The Five Minds for the Future

HOWARD GARDNER
Graduate School of Education, Harvard University

At the start of the third millennium, we are well attuned to considerations of “the future.” In conceptualizing the future, I refer to trends whose existence is widely acknowledged: the increasing power of science and technology; the interconnectedness of the world in economic, cultural, and social terms; and the incessant circulation and intermingling of human beings of diverse backgrounds and aspirations.

As one who has witnessed discussions of the future all over the world, I can attest that belief in the power of education—for good or for ill—is ubiquitous. We have little difficulty in seeing education as an enterprise—indeed, the enterprise—for shaping the mind of the future.

What kind of minds should we be cultivating for the future? Five types stand out to me as being particularly urgent at the present time. One by one, let me bring them onto center stage.

I. The Disciplined Mind

In English, the word “discipline” has two distinct connotations. First, we speak of the mind as having mastered one or more disciplines—arts, crafts, professions, scholarly pursuits. By rough estimates, it takes approximately a decade for an individual to learn a discipline well enough so that he or she can be considered an expert or master. Perhaps at one time, an individual could rest on her laurels once such disciplinary mastery has been initially achieved. No longer! Disciplines themselves change, ambient conditions change, as do the demands on individuals who have achieved initial mastery. One must continue to educate oneself and others over succeeding decades.

Such hewing of expertise can only be done if an individual possesses dis-
cipline—in the second sense of the word. That is, one needs continually to practice in a disciplined way if one is to remain at the top of one’s game.

We first acquire a “disciplined mind” in school, though relatively few of us go on to become academic disciplinarians. The rest of us master disciplines that are not, strictly speaking, “scholarly,” yet the need to master a “way of thinking” applies to the entire range of workers—whether it be lawyers, engineers, crafts persons, or business professionals involved with personnel, marketing, sales, or management. Such education may take in formal classes or on the job, explicitly or implicitly. In the end, a form of mastery will be 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 who are interdisciplinary, multidisciplinary, or transdisciplinary. But these claims must be cashed in. We would not value a bilingual person unless he or she can speak more than one language. By the same token, the claim of pluridisciplinarity (if you'll excuse the neologism) only makes sense if a person has genuinely mastered more than one discipline and can integrate them. For most of us, the attainment of multiple perspectives is a more reasonable goal.

II. The Synthesizing Mind

Nobel laureate in physics Murray Gell-Mann, an avowed multidisciplinarian, has made an intriguing claim about our times. He asserts that, in the twenty-first 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 others as well.

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

Let’s take an example from business. Suppose that you are an executive and your firm is considering the acquisition of a new company in an area 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, and you need to do so in the next two months. The place to begin is with any existing synthesis: fetch it, devour it, 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 where important additional data are required.

At the same time, 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, perhaps a discussion of pros and cons leading to a final judgment. At last, the actual work of synthesis begins in earnest. New information must be acquired, probed, evaluated, followed up, 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. Constant reflection is the order of the day.

At some point before the final synthesis is due, a protosynthesis should be developed. This interim version needs to be tested with the most knowledgeable audience of 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, though he should have a home area of expertise, the synthesizer cannot conceivably be an expert of 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, or advisable, but to make a final commitment as the deadline approaches.

The synthesizer must always keep his eyes on the big picture, while making sure that adequate details are secured and arranged in useful ways. This is a tall order, but 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 they also have the capacity to value the complementary “laser intelligence” that has fully mastered a specific discipline. Such individuals should be identified and cherished. It is crucial that we determine how to nurture synthesizing capacities more widely, since they are likely to remain at a premium in the coming era.

Howard Gardner
III. The Creating Mind

In our time, nearly every practice that is well understood will be automated. Mastery of existing disciplines will be necessary but not sufficient. The creating mind forges new ground. In our society we have come to value those individuals who keep casting about for new ideas and practices, monitoring their successes, and so on. And we give special honor to those rare individuals whose innovations actually change the practices of their peers—in my trade, we call these individuals “Big C” creators.

As a student of creativity, I had long assumed that creating was primarily a cognitive feat—having the requisite knowledge and the apposite cognitive processes. But I have come to believe that personality and temperament are equally, and perhaps even more, important for the would-be creator. More than willing, the creator must be eager to take chances, to venture into the unknown, to fall flat on her face, and then, smiling, pick herself up and once more throw herself into the fray. Even when successful, the creator does not rest on her laurels. She is motivated again to venture into the unknown and to risk failure, buoyed by the hope that another breakthrough may be in the offing.

It is important to ascertain the relation among the three kinds of minds introduced thus far. 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, mime, or management. I would suggest that creation is unlikely to emerge in the absence of some disciplinary mastery, and, perhaps, some capacity to synthesize as well.

