moral considerations or consequences. But the term "moral intelligence" carries little force. After all, Adolf Hitler and Joseph Stalin may well have had an exquisite sense of which situations contained moral considerations. However, either they did not care or they embraced their own peculiar morality, according to which eliminating Jews was the moral thing

to do in quest of a pure Aryan society, or wiping out a generation was necessary in the quest to establish a communist state.

The Borders of Intelligence

Writing as a scholar rather than as a layperson, I see two problems with the notion of emotional intelligence. First, unlike language or space, emotions are not contents to be processed; rather, cognition has evolved so that we can make sense of human beings (self and others) that possess and experience emotions. Emotions are part and parcel of all cognition, though they may well prove more salient at certain times or under certain circumstances: they accompany our interactions with others, our listening to great music, our feelings when we solve — or fail to solve — a difficult mathematical problem. If one calls some intelligences emotional, one suggests that other intelligences are not — and that implication flies in the face of experience and empirical data.

The second problem is the conflation of emotional intelligence and a certain preferred pattern of behavior. This is the trap that Daniel Goleman sometimes falls into in his otherwise admirable *Emotional Intelligence*. Goleman singles out as emotionally intelligent those people who use their understanding of emotions to make others feel better, to solve conflicts, or to cooperate in home or work situations. No one would dispute that such people are wanted. However, people who understand emotion

may not necessarily use their skills for the benefit of society.

For this reason I prefer the term "emotional sensitivity" — a term (encompassing my interpersonal and intrapersonal intelligences) that could apply to people who are sensitive to emotions in themselves and in others. Presumably, clinicians and salespeople excel in sensitivity to others, poets and mystics in sensitivity to themselves. And some autistic or psychopathological people seem completely insensitive to the emotional realm. I would insist, however, on a strict distinction between emotional sensitivity and being a "good" or "moral" person. A person may be sensitive to the emotions of others but use that sensitivity to manipulate or to deceive them, or to create hatred.

I call, then, for a delineation of intelligence that includes the full range of contents to which human beings are sensitive, but at the same time designates as off limits such valued but separate human traits as creativity, morality, and emotional appropriateness. I believe that such a delineation makes scientific and epistemological sense. It reinvigorates the elastic band without stretching it to the breaking point. It helps to resolve the two remaining struggles: how to assess, and what kinds of human beings to admire.

Once we decide to restrict intelligence to human information-processing and product-making capacities,

we can make use of the established technology of
assessment. That is, we can continue to use paper-and-
pencil or computer-adapted testing techniques while
looking at a broader range of capacities, such as musical
sensitivity and empathy with others. And we can avoid
ticklish and possibly unresolvable questions about the as-
sessment of values and morality that may well be restricted
to a particular culture and that may well change over time.

Still, even with a limited perspective on intelligence,
important questions remain about which assessment path
to follow — that of the purist, the simulator, or the skeptic.
Here I have strong views. I question the wisdom of search-
ing for a "pure" intelligence — be it general intelligence,
musical intelligence, or interpersonal intelligence. I do
not believe that such alchemical intellectual essences
actually exist; they are a product of our penchant for
creating terminology rather than determinable and mea-
surable entities. Moreover, the correlations that have thus
far been found between supposedly pure measures and the
skills that we actually value in the world are too modest to
be useful.

What does exist is the use of intelligences, individu-
ally and in concert, to carry out tasks that are valued by a
society. Accordingly, we should be assessing the extent
to which human beings succeed in carrying out tasks of
consequence that presumably involve certain intelligences.
To be concrete, we should not test musical intelligence
by looking at the ability to discriminate between two tones

or timbres; rather, we should be teaching people to sing songs or play instruments or transform melodies and seeing how readily they master such feats. At the same time, we should abjure a search for pure emotional sensitivity — for example, a test that matches facial expressions to galvanic skin response. Rather, we should place (or observe) people in situations that call for them to be sensitive to the aspirations and motives of others. For example, we could see how they handle a situation in which they and colleagues have to break up a fight between two teenagers, or persuade a boss to change a policy of which they do not approve.

Here powerful new simulations can be invoked. We are now in a position to draw on technologies that can deliver realistic situations or problems and also record the success of subjects in dealing with them. A student can be presented with an unfamiliar tune on a computer and asked to learn that tune, transpose it, orchestrate it, and the like. Such exercises would reveal much about the student's intelligence in musical matters.

Turning to the social (or human, if you prefer) realm, subjects can be presented with simulated interactions and asked to judge the shifting motivations of each actor. Or they can be asked to work in an interactive hypermedia production with unfamiliar people who are trying to accomplish some sort of goal, and to respond to their various moves and countermoves. The program can alter responses in light of the moves of the subject. Like a

high-stakes poker game, such a measure should reveal much about the interpersonal or emotional sensitivity of a subject.

