

**Multiple Lenses on The Mind**  
Howard Gardner

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Please address correspondence to:  
Howard Gardner  
Harvard Graduate School of Education  
Larsen 201, 14 Appian Way  
Cambridge, MA 02138  
(617) 496-4929  
hgasst@pz.harvard.edu

## Some Words about my Background

Ever since I can remember, I've been interested in the mind. I remember the first time that I heard about the academic field of psychology. When I was a teenager, my uncle Fred, the intellectual in the family, gave me a psychology textbook. I leafed through it until I saw a section on color blindness. I happen to be color blind, quite severely so. It was fascinating to read about this disorder and to know that scientists have deciphered some of the mechanisms of color vision and devised tests for delineating various kinds of color blindness.

I did not pursue the study of color vision. Nor, indeed, did I take any psychology courses when I was in college. But I did become fascinated by the writings of Erik Erikson, a student of Freud's and an expert on human personality and human development. Erikson wrote more insightfully than anyone else about growing up in Soviet Russia, Nazi Germany, and the United States of the first decades of the twentieth century. Erikson became my tutor for two years and, through this privileged "back door", I learned about human development, personality, and psychoanalysis.

I thought that I would go on to graduate study in clinical psychology—the closest academic area to Erikson's own studies. But then one of those flukes occurred that alter one's life. I hitched a ride from Cambridge, Massachusetts to Ann Arbor, Michigan and learned that Jerome Bruner—a distinguished psychologist, a real psychologist—was looking for students to work on an interesting educational project. Bruner and colleagues were designing a social studies curriculum for fifth graders—ten year olds. The name of the curriculum was Man:

A course of Study. It was designed to answer three questions: What makes human beings human? How did they get that way? How could they be made more human? I was mesmerized by Bruner's impressive intellect and magnetic personality, the intriguing questions raised in the course, the literally dozens of talented scholars whom Bruner had gathered around him, and the challenge of teaching concepts of kinship, linguistics, myth, and the human life cycle to ten year olds. Without fully realizing it, I was shifting my interest from personality and psychotherapy a la Erikson to cognitive studies and developmental psychology, a la Bruner. And within a year, I was enrolled in a doctoral program at Harvard, trying my best to understand how the mind develops and how it works in the mature, productive adult.

Let me provide a few contextual remarks. First of all, as a young person, the child of refugees from Nazi Germany, I had been a good student and a serious musician. When I began to study 'real' psychology, I was intrigued by the fact that the arts were rarely mentioned in serious psychology circles. To have a mind was to be a scientist, or at least to think scientifically; many psychologists were ex-engineers or suffered from physics envy; the last thing that they wanted to do was to be seen as artistic 'softies.' Early on, I decided that I wanted to illuminate the nature of artistic thinking. Also, I was particularly interested in issues of creativity—how does a person conjure up something new, whether it is a sonnet, a symphony, a sketch, or a scientific theory?

The Science of Psychology and The Cognitive Revolution For much of the 20<sup>th</sup> century, psychology was dominated by behaviorism—the science of the black box. The leading

figure was B. F. Skinner. Skinner believed that the purpose of psychology was to predict and control behavior, and controllers achieved their ends by varying rewards and punishment. Skinner was good at molding behavior—he could take pigeons from a Cambridge park and teach them to play ping pong. But the limits of behaviorism were well illustrated by a famous joke. Two behaviorists make love: the first says to the second “Well, it was great for you—but how was it for me?”

As I was beginning my formal doctoral studies in the middle 1960s, an intellectual revolution was beginning. It was called the Cognitive Revolution and, later on, in my book The Mind’s New Science, I became the first chronicler of the Cognitive Revolution. The Cognitive Revolution had a number of characteristics. For our purposes, the major goal of the cognitive revolution was to peer inside the behaviorist’s black box—to figure out how the mind, and ultimately, the brain operate. Cognitive psychologists believe that the mind deals with various kinds of mental languages—which are called ‘mental representations.’ The job of cognitive scientists is to identify the key mental representations and to figure out how they work. Among the famous cognitive scientists are Jean Piaget, the developmental psychologist; Noam Chomsky, the linguist; and Herbert Simon, the inventor of artificial intelligence. And nowadays, almost everyone would add that cognitive science has merged with the study of the brain, in vivo, as well as in vitro. We no longer talk much of cognitive science—we speak now of cognitive neuroscience.