IV. The Respectful Mind

Almost from the start, infants are alert to other human beings. The attachment link between parent (typically mother) and child is predisposed to develop throughout the early months of life, and the nature and strength of that bond in turn determines much about 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. We are wired to make such distinctions readily; indeed, our survival depends upon our ability to distinguish among those who would help and nourish us and those who might do us harm. But the messages in our particular environment determine how we will label particular individuals or groups. Our own experiences,
and the attitudes displayed by the peers and elders to whom we are closest, determine whether we like, admire, or respect certain individuals and groups or whether, on the contrary, we come to shun, fear, or even hate these individuals.

We live in an era when nearly every individual is likely to encounter thousands of 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. A truly cosmopolitan individual gives others the benefit of doubt, displays initial trust, tries to form links, avoids prejudicial judgments.

The threats to respect are intolerance and prejudice, what in the worst case forms into individual, state, or stateless terrorism. A prejudiced person has preconceived ideas about individuals and groups and resists bracketing those preconceptions. An intolerant person has a very low threshold for unfamiliarity; the default assumption is that “strange is bad.” It is not easy to come to respect others whom you have feared, distrusted, or disliked. Yet, in an interconnected world, such a potential for growth, for freshly forged or freshly renewed respect, is crucial.

V. The Ethical Mind

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 abstractly: he is able to ask, “What kind of a person do I want to be? 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 in a universalistic manner: “What would the world be like, if all persons behaved the way that I do, if all workers in my profession took the stance that I have, if all citizens in my region or my world carried out their roles in the way that I do?” Such conceptualization involves a recognition of rights and responsibilities attendant to each role. And crucially, the ethical individual behaves in accordance with the answers that he has forged, even when such behaviors clash with his own self interest.

My own insights into the ethical mind come from a dozen years of study of professionals who are seeking to do good work—work that is excellent, engaging, and ethical (see http://www.goodworkproject.org). Determining what is ethical is not always easy and can prove especially challenging during times, like our own, when conditions are changing very quickly and when
market forces are powerful and unmitigated. Even when one has determined the proper course, it is not always easy to behave in an ethical manner, and that is 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.

It is so much easier, so much more natural, to develop an ethical mind when one inhabits an ethical environment. But such an environment is neither necessary nor sufficient. Crucial contributions are made by the atmosphere at one’s first places of work: how do the adults in power behave; what are the beliefs and behaviors of one’s peers; and, perhaps 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.

Given the high standards necessary for an ethical mind, examples of failures abound. It is not difficult to recognize behaviors that are strictly illegal—like theft or fraud—or behaviors that are obviously unethical—the journalist who publishes a story that he knows is not true, the geneticist who overlooks data that run counter to her hypothesis. In each case, the ethical mind must go through the exercise of identifying the kind of individual one wants to be. And when one’s own words and behaviors run counter to that idealization, one 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 the broader realm of which one is a member. And so, for example, an individual journalist or geneticist may behave in an ethical manner; but if her peers are failing to do so, the aging worker should assume responsibility for the health of the domain. I denote such individuals as “trustees”: veterans who are widely respected, deemed to be disinterested, and dedicated to the health of the domain. As the French playwright Jean-Baptiste Molière once remarked, “We are responsible not only for what we do but for what we don’t do.”

VI. Tensions Between and Among These 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 one cannot have one without the other. Moreover, very often they are correlated; persons who are ethical are also respectful and vice versa.
However, as indicated, I see these as developmentally discrete accomplishments. One 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.

Whistle-blowers are a good example. Many individuals observe wrongdoing at high levels in their company and remain silent. They may want to keep their jobs, but they also want to respect their leaders. It takes both courage and a mental leap to think of oneself not as an acquaintance 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 relation to his supervisor.

Sometimes, respect may trump ethics. Initially, 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 was taking 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 preferences seem less than those of honoring an abstract principle. Of course, I make no claim that I did the right thing—only that the tension between respect and ethics can be resolved in contrasting ways.

VII. In Closing
There is no strict hierarchy among the minds, such that one should be cultivated before the others. Yet, a certain rhythm does exist. One needs a certain amount of discipline—in both senses of the term—before one can undertake a reasonable synthesis, and if the synthesis involves more than one discipline, then each of the constituent disciplines needs to be cultivated. By the same token, any genuinely creative activity presupposes a certain discipline mastery. And while 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, too much discipline clashes with creativity, and those who excel at syntheses are less likely to affect the most radical creative breakthroughs.

In the end it is desirable for each person to have achieved aspects of all
five minds for the future. Such a personal integration is most likely to occur if individuals are raised in environments where all five kinds of minds are exhibited and valued. So much the better, if there are role models—parents, teachers, masters, supervisors—who display aspects of discipline, synthesis, creation, respect, and ethics on a regular basis. In addition to embodying these kinds of minds, the best educators at school or work can provide support, advice, and coaching that will help to inculcate discipline, encourage synthesis, prod creativity, foster respect, and encourage an ethical stance.

No one can compel the cultivation and integration of the five minds. The individual human being must come to believe that the minds are important, merit the investment of significant amounts of time and resources, and are worthy of continuing nurturance, even when external supports have faded. 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 be purchased at some cost. In the future, the form of 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.