

## Chapter 1

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# Five Minds for the Future

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Educational institutions change very slowly. In some ways, this conservatism is positive; it discourages faddism and encourages educators to build upon tried-and-true methods. Of course, such conservatism can go too far. I remember a revealing experience I had in China more than twenty years ago. I was invited to observe a college course in psychology and was dismayed to find that the class consisted entirely of students simply reciting the textbook content verbatim. Afterward, with the interpreter by my side, I engaged in a ten-minute debate with the instructor. I emphasized that the students all knew the rote material and suggested that it would be far more productive to raise provocative questions or ask the students to draw on the memorized material in order to illuminate a new phenomenon. The instructor was not the least bit convinced. Indeed, after we went back and forth, she finally cut off the discussion with the statement, “We’ve been doing things this way for so long, we *know* it is right.”

With the benefit of historical insight, we can identify eras when education had to undergo fundamental changes. Probably the most dramatic changes occurred during classical times, when writing became common, and during the Renaissance, when print emerged. Within the United States, pivotal times included the rise of the American common school in the middle of the 19th century, and the commitment, in the middle of the 20th century, to educate all Americans,

regardless of race, gender, social class, or ethnicity. At such times, we can no longer just carry on as before: we must consider whether fundamental changes may be in order.

I believe that, at the beginning of the 21st century, we live in such a time. The forces of globalization entail major changes in all of our lives: I refer here to the increasing power of and reliance on science and technology; the incredible connectivity that results; the enormous amount of information, often of dubious quality, that is at our fingertips; the convergence of cultures in economic, cultural, and social terms; and the incessant circulation, intermingling, and periodic clashing of human beings of diverse backgrounds and aspirations. Intimately and inextricably connected to others, we need to be able to communicate with one another, live with one another, and, where possible, make common cause.

In this chapter, I portray the kinds of minds that we should cultivate in the future. Three of these minds are primarily cognitive: the disciplined mind, the synthesizing mind, and the creating mind. Two minds deal with the human sphere: the respectful mind and the ethical mind. I indicate the major features of these forms of mind, the ways in which they can be shaped, and the ways in which they can be distorted. I describe some of the tensions among minds and offer suggestions of how to possibly integrate these minds within a single thriving human being.

Here are a few clarifying comments: First, in conceptualizing the future, I refer to trends whose existence is widely acknowledged; to be sure, none of the five minds is exclusive to the future: one could have called for them fifty or perhaps even five hundred years ago. Yet their individual and joint cultivation assumes particular urgency at the present time.

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My second point is that I intend to be both descriptive and prescriptive. I am descriptive in the sense that I seek to explain what these minds are; I am prescriptive in the sense that I believe we need to cultivate these kinds of minds. Certainly, thriving as individuals and as societies without a generous dosage of these five mental predispositions is not

possible. Indeed, it is possible that the cultivation of the respectful and ethical mind will determine whether human beings survive as a species.

A third point concerns the scope of the enterprise. Increasingly, education will take place in all kinds of venues and continue throughout one's productive life. So, the minds under discussion here are as much the concern of the fifty-year-old executive or manager as of the teacher or mentor of the young. Moreover, throughout their life cycle, individuals must tend to the development of their own mind, as well as the minds of other individuals—their offspring, students, or employees—over whom they have responsibility.

Finally, as the individual who developed the concept of multiple intelligences, I should forestall a possible confusion. When I write as a psychologist investigating individual differences, I describe human beings as exhibiting different intellectual strengths and different intellectual profiles; thus, William excels in linguistic intelligence, while Pablo is strong in spatial intelligence (Gardner, 2006). But when I wear the mantle of an educator, in the broad sense just described, I call for each person to develop all five kinds of minds. Considerations of differences among individuals fade into the background.

### **The Disciplined Mind**

In English, the word *discipline* has two distinct connotations. We speak of the mind as having mastered one or more disciplines: arts, crafts, professions, or scholarly pursuits. By rough estimate, an individual takes approximately one decade to learn a discipline well enough to be considered an expert or master. In most cases, individuals acquire such mastery through some kind of tutelage: either formally, in a school, or less formally, through some combination of apprenticeship and self-instruction.

Perhaps at one time, an individual could rest on his or her laurels after initially achieving such disciplinary mastery. No longer! Disciplines evolve and ambient conditions change, as do the demands on individuals who have achieved initial mastery. Over succeeding decades, an individual must continue to educate both himself or herself, and others. Such hewing of expertise can continue only if

an individual possesses discipline—in the second sense of the word. That is, an individual needs continually to practice in a disciplined way to remain at the top of his or her game.