My First Studies For the first ten years of my professional career, I studied how the mind develops in children and how it breaks down under conditions of brain damage. As you may

know, the single most important thing about a brain lesion is where the damage is. If one is right handed, and suffers injury in the middle areas of the left hemisphere, one is likely to become aphasic—to have a major disturbance of one’s language facilities. But if you suffer injury to the right hemisphere, your language will be ostensibly fine, but, depending on the location and depth of the lesion, you are likely to be impaired in musical cognition, spatial cognition, and/or your understanding of other people.

With normal and gifted children and with brain damaged adults, I studied how human beings deal with various kinds of symbols. As I’ve already mentioned, I had a particular interest in the arts. And so I studied the development and breakdown of musical abilities, graphic abilities, metaphoric and narrative capacities, and other abilities crucial in the arts. Of course, when you look at these abilities, you necessarily encounter nonartistic capacities as well—mastery of ordinary language, calculation, understanding of other persons, and the like.

At the time that my studies began, I had been a convinced Piagetian—I believed that logical-mathematical thought was the center of all cognition. I believed that children passed through a series of qualitatively different stages, and that their mental world gets remade, whenever they enter the next stage. I believed that cognitive development is completed by the middle of adolescence, at the latest. And I never thought at all about intelligence tests.

I still think that Piaget is the greatest student of the development of the mind. Every student of cognitive development owes an incalculable debt to Piaget. And yet, with the benefit of

hindsight, I can see that during that decade, I gradually lost my Piagetian religion. By 1980, I believed that there were a series of relatively independent cognitive capacities of which logical –mathematical thought was only one. I believed that stages were much looser than Piaget had envisioned, and, more importantly, that one’s sophistication with one kind of mental representation did not predict one’s sophistication with other mental representations. I believed that cognitive development continues well past adolescence, and that various cognitive capacities—like creativity, leadership, and the ability to change the minds of other persons—remain to be illuminated, despite Piaget’s remarkable achievements. Finally, I had become deeply estranged from standard intelligence (IQ) testing.

In effect, I have just given you the organization of the rest of my talk. In the remaining time, I want to review three major lines of work:

1. How the mind is organized—That introduces the theory of multiple intelligences;
- 2, How individuals—and particularly leaders—succeed or fail in changing the minds of other persons;
3. What kinds of minds we will need to cultivate in the future;

The Organization of the Mind In the West, a certain view of mind has held sway for a century. Dating back a century to the time of the French psychologist Alfred Binet, psychologists believe that there is a single intelligence, often called ‘g’ for general

intelligence; we are born with that intelligence; our intelligence comes from our biological parents and, as a result, intelligence is not significantly alterable; we psychologists can tell you how smart you are—traditionally, by giving you an IQ test, more recently, by examining the shape of your brain waves, perhaps ultimately, by looking at a chip on which your genes are encoded.

My research in cognitive development and cognitive breakdown convinced me that this traditional view of intellect is not tenable. Individuals have different human faculties and their strength (or weakness) in one intellectual sphere simply does not predict whether a particular individual will be strong or weak in some other intellectual component. I developed a definition of intelligence—a biopsychological information-processing capacity to solve problems or fashion products that are valued in at least one community and culture. I think of the intelligences as a set of relatively independent computers. One computer deals with language, a second with spatial information, a third with information about other people.

But how to figure out what is the right set of computers? I came up with a set of eight criteria of what counts as an intelligence. Unlike most approaches to intelligence, the criteria were not dependent on results of a paper and pencil test. Rather I looked at criteria from neurology: which brain regions mediate particular skills; anthropology—which abilities have been valued in different cultures across history and pre-history; special populations, such as prodigies, savants, and individuals with learning disabilities. All these individuals

have jagged intellectual profiles, ones not easily explained if one believes in a single ‘general intelligence.’

Ultimately I came up with a list of eight, possibly nine intelligences. I will mention each, and then give examples of individuals or roles that stand out in that particular intelligence:

1. Linguistic intelligence—the intelligence of a writer, orator, journalist.

2. Logical mathematical intelligence—the intelligence of a logician, mathematician, scientist—Piaget thought that he was studying all of intelligence, but he was really focusing on this particular intelligence.