A significant increase in the breadth — the elasticity — of our concept of intelligence, then, should open the possibility for innovative forms of assessment far more realistic than the classic short-answer examinations. Why settle for an 1Q or an SAT test, in which the items are at best remote proxies for the ability to design experiments, write essays, critique musical performances, and so forth? Why not instead ask people actually (or virtually) to carry out such tasks? And yet by not opening up the Pandora's box of values and subjectivity, one can continue to make judicious use of the insights and technologies achieved by those who have devoted decades to perfecting mental measurement.

To be sure, one can create a psychometric instrument for any conceivable human virtue, including morality, creativity, and emotional intelligence in its several senses. Indeed, since the publication of Daniel Goleman's book, dozens of efforts have been made to create tests for emotional intelligence. The resulting instruments are not, however, necessarily useful. Such instruments are far more likely to satisfy the test maker's desire for reliability (a subject gets roughly the same score on two separate administrations of the test) than the need for validity (the test measures the trait that it purports to measure).

Such instruments-on-demand prove dubious for two

reasons. First, beyond some platitudes, few can agree on what it means to be moral, ethical, a good person: consider the differing values of Jesse Helms and Jesse Jackson, Margaret Thatcher and Margaret Mead. Second, scores on such tests are much more likely to reveal test-taking savvy (skills in language and logic) than fundamental character.

In speaking about character, I turn to a final concern: the relationship between intelligence and what I will call virtue — those qualities that we admire and wish to hold up as examples for our children. No doubt the desire to expand intelligence to encompass ethics and character represents a direct response to the general feeling that our society is lacking in these dimensions; the expansionist view of intelligence reflects the hope that if we transmit the technology of intelligence to these virtues, we might in the end secure a more virtuous population.

I have already indicated my strong reservations about trying to make the word "intelligence" all things to all people — the psychometric equivalent of the true, the beautiful, and the good. Yet the problem remains: how, in a post-Aristotelian, post-Confucian era in which psychometrics looms large, do we think about the virtuous human being?

My analysis suggests one promising approach. We should recognize that intelligences, creativity, and morality — to mention just three desiderata — are separate.

Each may require its own form of measurement or assessment, and some will prove far easier to assess objectively than others. Indeed, with respect to creativity and morality, we are more likely to rely on overall judgments by experts than on any putative test battery. At the same time, nothing prevents us from looking for people who combine several of these attributes — who have musical and interpersonal intelligences, who are psychometrically intelligent and creative in the arts, who combine emotional sensitivity and a high standard of moral conduct.

Let me introduce another analogy at this point. In college admissions much attention is paid to scholastic performance, as measured by College Board examinations and grades. However, other features are also weighed, and sometimes a person with lower test scores is admitted if he or she proves exemplary in terms of citizenship or athletics or motivation. Admissions officers do not confound these virtues (indeed, they may use different scales and issue different grades), but they recognize the attractiveness of candidates who exemplify two or more desirable traits.

We have left the Eden of classical times, in which various intellectual and ethical values necessarily commingled, and we are unlikely ever to re-create it. We should recognize that these virtues can be separated and will often prove to be remote from one another. When we attempt to aggregate them, through phrases like "emotional intelligence," "creative intelligence," and "moral

intelligence," we should realize that we are expressing a wish rather than denoting a necessary or even a likely coupling.

We have an aid in converting this wish to reality: the existence of powerful examples — people who succeed in exemplifying two or more cardinal human virtues. To name names is risky — particularly when one generation's heroes can become the subject of the next generation's pathographies. Even so, I can without apology mention Niels Bohr, George C. Marshall, Rachel Carson, Arthur Ashe, Louis Armstrong, Pablo Casals, Ella Fitzgerald.

In studying the lives of such people, we discover human possibilities. Young human beings learn primarily from the examples of powerful adults around them — those who are admirable and also those who are simply glamorous. Sustained attention to admirable examples may well increase the future incidence of people who actually do yoke capacities that are scientifically and epistemologically separate.

In one of the most evocative phrases of the 20th century the British novelist E. M. Forster counseled us, "Only connect." I believe that some expansionists in the territory of intelligence, though well-motivated, have prematurely asserted connections that do not exist. But I also believe that as human beings, we can help to forge connections that may be important for our physical and psychic survival.

Just how the precise borders of intelligence are drawn is a question we can leave to scholars. But the imperative to broaden our definition of intelligence in a responsible way goes well beyond the academy. Who "owns" intelligence promises to be an issue even more critical in the 21st century than it has been in this era of the IQ test.

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