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Once basic literacies have been mastered, the chief burden of educational systems is the acquisition of an ensemble of scholarly disciplines. In my own work on precollegiate education, I stress four disciplines: mathematics, science, history, and at least one art form. I make a sharp distinction between subject matter and discipline.

The subject matter of history consists of learning detailed factual information about the past. Such television quiz-show knowledge is always welcome and sometimes lucrative. But this amassing of information differs qualitatively from disciplinary competence. For example, an individual who has acquired the discipline of history can think like a historian. That is, the student of history appreciates that he or she must work with textual, graphical, and other kinds of records; and those records must be reconstructed and sensitively interpreted. Unlike science, historical events occur only once and cannot be replicated exactly or interpreted unambiguously. Historians must impute motives to personages from the past; each generation will necessarily rewrite history. Yet historians are bound to respect the facts and to strive for as accurate and comprehensive a record as possible. Other major disciplines, ranging from genetics to economics, exhibit analogous regularities and constraints.

Individuals first acquire a disciplined mind in school. But relatively few go on to become academic disciplinarians. The rest master disciplines that are not, strictly speaking, scholarly. Yet the same need to master *a way of thinking* applies to the range of workers—whether one is dealing with professionals, such as lawyers or engineers, or with those in business, such as individuals in personnel, marketing, sales, or management. Such education may occur in formal classes or on the job, explicitly or implicitly. In the end, a form of mastery is achieved, one that must continue to be refined over the years.

Nowadays, the mastery of more than one discipline is at a premium. We value those individuals who are genuinely interdisciplinary, but the claim must be real. We would not acknowledge someone as bilingual unless he or she could speak more than one language. The claim of interdisciplinarity makes sense only if a person has genuinely mastered and can integrate two or more disciplines. For most individuals, the attainment of multiple perspectives is a more reasonable goal.

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Pathological forms exist with respect to any kind of mind. Those related to the disciplined mind are, first, the individual who is overly disciplined, who approaches every issue, whether professional or personal, through the same set of beliefs and practices. Next is the individual who, at one time, had mastered the discipline but who no longer keeps up—exhibiting the patina of the disciplinarian but no longer possessing the requisite contents, skills, and understandings. Finally, there is the avowed interdisciplinarian, who may, in fact, be a jack-of-all-trades but the master of none.

Scholars of cognition generally believe it takes ten years to master a discipline. This leaves little time for multiple forms of mastery. But thanks to excellent computer pedagogy, forms of expertise are more rapidly attainable, perhaps in half the time. Also, because of shrewd scaffolding for those who have yet to attain mastery, hope remains that we will nonetheless be able to participate in a number of disciplines and to synthesize knowledge obtained therefrom.

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## The Synthesizing Mind

Murray Gell-Mann, Nobel laureate in physics and an avowed multidisciplinarian, made an intriguing claim about our time: in the 21st century, the most valued mind will be the synthesizing mind—the mind that can survey a wide range of sources; decide what is important and worth paying attention to; and then put this information together in ways that make sense to oneself and, ultimately, to other persons as well.

Gell-Mann is onto something important. Information has never been in short supply, but with the advent of new technologies and media, most notably the Internet, vast and often overwhelming amounts of information now deluge individuals around the clock. Shrewd triage becomes an imperative. Those who can synthesize well for themselves will rise to the top of the pack; those whose syntheses make sense to others will become invaluable teachers, communicators, and leaders.

Strangely, my own discipline of psychology seems to have fumbled with regard to explicating the skill of synthesizing. Compared to a half century ago, a great deal of knowledge exists about how individuals learn to read, calculate, and master basic concepts in history, science, economics, or philosophy; but I have been unable to locate comparable knowledge about how an individual synthesizes.

Nonetheless, identifying the basic constituents of the synthesizing process is possible. To begin, a person must decide on the area that he or she wishes to synthesize. Sometimes, the individual has time to reflect on this; sometimes the demand for synthesis is pressing.

Consider an example from business. Suppose that you are an executive, and your company is considering the acquisition of a new company in a sector that seems important but about which you and your immediate associates know little. Your goal is to acquire enough information so that you and your board can make a judicious decision within the next two months.

The place to begin is with the best existing synthesis: fetch it, devour it, and evaluate it. If none exists, you turn to the most knowledgeable individuals and ask them to provide the basic information requisite to synthesis. Given this initial input, you then decide what information seems adequate and which important additional data you need. At the same time, and of great moment, you need to decide on the form and format of the ultimate synthesis: a written narrative, an oral presentation, a set of scenarios, a set of charts and graphs, an equation, a mind map, or an ordered list of pros and cons leading to a final judgment.