Most tests of intelligence focus on logical and linguistic intelligence. They do a pretty good job at predicting success in school—but not nearly as good a job as last year’s grades! My goal is not to denigrate these traditional scholastic intelligences, but rather to give equal attention to other intellectual faculties.

3. Musical intelligence. The capacity to create, perform, and appreciate music. Some people call this a talent. That is fine, so long as you recognize that being good with words or with numbers is also a talent. What I cannot accept is that linguistic facility is deemed intelligence, while skill with music or with other persons is merely a talent.



4. Spatial intelligence. The capacity to form mental imagery of the world—the large world of the aviator or navigator, or the more local world of the chess player or the surgeon—and to manipulate those mental images.

5. Bodily-kinesthetic intelligence. The capacity to solve problems or fashion products using your whole body, or parts of your body, like your hands or mouth. This intelligence is exhibited by athletes, dancers, actors, craftspersons, and, again, surgeons.

The next two intelligences have to do with the world of human beings.

6. Interpersonal intelligence involves the understanding of other persons—how to interact with them, how to motivate them, how to understand their personalities, etc. This skill is obviously important for people in business, teachers, clinicians, and those involved in politics or religion.

7. Intrapersonal intelligence is the capacity to understand oneself—one's strengths, weaknesses, desires, fears. Access to one's emotional life is important for intrapersonal intelligence.

Whether or not you have heard of multiple intelligence theory, you have certainly heard of emotional intelligence. What Daniel Goleman means by emotional intelligence is similar to what I mean by the personal intelligences.

8. Naturalist intelligence involves the capacity to make consequential distinctions in nature—between one plant and another, among animals, clouds, mountains, and the like. Scientist Charles Darwin had naturalist intelligence in abundance. Most of us no longer use our naturalist intelligence to survive in the jungle or the forest. But it is likely that our entire consumer culture is based on our naturalist capacity to differentiate one car make from another, one sneaker from another, and the like.

9. I have speculated that there may be a ninth or existential intelligence. I call this the ‘intelligence of big questions’ When children ask about the size of the universe, when adults ponder death, love, conflict, the future of the planet, they are engaging in existential issues. My hesitation in declaring a full blown existential intelligence stems from my uncertainty about whether certain regions of the brain are dedicated to the contemplation of issues that are too vast or too infinitesimal to be perceived. And so, recalling a famous Fellini movie, I speak of 8 ½ intelligences.

So there you have it, my list of the multiple intelligences. Even if my approach is correct, I am sure that I have not identified all of the intelligences and that I have not described them perfectly. I am equally confident that each intelligence itself has separable components. But I am not interested in proving the existence of 8 or 9 intelligences, or 40-50 sub-intelligences, in particular. I am trying to make the case that we have a multiplicity of intelligences, each relatively independent of the others.

From this claim—that we possess eight or nine relatively autonomous intellectual computers—three interesting claims follow.

- a. All of us have these 8 or 9 intelligences, that is what makes us human beings, cognitively speaking. Rats might have more spatial intelligence, hummingbirds might have more musical intelligences, but we are the species that exhibits these particular intelligences. And that is important to know—whether you are a teacher, a businessman, or a parent.
- b. No two individuals have exactly the same profile of intelligences, not even identical twins. And so whether you are a teacher, business person or parent, you may assume that every person’s profile differs from yours, and from every other person, even clones of one another.
- c. Having an intelligence does not mean that you will behave morally or intelligently. Intelligences are simply computers that can be put to work. But you can use your interpersonal intelligence for moral purposes—like Nelson Mandela—or for immoral purposes, like Slobodan Milosevic. By the same token, you might have a computer that works very well, and yet use it very stupidly. A mathematically-talented person might prove an important new theorem, but she might also waste her time multiplying ever bigger figures in her head.

The theory of multiple intelligences has aroused enormous interest among educators, and in many parts of the world. But that is a story for another occasion.

Changing Minds I turn now to the second of my three topics—how do we go about changing minds. Once one begins to think about mind changing, one becomes aware that it is a ubiquitous human activity. Political leaders try to affect the thoughts of a population; marketers try to affect our buying habits; teachers are attempting to introduce concepts and theories that are unfamiliar and that may violate common sense; parents and adolescents are constantly attempting to convince one another that a particular activity is OK, or not OK; and some of us pay a great deal of money to therapists or even psychoanalysts, in the hope that they will perform effective surgery on our mental states or motivate us to alter our mental representations.