Then the actual work of synthesis begins in earnest. New information must be acquired, probed, evaluated, followed up with, or

sidelined. The new information needs to be fit, if possible, into the initial synthesis; and where fit is lacking, mutual adjustments must be made. There is constant reflection and regular tinkering.

At some point before the final synthesis is due, you need to develop a protosynthesis that should be tested with the most knowledgeable associates, preferably an audience that is critical and constructive. To the extent that time and resources are available, more than one trial run is desirable. But ultimately there arrives a moment of truth, at which point the best possible synthesis must suffice.

What kind of mind is needed to guide the synthesis? Clearly, although he or she should have a “home” area of expertise, the synthesizer cannot conceivably be up to speed on every relevant discipline. As compensation, the synthesizer must know enough about the requisite disciplines to be able to make judgments about whom and what to trust—or to identify individuals who can help make that determination. The synthesizer must also have a sense of the relevant forms and formats for the synthesis, being prepared to alter when possible but to make a final commitment as the deadline approaches. The synthesizer must always keep his or her eyes on the big picture, while making sure to secure adequate details and arrange them in useful ways. It is quite possible that certain individuals are blessed with a *searchlight intelligence*—the capacity to look widely and to monitor constantly, thus making sure that nothing vital is missing—and that such individuals also have the capacity to value the complementary *laser intelligence* that has fully mastered a specific discipline or problem area. Such broad-gauged thinkers should be identified and cherished. But it is crucial that we determine how to nurture synthesizing capacities more widely, because this facility is likely to remain at a premium in the coming era.

Anyone who has read a clutch of textbooks or attended a variety of weekend seminars knows that not all syntheses are equally effective. Some syntheses are too sprawling, attempting to cover too much material. Some syntheses are too focused, serving as briefings for specialists, not nutrients for generalists. Some are too technical; others are too popular. Different aesthetics can also be brought to bear. I favor literary syntheses that make judicious use of organizers,

stories, metaphors, and analogies. Others may prefer syntheses that are devoid of linguistic artifice and that instead rely heavily on charts, graphs, and captionless cartoons. The good synthesizer must know what works both for him and for those who must make use of his synthesis.

## The Creating Mind

Most artists, scientists, and scholars plow the same paths as their peers; most politicians and executives are substitutable for one another. In sharp contrast to those conventional experts, those who possess the creating mind forge new ground. In the current popular argot, creators think outside the box. In our society we have come to value those individuals who attempt new things, monitor whether they work, cast about continually for new ideas and practices, pick themselves up after an apparent failure, and so on. Society gives special honor to those rare individuals whose innovations actually change the ideas and practices of their peers—in my trade, we call these individuals *big C creators*.

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What is special about our time? Put succinctly, nearly every practice that is well understood will be automated. Mastery of existing disciplines will be necessary but not sufficient. Whether at the workplace or in the laboratory, on the political platform or the theatrical stage, individuals face pressure to go beyond the conventional wisdom or the

habitual practice—to try to improve upon previous practices and current efforts by themselves or their competitors.

Of course, sheer innovation is much easier to accomplish than effective creation. I could write this essay in numerous original ways—for example, putting nonsensical phrases between every sentence. These insertions may well be an original act, but such a ploy serves no useful purpose and is unlikely ever to influence future essayists. Suppose, however, I devise a set of Web links to key points, and those links can be varied, based on questions raised by particular readers or on a shrewd assessment of the interests and sophistication of various audiences. Were such a practice desirable, and my pilot work proved successful, such an innovation might eventually be judged as creative.



Ascertaining the relationship among the three kinds of minds introduced thus far is important. Clearly, synthesizing is not possible without some mastery of constituent disciplines—and perhaps there is, or will be, a discipline of synthesizing, quite apart from such established disciplines as mathematics, music, or management. Creation is unlikely to emerge in the absence of some disciplinary mastery and, perhaps, some capacity to synthesize; it's not possible to think outside the box unless you have a box.

Nonetheless, we must bear in mind that the most imaginative instances of creating typically emerge with individuals who are young—perhaps twenty or thirty years old in science or mathematics, perhaps a decade or so later in other pursuits. Disciplinary acumen and synthesizing capacities continue to accrue throughout a lifetime. This fact suggests that too much discipline, or excessive synthesizing, may actually prove counterproductive for the aspiring creator. The challenge is to acquire enough discipline and sufficient synthesis early in life in order to take the confident leap—to go beyond what is known, and stretch in new and unexpected directions.

In comparing creating with synthesizing, we should not minimize the originality of synthesizing. A valued synthesis is not simply an algorithmic exercise; rather, it gains power when it provides that sense of meaning, significance, and connectedness that so many seek today.