Now it is possible that one would need a different theory of mind changing for each of these different arenas--- one for the wide arena of the politician, another for the moderately sized arena of the business executive, still others for the intimate spheres of family, therapy, or fellow employees. The challenge for me—as the theorist of mind changing—is to figure out whether a general analytic scheme can explain the range of mind-changing endeavors. I believe that it can.

First, though, a few words about the entities of mind- changing. Put most simply, a mind is changed when one mental representation is converted or transformed into another. This can happen with a concept—for example, substituting one definition of intelligence for another.

It can happen with a story—for example, a sympathetic portrait of Simon Bolivar for a less flattering picture of this leader. It can happen with a theory—as when Darwin’s theory of evolution replaced earlier Lamarckian accounts. And it can happen with a skill—as when a person who used to write by longhand now composes on the computer. All of these are instances of mind changing.

Once one has determined which entity is to be changed, and in what way, it is possible to present the core of my theory of mind changing—what I call the seven levers of mind changing. I’ll mention and define the levers briskly—and then I’ll walk you through an example drawn from the realm of politics. As it happens, each of these levers begins with the letter R in English.

1. Reason. Minds can be changed through logical argument.
2. Research. Minds can be changed through data, observations, case studies.
3. Resonance. Minds can be changed when the mind-to-be-changed resonates with the new content and with the presenter.
4. Redescription. Minds can be changed when the new content is presented in a number of different media and symbol systems.
5. Rewards and Resources. Minds can be changed when sufficient rewards (or punishments) are invoked.
6. Real World Events. Minds can be changed when there is a dramatic change in the conditions of the world.

7. Resistances Overcome. Minds can be changed when the chief resistances to the desired mind change are neutralized.

As my example, I want to focus on what happened in Britain during the period of Margaret Thatcher's Prime Ministry. When I told my wife that I wanted to study Margaret Thatcher, she said "How can you study Thatcher? She is such a terrible person." "Well," I replied "Neither of us knows her personally so we can't really judge what kind of a person she is. But if you are interested in how leaders change minds, you can't just study people whom you like. For better or worse, we can learn a lot about mind changing by studying Mao Zedong, just as we can learn a lot by studying Mahatma Gandhi."

First of all, what was the mind-change that Margaret Thatcher sought to bring about? What was the story that she told, in an effort to change minds? In the late 1970s, Thatcher claimed, Britain was a society in retreat. Once a great empire, Britain had been content to play an increasingly minor role on the world scene. Since World War II, there had been a Conservative-Labor consensus: Britain should be moderately socialistic; unions should be treated gently; industries, education, health care should be nationalized; it sufficed for Britain to 'muddle through.' Thatcher wanted to change all this. She put forth a different story. In her words "Britain had lost its way." She wanted to bring about a different society: one more entrepreneurial, more market driven. She wanted to privatize services and industries whenever possible; to weaken the unions; to unleash the power of individual Britons. As she once put it, memorably though perhaps unfortunately, "There is no such thing as society."

Now I want to stress that I do not necessarily approve of Thatcher's aims. Indeed, as an academic, I would probably have fought them tooth and nail had I lived in Britain. But Thatcher succeeded in her broad aim. She did reverse the direction of British society. The best proof of her effectiveness is that now, 15 years after the conclusion of her tenure, many issues that Margaret Thatcher brought to the table in Britain are still being debated.

I choose to focus on Margaret Thatcher because she actually exemplifies the seven levers of mind changing. To begin with, she was a lawyer who reasoned well and loved to argue. When she had to defend her policies in the House of Commons, she did so with great gusto and with powerful logical arguments. She also put forth copious data in support of her position. She commissioned studies, devoured their results, remembered the numbers, and laced her presentations with research. Of course, like any embattled politician, she tended to cite the data that supported her position and to ignore or minimize those data that countered the story that she was trying to tell.

Moving to the third lever, Margaret Thatcher's person and her story resonated with large segments of the British population. By resonance, I mean that Margaret Thatcher sounded right and felt right to the British—she was on the same wave length as they were. Her countrymen felt that she had understood their situation and was talking directly to them. As she often put it, "I am one of them." Moreover, she was able to tell her story in a way that rang true to many British citizens.