Let me put it another way. If synthesis were simply the following of rules, a well-programmed machine could carry it out. But if synthesis is to respond to human concerns, to concerns not just of the moment but also concerns *sub specie aeternitatis*, then it becomes a distinctly human endeavor. And so, I offer the suggestion that powerful synthesizing builds on the candidate human intelligence that I have been studying most recently: *existential intelligence*, defined as the capacity to raise and address the largest questions. When these questions are new ones, synthesizing blends into creating.

As a student of creativity, I long assumed that creating was primarily a *cognitive feat*—having the requisite knowledge and the apposite cognitive processes—but I now believe that personality and temperament are equally important, and perhaps even more important, for the would-be creator. Many individuals know a great deal, and most can

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acquire knowledge and skills indefinitely. Those who would reach for the Promethean fire must possess a robust personality and temperament. More than willing, creators must be eager to take chances, to venture into the unknown, to fail, and then, perhaps smiling, to pick themselves up and once more throw themselves into the fray. Even when successful, creators do not rest on their laurels. They have motivation again to venture into the unknown and to risk failure, buoyed by the hope that another breakthrough

may be in the offing, able to frame an apparent defect as a valuable learning opportunity.

In 1909, psychoanalyst Sigmund Freud and his close associate Carl Jung went to America. It was Freud's first and last trip—he did not like the New World. Jung remained longer; he was lionized by audiences. With great enthusiasm, Jung wired back to Freud: “Great news: psychoanalysis big success in the United States.” According to legend, Freud immediately wired back: “What did you leave out?” Far from enjoying the acclaim, Freud was more intent on raising the tension, on venturing beyond anything suggestive of easy acceptance or conventional wisdom.

In the United States, people often ask me how to cultivate creativity. I give two responses, which are neither expected nor immediately popular. First, I talk about the need to pose challenges, obstacles, and boulders. An individual cannot achieve a robust temperament without taking chances, often failing, and learning that the world does not thereupon end. Of course, the frustrations must be manageable; they cannot be allowed to break a person's spirits. Second, and at the risk of being politically incorrect, I question whether it is important to cultivate creativity in American schools. That is because messages about the importance—the cash value—of creativity are ubiquitous in American society: on the streets, in the media, and in the marketplace. Probably more emphasis on disciplines and synthesis would yield greater dividends. But in other countries, where rote instruction is entrenched and innovations are greeted with suspicion, I would favor

a curriculum and a pedagogy oriented toward the cultivation of the creative person and the discovery and exploration of the creative idea.

Until this point, I've reviewed the kinds of minds most familiar to me as a cognitive psychologist. If I had written this essay a decade ago, I would probably have stopped here. Indeed, I could summarize the three minds very crisply: the disciplined mind involves depth; the synthesizing mind entails breadth; and the creating mind features stretch.

More recent events, however, prompted me to postulate and ponder two additional kinds of minds: the respectful mind and the ethical mind. To begin, there is my fifteen-year collaborative study of good work—work that is excellent, engaging, and ethical. This line of research sensitized me to kinds of minds that I might otherwise have ignored. In addition, many social and political trends in the world disturbed me. Sheer cultivation of cognitive capacities, in the absence of the human dimension, seems a dubious undertaking. I agree with Ralph Waldo Emerson's assertion that "character is higher than intellect."

### **The Respectful Mind**

Almost from the start, infants are alert to other human beings. Absent frank pathology, even neonates display keen interest in anything that resembles a human face or voice. The attachment between parent (typically the mother) and child is predisposed to develop throughout the early months of life; and the nature and strength of that bond determines the capacity of individuals to form relationships with others throughout life.

Of equal potency is the young human's capacity to distinguish among individuals and among groups of individuals. Within months, the infant can distinguish his mother from other young females; by the end of the first year of life, the infant recognizes, and can modulate his reaction to, a range of individuals in his environment. By the age of two approximately, the toddler is able to make all manner of group discriminations: male versus female, young versus old, familiar versus unfamiliar, and, most revealingly, classification of members of different racial and ethnic groups.

Human beings are wired to make such distinctions readily; indeed, survival depends upon the ability to distinguish among those who are likely to help and nourish, and those who might do harm. But the particular messages in an individual's own environment determine *how* that person labels specific individuals or groups. An individual's own experiences, and the attitudes of the peers and elders to whom he or she is closest, determine whether he or she likes, admires, or respects certain individuals and groups; or whether, on the contrary, that individual comes to shun, fear, or even hate these individuals.

In earlier eras, when human beings met only a few hundred people in the course of a lifetime, the nature of their interpersonal or intergroup attitudes was of less moment. Today, individuals live in an era when nearly every person is likely to encounter thousands of other individuals personally, and when billions of people have the option of traveling abroad or of encountering individuals from remote cultures through visual or digital media.

A person possessed of a respectful mind welcomes this exposure to diverse persons and groups. Such a person wants to meet, get to know, and come to like individuals from remote quarters. A truly cosmopolitan individual gives others the benefit of the doubt, displays initial trust, tries to form links, and avoids prejudicial judgments. To be sure, such a posture is not uncritical or automatic; it is possible for another individual to lose one's respect, even to merit one's distrust or hatred. The respectful mind, however, starts with an assumption that diversity is positive and that the world would be a better place if individuals sought to respect one another.

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The threats to respect are intolerance and prejudice. A prejudiced person has preconceived ideas about individuals and groups, and resists bracketing those preconceptions. For example, if I am a disrespectful straight, white American and you are German, African American, or homosexual, I will assume that you are no good, distance myself, and take every opportunity to put you down verbally or physically. An intolerant person has a very low threshold for unfamiliarity; the default assumption is that strange is bad. No matter

what you look like or who you are, if I don't already have a reason to embrace you, I won't.

Sham forms of respect exist. For example, I might “kiss up and kick down.” That is, as long as you have power over me, or can do me a favor, I will treat you well; but once I am in a more important position, I won't give you the time of day. Or I might respect you publicly, but once you have left the room, I will make fun of you or the group to which you belong.

To come to respect others once feared, distrusted, or disliked is not easy. Yet, in an interconnected world, such a potential for growth, for freshly forged or renewed respect, is crucial. In war-torn lands, commissions of truth and reconciliation have taken on deserved importance; and at least at times, they succeed in reconstituting badly frayed ties. When countries are at loggerheads, sporting events (such as ping-pong diplomacy between Chinese and Americans) or cultural events (such as orchestras made up of young Israelis and Palestinians) can sometimes pave the way for reconciliation with “the other.” When it comes to the causes of terrorism, these are no quick fixes; only genuine respect, nurtured and earned over the decades, can reduce the appeal of terrorism.

### **The Ethical Mind**

The road to respect is paved from the earliest age, one smile or frown at a time. An ethical stance is in no way antithetical to a respectful one, but it involves a much more sophisticated stance toward individuals and groups. A person possessed of an ethical mind is able to think of himself or herself abstractly, and is able to ask, “What kind of a worker do I want to be? What kind of a citizen do I want to be?” Going beyond the posing of such questions, the person is able to think about himself or herself in a universalistic manner: “What would the world be like if all workers in my profession took the stance that I have, if all citizens in my region or my world fulfilled their roles in the way that I do?” Such conceptualization involves a recognition of rights and responsibilities attendant to each role. Crucially, the ethical individual behaves in accordance with the answers that he or she has forged, even when such behaviors clash with self-interest.

My own insights into the ethical mind come largely from fifteen years of study of professionals who are seeking to do good work—work that is excellent, engaging, and ethical (Gardner, Csikszentmihalyi, & Damon, 2001). Most individuals admire good work and want to achieve it. That is, they would like to behave ethically, and they would like others to behave ethically. But this wish does not translate automatically or smoothly into reality. Determining what is ethical is not always easy, and such a determination can prove especially challenging during times like our own, when conditions change very quickly, and when market forces are powerful and often unmitigated. Even when an individual determines the proper course, behaving in an ethical manner is not always easy; that proves particularly so when one is highly ambitious, when others appear to be cutting corners, when different interest groups demand contradictory things from workers, when the ethical course is less clear than one might like, and when such a course runs against one's immediate self-interest.

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Although most children lack the capability to conceptualize the ethical course, the building blocks that form the basis of an ethical life are identifiable: the words and actions of respected elders at home, at school, and in the community. Developing an ethical mind is much easier, so much more natural, when an individual inhabits an ethical environment. When adults are reflective about their decisions, and explicitly cite moral concerns, young people get the message even when the details elude them. Such an environment is rarely sufficient, however. Crucial contributions are made by the atmosphere at a person's first places of work: how do the adults in positions of authority behave; what are the beliefs and behaviors of one's peers; and, above all, what happens when there are clear ethical deviations, and—more happily if less frequently—when an individual or a group behaves in an ethically exemplary fashion? Education in ethics may not begin as early as education for respect, but neither “curriculum” ever ends.