As an aside, I'll suggest that resonance consists of two elements: likeability and trustworthiness. Margaret Thatcher may not have been lovable but she was sympathetic to the bulk of Britains, at least until the last few years of her lengthy tenure. And she was considered very trustworthy—when she said something, she meant it. As she once quipped, making reference to a famous English play, “This lady’s not for turning.” In the 2004 U S Election, the general population probably found George W Bush somewhat more likeable than John Kerry. But Bush probably won the election because he seemed more trustworthy. John Kerry’s position was seen as changing unpredictably and thus people could not resonate to him. (Just in case you had not anticipated it, I must add that I certainly do not resonate to George W. Bush—after all, I am a Harvard Professor living in the blue state of Massachusetts).

The fourth lever is redescription—more technically, representational redescription. When you want to bring about a mind change, you need to make the same point over and over again. But it is a big mistake to make the same point in the same way—you lose people’s attention very quickly. The challenge is to make the same point in as many different ways as possible. Margaret Thatcher was skilled at telling her story in many ways—in stories, in logical arguments, in jokes, in cartoons (She launched her first campaign with a poster of a long unemployment line bearing the caption “Labour is not working” – a pun in English). Perhaps most important, she embodied the story that she told. That is, her own life was the story of a woman who had risen from poverty; had earned two university degrees; had raised a family. She was not the member of a privileged élite—she was a hard working, entrepreneurial person who had managed to become the first woman to hold many positions



in the Conservative Party, and ultimately, the first woman Prime Minister in Britain's long history. As contemporary commentators put in, "Margaret Thatcher walked the talk."

Almost everything that she said or did reinforced the story that she was trying to tell.

If you ask the man on the street how to change minds, he is likely to say "Use rewards or punishments." This lay theory, right out of behaviorism, is attractive to many persons. The problem with the reinforcement theory is that it is more likely to change behavior than to change minds. If you reward me enough, I may do all kinds of things that you want me to do. But once the rewards or punishments cease, I am likely to revert to my former behaviors, because my mind has not actually changed. Nonetheless, I should mention that Margaret Thatcher was expert in rewarding those who agreed with her and who promoted her position, ruthless with those 'wets' whom she saw as in opposition. Of her ostensible comrades, she often asked "Is he/she one of us?" Also it must be said that economic conditions in Britain improved during the 1980s, at least for most citizens. And these material rewards certainly contributed to Thatcher's (and her conservative party's) continuing ability to win elections.

A leader can control rewards and punishments, at least to some extent. By definition, however, Real World events are those that occur outside of one's control. The challenge to any leader (or any of us, for that matter) is to monitor what is happening in the real world and to use the event in the service of the mind changes that are most important to you.

Margaret Thatcher was brilliant at exploiting real world events. Consider: She did not cause the rise in oil prices in 1978-79; the election of Ronald Reagan in 1980; the rise of Mikhail

Gorbachev in the Soviet Union; the invasion of the Falkland Islands; the bombing of the Conservative Party Congress in Brighton. But in each case she was able to seize upon this event and use it to help bring about the changes that she most desired. (One can say, equally, that George W. Bush did not cause the attack on the Twin Towers on 9/11; but he, and certainly those in his inner circle, used that event as a justification for making war on Iraq one and one half years later).

In my view the final lever of mind change is probably the most important: recognizing resistances and overcoming them. Most of us involved in mind changing spend too much time trying to marshal support in favor of our new position. We would be better advised to spend more time trying to understand why a person would not want to change his/her mind in a certain direction and then working on undoing this resistance.

Margaret Thatcher was a forceful proponent of her positions. She did not wallow in trying to understand and counter the resistances. But in looking back on her tenure, she paid tribute to the great strength of resistances:

Orthodox finance, low levels of regulation and taxation, a minimal bureaucracy, strong defense, willingness to stand up for British interests wherever and whenever threatened—I did not believe that I had to open windows into men's souls on these matters. The arguments for them seemed to have been won. I now know that such arguments are never finally won. (The Path to Power. New York:HarperCollins, 1995, p. 416)

Let me make two final points about my theory of mind change. First of all, while I have focussed here on how leaders change minds, the beauty of the theory is in its versatility. In my book Changing Minds, I show how these same levers are at work when a business leader like John Browne tries to bring about changes at BP; a teacher tries to present a novel scientific or political theory to her class; one colleague attempts to persuade another colleague about the best way to think about the workplace; two spouses are arguing about the best way to invest money or to raise children; or a person herself switches religious or political affiliation. At least within the United States, there is one topic that I avoid: no parent has ever been able to convince a teenager to clean his or her room!