I've suggested that an ethical stance requires the abstract attitude that typically does not develop until adolescence. But even young children are parts of communities—home, school classroom, or church—and they can be acculturated into the ideals, attitudes, and

behaviors appropriate to their roles within these communities. Indeed, sensitivity to *institutional culture*—the norms of a particular group as manifest in daily operation—is certainly within the ken of the child in the elementary school. (Alas, so is acculturation into unethical frames of mind.) Thus, society should infuse ethics into the sinews of all important institutions in which the child is involved. An important step will have been taken toward an ethical career and citizenship.

Given the high standards necessary for an ethical mind, examples of failures abound. It is not difficult to recognize behaviors that are strictly illegal, such as theft or fraud, or behaviors that are obviously unethical—for example, the journalist who publishes a story that he knows is untrue or the geneticist who overlooks data that run counter to her hypothesis. More subtle discrimination is needed to detect instances of compromised work—for example, the journalist who fails to confirm a tip before publishing or the geneticist who elects quick publication over running an indicated control group. Compromised work and bad work can undermine institutions and societies; the former may occur more slowly, but unless the trends are reversed, the undermining of the profession is equally decisive.

My examples of ethics are drawn from the professional world, the one that I've studied. But none of us are simply professionals; we are also family members, citizens of a community, and inhabitants of the world. In each case, the ethical mind must go through the exercise of identifying the kind of individual one wants to be. And when a person's own words and behaviors run counter to that idealization, that individual must take corrective action.

I would add that as one gets older, it does not suffice simply to keep one's own ethical house in order. One acquires a responsibility over broader realms of which one is a member. For example, an individual journalist or geneticist may behave ethically, but if his or her peers fail to do so, the senior worker should assume responsibility for the health of the domain. I deem such individuals *trustees*: veterans who are widely respected, deemed to be disinterested, and dedicated to the legitimacy of the domain. As the French playwright Jean-Baptiste Molière commented, "We are responsible not only for what we do but for what we do not do."

## **Tensions Between and Among the Minds**

Of the five minds, the ones most likely to be confused with one another are the respectful mind and the ethical mind. In part, this is because of ordinary language: we consider respect and ethics to be virtues, and we assume that it is impossible to have one without the other. Moreover, very often they correlate; persons who are ethical are also respectful, and vice versa.

However, as indicated, I see these as developmentally discrete accomplishments. An individual can be respectful from early childhood, even without having a deep understanding of the reasons for respect. In contrast, ethical conceptions and behaviors presuppose an abstract, self-conscious attitude: a capacity to step away from the details of daily life and to think of oneself as a worker or as a citizen.

For example, even as a youth, Abraham Lincoln never liked slavery; he wanted to treat slaves as human beings with their own aspirations, not as mere property. Yet it took him many years to become a political opponent of slavery because as a citizen and as a political figure, Lincoln felt that it was his ethical obligation to obey the law, which protected slavery in much of the United States. As he put it, his own personal views—his own respect for Negroes—was irrelevant to his official role. Only after much soul-searching and many tumultuous political events did Lincoln reconceptualize his role as a political leader and begin to favor emancipation. In this particular case, he brought into closer alignment his respectful and ethical minds.

Whistle-blowers are another example. Many individuals observe wrongdoing at high levels in their company and remain silent. They may want to keep their jobs, and also to respect their leaders. It takes both courage and a mental leap to think of oneself not as an acquaintance—or even a friend—of one's supervisor but rather as a member of an institution or profession, with certain obligations attendant thereto. The whistle-blower assumes an ethical stance at the cost of a respectful relationship with his supervisor.

Economist Albert O. Hirschman (1970) wrote insightfully about such a sequence. Initially, he contends, one owes allegiance, or loyalty, to one's organization; this is a matter of respect. If, however, the offending



situation remains or magnifies, then one has an obligation so speak up. At this point, voice trumps respect. Ultimately, if such an effort to alert and to change the organization is judged to be futile, then the individual should exit the organization; that is the only ethical course. Such a sequence is difficult to realize in a totalitarian society, where other options are few and the penalties for voice can be severe. Nor is it easy to realize if an individual has no other employment options.

Sometimes, respect trumps ethics. Initially, for example, I believed that the French government was correct in banning Muslim women from wearing scarves at school. By the same token, I defended the right of Danish newspapers to publish cartoons that poked fun at Islamic fundamentalism. In both cases, I took the American Bill of Rights at face value—no state religion, guaranteed freedom of expression. But I eventually came to the conclusion that this ethical stance needed to be weighed against the costs of disrespecting the sincere and strongly held religious beliefs of others. The costs of honoring the Islamic faith emerged as less than the costs of honoring an abstract principle. Of course, I make no claim that I came to the right conclusion—only that the tension between respect and ethics can be resolved in contrasting ways.