The second point is that, for better or worse, my theory of mind changing is amoral. That is, these levers are available for anyone to use: a saint, a sinner, an advertiser, a prophet. In the case of multiple intelligences, I prefer when people use their intelligences in benevolent way—I much prefer the poet Goethe’s use of the German language to that of the Nazi propagandist Josef Goebbels. By the same token, in the case of mind changing, I much prefer the mind changes brought about by Pope John XXIII to those brought about by Benito Mussolini. But there is no way to ensure that a theory--like my theory of mind changing—will be used only by those of whom one approves, or only in directions that one deems desirable. I will return to this topic later.

Five Minds for the Future On to my final topic—the Five Minds that we will need to cultivate in the future. I’ll introduce the topic by telling you the story of how I came to address this topic.

In Spanish I have an excellent publisher named Paidos. I say that they, the Paidos group, are excellent because they have issued almost all of my books in Spanish; they keep them in print; and when I came to Spain last year, they invited my son and his wife to have dinner at El Bulli, said to be the best restaurant in the world. What more could one ask from any publisher?

Last year the folks at Paidos told me about a new series that they have issued called Asterisk. As the name implies, these are very slim volumes—50 to 100 pages. The dozen or so authors who have contributed to Paidos are a most impressive group—the novelist Günther Grass, the sociologist Pierre Bourdieu, the historian Eric Hobsbawm, etc. My editors asked me whether I would like to contribute to the series. It took me about ten seconds to say “Si.” But then I did something no other author had done so far. Rather than offering some articles that had already been published in English (or French or German), I asked whether I could write an original manuscript. Not surprisingly, the editors at Paidos gave me an equally enthusiastic “Si”—it is nearly always preferable to publish something new than it is to translate an already published manuscript. I said that I would like to use the Asterisk invitation to try out some ideas about education in the future—and now, many months later, we have “Las Cinco Mentes del Futuro.” In two years, I expect to publish in English a much longer version of the book.\*

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\* This version was published in April 2007 by Harvard Business School Press.

So without further ado, here are the five minds for the future. Once again, I will mention them briefly and then say a few additional words about each.

The first three kinds of minds are cognitive—they refer to the usual work of school.

\*The disciplined mind masters bodies of knowledge and skill.

\*The synthesizing mind decides what is most important and puts knowledge together in useful ways.

\*The creative mind ventures regularly into new, unexplored territory.

The latter two kinds of minds have to do with our treatment of the human sphere:

\*The respectful mind prizes diversity and tries to work effectively with individuals of all background;

\*The ethical mind proceeds from principles. It seeks to act in ways that serve the wider society.

To bring these five kinds of minds to life, let me describe how each kind of mind might be nurtured in a secondary school or college student. We'll call her Juanita.

In order to accomplish anything of significance in the world, Juanita must have a disciplined mind. The word “discipline” has two complementary meanings. On the one hand, a disciplined mind is one that works regularly on a topic or skill, thereby bringing about steady improvement to a level of excellence. On the other hand, a disciplined mind is one that has mastered major disciplinary ways of thinking.

In school, at a minimum, we should expect Juanita to learn how to think scientifically, mathematically, historically, and artistically. This goes well beyond learning rules and facts. Juanita needs to be able to look at a piece of scientific reporting and decide whether it is credible--- for example, should I use this medicine, or does it have too many side effects? She needs to be able to examine a current event—say, the killings that are occurring in the Sudan, and determine the appropriate historical analogy. In general it takes years to acquire a disciplined mind—one that actually thinks differently about scientific findings or historical events than does an unschooled mind, or one that does not think about them at all.