Here is another example: the creative mind often finds itself in conflict with other minds. In East Asia, an individual is expected to respect his or her mentor throughout life. This stance is difficult to maintain when that person engages in creative iconoclasm—more bluntly, when one's own work overthrows that of the mentor or, equally devastating, renders it irrelevant. For this reason, many aspiring creators from East Asia moved to the West in past decades so that they could avoid the appearance of disrespecting their teacher or mentor. By the same token, too much of an emphasis on discipline, or too much of a dedication to synthesis, also clashes with pursuit of creative breakthroughs. Some discipline and some synthesizing are necessary—but not too much.

## **The Minds and Multiple Intelligences**

As the originator of the theory of multiple intelligences (MI theory), I am often asked about the various intelligences in the

development of the five minds. The disciplined and creating minds can and do draw on any and all intelligences, depending on the area of work. Thus, whether disciplined or creative, a poet depends on linguistic intelligence, an architect on spatial intelligence, a therapist on interpersonal intelligence, and so on. Respect and ethics clearly draw on the personal intelligences. Ethics, reflecting an abstract way of thinking, draws as well on logical intelligence.

The synthesizing mind poses a problem for MI theory because synthesis often involves the operation of one, two, or even several intelligences. I suspect that gifted synthesizers achieve their goals in different ways. For example, as a synthesizer, I rely heavily on linguistic, logical, and naturalistic intelligences, but others may draw on spatial, artistic, or personal intelligences to achieve and convey their synthesis. And so, I offer the suggestion that powerful synthesizing may build on the candidate intelligence that I have been contemplating most recently: existential intelligence.

### **Assessment and the Five Minds**

Once individuals hear about the five minds, they ask how to best assess their occurrence and their enhancement. In the United States, the assessment question almost always comes up soon. Assessing the minds is hardly a straightforward matter; and indeed, I worry about too rapid a move to the “test” for synthesizing or ethics. Nonetheless, a few preliminary thoughts are in order.

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Assessing the minds is hardly a straightforward matter.

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We know the most about assessing the disciplined mind. Experts in nearly every discipline have developed both quantitative and more qualitative (or more subjective) ways of assessing individual attainment in the discipline. Indeed, educators could not legitimately teach the disciplines in the school, and award licenses or diplomas, without some reasonably consensual evaluation metrics.

As I formulate it, creativity can be assessed only after the fact. An individual work or product is creative if, and only if, it changes the ways in which others in the relevant field think and act. Sometimes this judgment about creativity can be made quite rapidly (as in the case of a riveting movie format), but this assessment can take years

or even decades. And so, we can assess an individual's potential for achieving middle C or big C creativity only by looking at what small C creativities have already been achieved.

Syntheses are best judged by laying out beforehand the criteria for a successful synthesis and determining, by consensus, whether those criteria have been achieved. Chapter 3 of my book *Five Minds for the Future* (2007) provides an example of how to do this.

This leaves respect and ethics. If I have the opportunity of observing a person, a group, or an institution, particularly when no one is aware of my presence, I can readily determine whether an aura of respect pervades. In contrast, ethics can be assessed only if a set of explicit principles characterizes a role (professional, citizen). Those responsible for upholding the principles may then render judgments about who abides by the principles and who crosses the line into compromised or bad work.

Of course, even if it could not please a psychometrician, sometimes a general guideline can take an individual quite far. Hearing about the five minds, my friend and distinguished educator Patricia Graham commented, "We respect those who behave in an ethical manner." Indeed, although ethics might be judged in many ways, consensus that a person or institution in question is worthy of respect is an extremely persuasive indication.

### **Are There Other Minds?**

When I wrote *Five Minds for the Future*, I was unaware of Daniel Pink's book *A Whole New Mind: Why Right-Brainers Will Rule the Future* (2006); and Daniel Pink does not mention my writings in his book. Ignorance is never to be preferred over knowledgeability; nonetheless, this state of affairs means that two writers could each put forth their own views independently, and readers could judge the extent to which these views were congruent or in conflict.

Pink is impressively alert to the softer sides of cognition, which he calls design, story, symphony, and play. Although much of my own research has probed the arts, I do not specify areas of discipline, synthesizing, and creating; a person can choose to work in architecture, dance, or film, as well as in business, finance, or management

consultancies. However, I agree with Pink that those capacities that can be carried out automatically by machines, or far more cheaply in other parts of the world, will cease to be at a premium in the developed nations. Therefore, the so-called right-brain capacities will come increasingly to the fore.

My work brings out points that Pink ignores or minimizes. Even though mastery of a discipline seems old-fashioned and left-brained, mastery is still vital. Those who do not have a discipline, as well as a sense of discipline, will either be without work or will work for someone who does. Also, Pink leaves out how individuals behave toward others (respect) and how they carry out their roles as workers and citizens (ethics). He might respond that the new mind features “empathy,” and that is true enough. Nonetheless, an empathetic person does not necessarily behave desirably. Empathy can be used to produce hurt—indeed, that is what sadism is, taking pleasure in the pain that others feel.

I endorse Pink’s discussion of meaning. The thirst for significance has always existed in human beings. The faster the changes, the weaker the ambient religious and ideological systems, the more isolated the individual and the greater the thirst for meaning. I had considered the importance of meaning in my study of existential intelligence. The newly suggested link between synthesizing, on the one hand, and existential intelligence, on the other, resonates with Pink’s interest in meaning.

As Pink reminds us, in a world that so honors the STEM disciplines (science, technology, engineering, and mathematics), we require extra efforts not to ignore the other fields of human knowledge and practice. I worry particularly about the arts and humanities. There is less demand for these topics, which were once seen as central to a liberal education. Parents, policymakers, and pupils are all pulled toward the professions, and particularly those that have the potential for making one wealthy (preferably quickly). Yet I believe that an individual cannot be a full person, let alone have a deep understanding of the world, unless he or she is rooted as well in art, literature, and philosophy. Moreover, these realms of knowledge should not be rewards

for the harried middle-aged executive, but rather the cornerstone of education for all young persons. In the absence of a strong demand for these topics on the part of consumers, it is incumbent on those with the responsibility of trustee to make sure that humanistically oriented fields are protected. By the same token, those who would hope to continue teaching literature, music, philosophy, and history need to present these topics in ways that speak to new generations, while avoiding “inside baseball” curricula that speak only to those with a professional stake in the field.

### **Integrating Five Minds Into One Person**

Even if one believes that all five of these minds ought to be cultivated, many questions remain about how best to accomplish this goal. One could, for example, randomly assign young persons to one of five classrooms or schools; or, more deliberately, one could attempt to assess mental affinities, and then place each child in the most congenial track (Johnny seems like he has a lot of potential to synthesize; let’s put him in track two). I do not favor this alternative. I feel individuals will be better served if they have the opportunity to cultivate all five minds even if, in the end, some will emerge as stronger in one variety, while others exhibit a contrasting profile.

Among the minds is no strict hierarchy, such that one mind should be cultivated before the others, and yet a certain rhythm does exist. An individual needs a certain amount of discipline—in both senses of the term—before undertaking a reasonable synthesis; and if the synthesis involves more than one discipline, then each of the constituent disciplines must be cultivated. By the same token, any genuinely creative activity presupposes a certain disciplined mastery. Although prowess at synthesizing may be unnecessary, nearly all creative breakthroughs—whether in the arts, politics, scholarship, or corporate life—are to some extent dependent on provisional syntheses. Still, as argued previously, too much discipline clashes with creativity; those who excel at syntheses are less likely to effect the most radical creative breakthroughs.

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Without question, the respectful mind can be cultivated well before an ethical stance is conceivable. Indeed, respect ought to be part of the atmosphere from the earliest moments of life. When it comes to the cultivation of creativity, it is important to underscore personality and temperament factors. The building of a robust temperament, and a personality that is unafraid of assuming reasonable risks—cognitive and physical—can begin early in life; these dispositions mark the future creator.

Whatever details of ordering may obtain, in the end it is desirable for each person to have achieved aspects of all five mental capacities, all five minds for the future. Such a personal integration is most likely to occur when individuals are raised in environments that exhibit and value all five kinds of minds. So much the better if role models—parents, teacher, masters, or supervisors—regularly display aspects of discipline, synthesis, creation, respect, *and* ethics. In addition to embodying these kinds of minds, the best educators at school or work can provide support, advice, and coaching that help to inculcate discipline, encourage synthesis, prod creativity, foster respect, and encourage an ethical stance.

In the end, however, no one can compel the cultivation and integration of the five minds. The individual must come to believe that the minds are important, that they merit the investment of significant amounts of time and resources, and that they are worthy of continuing nurturance even after external supports fade. The individual must reflect on the role of each of these minds at work, in a favored avocation, at home, in the community, and in the wider world. The individual must be aware that sometimes these minds will find themselves in tension with one another, and that any resolution will come at some cost. In the future, the mind that is likely to be at greatest premium is the synthesizing mind. And so, it is perhaps fitting that the melding of the minds within an individual's skin is the ultimate challenge of personal synthesis.

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