Unless one has acquired a certain amount of disciplinary thinking, one cannot integrate or synthesize knowledge. Murray Gell-Mann, the Nobel laureate in physics, has suggested that the most valuable mind in the 21<sup>st</sup> century is the synthesizing mind—the mind that can surf the web, decide what is important, what is worth paying attention to and probing further, what should be ignored. Having decided what is important, Juanita needs then to put it together in a way that makes sense to her—for she needs to be able to use it in the future. And, unless she is living as a hermit, she needs as well to be able to assemble syntheses which make sense to other persons—teachers, co-workers, readers, for example. Alas, we

as psychologists know almost nothing systematic about how synthesizing occurs. I speculate that synthesizing always begins from a particular perspective or goal; and that there are various formats which aid in synthesizing—for example, the various lists or, more technically, taxonomies that I have been presenting today.

Disciplined knowledge is necessary for synthesizing; and synthesizing is necessary for creativity. In creating knowledge, the mind goes beyond what is given, what is known, into the unknown. The creating mind develops new ideas, concepts, stories, theories, skills, and seeks to demonstrate that they are desirable, needed, even indispensable. To use the current vernacular, the creating mind thinks ‘outside the box.’

Clearly, knowledge and skill are indispensable for creativity. But my own studies suggest that the cognitive aspect is less important, and the personal aspects more important, than has been generally acknowledged. Put succinctly, if Juanita is to exhibit a creating mind, she must be comfortable in taking risks; she must enjoy going out on a limb, so to speak. Juanita must be willing to make mistakes, pick herself up, and try again. Indeed, she becomes bored or skeptical when her ideas are too readily accepted. If one wants to nurture a creative mind, it is less important to impart huge amounts of knowledge, more important to cultivate a questioning, even a challenging frame of mind. Of course, that iconoclastic stance does not guarantee that the ‘out of the box’ thinking will be any good. Only a group of knowledgeable others can make judgments about the quality of a novel idea; and sometimes it takes years, or even centuries, to separate out the quality innovations from those that are merely ‘different.’

So far, my kinds of minds come out of the cognitive sphere, the one that I have probed for many years. But I think that two other kinds of minds are as important, and perhaps far more precious, at this particular moment in human history.

Human beings have always recognized differences among one another, and in particular, differences between one group or population and another. Indeed, even toddlers discriminate men from women, they immediately detect those with different skin color, those who dress differently, talk differently, or belong to different sects or tribes. Truth to tell, human beings are suspicious of those who look different from them—and they do not need formal training to treat ‘others’ as ‘dangerous’ or ‘evil.’ If the planet were big enough, or the populations separate enough from one another, this antipathy for ‘the other’ might not be so toxic.

Today, however, hardly any groups are isolated from one another. The cliché ‘the global world’ means that every group realizes that it is just one among many. And the term ‘diversity’ takes on new and urgent meaning in any large city, where the once majority population is now one among many groups struggling to succeed. Indeed, whether one goes to Detroit, Dehli, or Duesseldorf, the flow of migrants of different backgrounds, aspirations, religions, and political beliefs is ubiquitous.

At the very least, Juanita needs to tolerate difference. As we observe in hot spots like the Middle East or Northern Ireland, even barely perceptible differences are enough to launch warfare. However, we should not be satisfied with mere tolerance. Rather, I argue, it is far



preferable if Juanita accepts and welcomes differences—in appearance, background, aspirations, belief systems,— so long as those differences are not actually threatening her physical well being. Juanita’s respectful mind gives the benefit of doubt to those who do not belong to her family or clan, seeks to understand them, to work with them, to weave a fabric which is actually stronger and more beautiful because of the different threads that constitute it.

“Loving one’s neighbor” is as old as the Bible and as recent as the Commissions on Truth and Reconciliation that have sprung up in various corners of the world. And just what catalyzes tolerance and respect is an issue that has concerned people far wiser than me for millennia. At this point, it suffices to say that young persons learn from older persons to whom they look up. If Juanita lives in a respectful community, she is likely to respect others; if she lives in a community wracked by dislike and conflict, she is likely to grow up and join the ranks of the discontented. The challenge for wise persons is to figure out how to bring about more respectful communities and to sustain them.

The final ‘kind of mind’ is the ethical mind. While respect and morality are the realms of person-to-person relations, ethics entails a more abstract conceptualization. We think of ethics with reference to the worker, who seeks to fill her occupational mission with integrity; and with reference to the citizen, who seeks to work for the common or the wider good.

In a project which I have been associated with for over a decade, we seek to understand and cultivate ‘good work’—work that is excellent, ethical, and meaningful. Every profession has

an ethical core—the doctor seeks to heal the ill, the lawyer to ensure that her client receives justice, the accountant to certify that the books are properly balanced and accurately reported to the management and to the public. The ethical worker seeks to honor that core commitment; she always asks “Am I proceeding in a way that, if others knew just what I was doing, I would be proud or embarrassed?”

The same kind of questions arise with respect to the citizen. Citizens can shirk their responsibilities; they can support only those policies from which they personally benefit; or they can elect to think more universally, and to act in such a way as to increase the welfare of others and of the community as a whole. Thomas Hobbes described the basic human condition as “nasty, brutish, and short.” Jean-Jacques Rousseau said that humans were noble savages who were corrupted by society. I prefer the contemporary portrait introduced by the American philosopher John Rawls. Rawls said that we should seek to create a society in which we would want to live, if we did not know what particular hand we were dealt by fate.

It takes many years to build up an ethical core for a profession; and it takes equally long to develop a citizenry that is oriented toward the general welfare. Despite what some in contemporary Washington would like to believe, a democratic society cannot be imposed from without. And, alas, it is much easier to undermine a sense of professional calling or a selfless citizenry, than to create one from scratch.

Yet, if we want to live in a world that serves people other than those with plentiful financial resources, we have no choice but to work toward the creation of ethical minds. To put it more positively, we should strive to create ethical minds. Our studies suggest that Juanita is likely to develop an ethical mind if she comes from a family with a strong and positive value system; encounters persons and institutions that embody good work; has mentors and peers that model and seek good work; and can learn inspiring lessons from positive models and cautionary lessons from examples of bad or compromised work. Absent these conditions, Juanita and those around her must attempt to create new institutions that embody ethical principles. I take inspiration from a famous line by the anthropologist Margaret Mead: “Never doubt that a small group of committed people can change the world. Indeed, it’s the only thing that ever has.”

Conclusion. We have covered a lot of ground in the last hour—not too much ground, I hope, but a lot. I began by describing my own background, the reasons that I was first attracted to the study of the mind, and my gradual disenchantment with the attractive but flawed vision of Jean Piaget. I then described the three principal lines of work in which I have been engaged:

\* An effort to delineate the organization of the mind, as I best understand it. And that is the theory of multiple intelligences—a set of eight or nine separate computational capacities, that all of us have, but that no two of us have in identical profile.

\* A theory of how various changes of mind occur. While the entities of mind change differ, and the size of the arenas varies as well, all mind changing can be described as involving one or more of seven levers: Conveniently beginning in English with the letter R, they include Reason; Research; Resonance; Redescription; Rewards and Resources; Real World Events; and Resistances Overcome;

\* A portrait of the five kinds of minds that are likely to be privileged in the future. Three of these minds have to do with cognition: the disciplined mind; the synthesizing mind; and the creating mind. The latter two, equally important, have to do with the human sphere; the respectful mind and the ethical mind.

It may not have escaped your attention that my scholarship is of a certain sort. I don't spend a lot of time defining terms. I have carried out experiments, but much of my work is observational and descriptive. I see myself as a synthesizer, who tries to put ideas and findings in a way that makes sense to me, and, I hope to others. I use the intelligences in which I seem to be strong—linguistic, in particular—in a manner that is logical and that will be convincing to others—of course, that calls on interpersonal intelligence.

Finally, as a scholar, I have spent most of my life trying to understand and to explain. But in recent years, I have come to realize that understanding is not enough, at least for me. Unless knowledge that we have accumulated is used for good ends, we run the risk of being omniscient and yet destructive. Our challenge in the world is not in accumulating more knowledge—we are very good at that. Our challenge is to mobilize the knowledge that we

have, in the service of ends that we can justify aloud to ourselves and to others; to follow principles even when they go against our self-interest; to take the risk of speaking out when we see injustices occurring; and, to the extent that we can, to create or join institutions that reflect our higher values, our better selves. That is why I have been studying and trying to promote Good Work. That is why I seek to privilege the Respectful Mind and the Ethical Mind.

I am honored to have been invited to speak in your country, which has contributed so much to the world but also known so much sorrow in recent years. I hope that what I have said about the mind has proved of interest. Even more, I hope that at least some of what I have said can be mobilized to help you and your fellow countrymen—wherever you live—to have better lives—individually and collectively. Thank you.