HUMAN INTELLIGENCE ISN'T WHAT WE THINK IT IS

Howard Gardner, a Harvard University psychologist, is the author of *Frames of Mind: the Theory of Multiple Intelligences*. He is co-director of Project Zero at Harvard, which studies how children's thought develops. He also serves as a research psychologist at the Boston Veterans Administration Medical Center and on the faculty of the Boston University School of Medicine.

"People have multiple intelligences"

Intelligence is not an absolute such as height that can be measured simply, largely because people have multiple intelligences rather than one single intelligence.

In all, I have identified seven forms of intelligence. The two that are valued most highly in this society are linguistic and logical-mathematical intelligences. When people think of someone as smart, they are usually referring to those two, because individuals who possess linguistic and logical-mathematical abilities do well on tests that supposedly measure intelligence.

But there are five other kinds of intelligence that are every bit as important: Spatial, musical, bodily-kinesthetic and two forms of personal intelligence - *interpersonal*, knowing how to deal with others, and *intrapersonal*, knowledge of self. None of these ought to have a priority over others.

"Shifting importance" of the seven varieties

The relative importance of these seven intelligences has shifted over time and varies from culture to culture. In a hunting society, for example, it is a lot more important to have extremely good control of your body and know your way around than to add or subtract quickly. In Japanese society, interpersonal intelligence - the ability to work well in groups and to arrive at joint decisions - is very important.

Historically, different systems of education have emphasized different blends of intelligence. In the old apprenticeship system, bodily, spatial and interpersonal abilities were valued. In old-fashioned religious schools, the focus was on linguistic and interpersonal abilities. The modern secular school emphasizes the linguistic and logical-mathematical, but in the school of the near future I think that linguistic will become much less crucial. For working with computers, logical-mathematical intelligence will be important for programming, and intrapersonal intelligence will be important for individual planning.

What I'm saying is that while both logical-mathematical and linguistic are important today, it won't always be that way. We need to be sensitive to the fact that blends of intelligences keep shifting so that in the future we don't get locked into a specific blend.

Secrets unlocked by biological research

Research in biology has laid the foundation for the theory of multiple intelligences.

Studies show that when someone suffers damage to the nervous system through a stroke or tumor, all abilities do not break down equally. If you have an injury to areas of the left hemisphere of the brain, you will lose your language ability almost entirely, but that will not affect your musical, spatial or inter-personal skills to the same extent.

Conversely, you can have lesions in your right hemisphere that leave language capacity intact but that seriously compromise spatial, musical or interpersonal abilities. So we have a special capacity for language that is unconnected to our capacity for music or interpersonal skills, and vice versa.

I'm not suggesting that this analysis is the last word. I would like to think of it as the first word in a new way of looking at human abilities.

"America wastes potential"

In America, we are wasting a lot of human potential by focusing on only linguistic and logical intelligence. If an individual doesn't happen to be good in these, he or she often gets thrown on society's scrap heap.

What happens is that a youngster takes an IQ test and doesn't do very well. He gets labeled as not very smart, and the teacher treats him accordingly.

But there are many roles in society in which it is not important that a person have a high intelligence in language and logic so long as he or she can function at a basic level in these domains.
For example, somebody good at working with his hands and figuring out how machines function might find a responsible position in a science lab or working backstage in a theater. If kids with such abilities were encouraged - rather than discouraged because they can't figure out who wrote the Iliad - they could be extremely valuable to society.

IQ tests “have destructive social effects”

I would like to get rid of intelligence and aptitude tests; they measure only two forms of intelligence and have destructive social effects. These tests have been successful because they serve as a good predictor of how people will do in school in the short run. But how much does doing well in school predict success outside of school? Very little. Those of us who take a position against IQ tests have the burden of coming up with ways of assessing abilities that are not completely impractical. My notion is something between a report card and a test score.

I would assess intellectual propensities from an early age. I use the word propensities because I don't believe intelligences are fixed for many years. The earlier a strength is discovered, the more flexibility there is to develop it. Similarly, if a child has a low propensity, the earlier intervention begins, the easier it is to shore up the child. So early diagnosis is important.

Preschools where “children can do exploring”

I would not assess abilities through traditional paper-and-pencil tests. Instead, we need learning environments - preschools - in which children can do a lot of exploring on their own or with help from adults.

All children play with blocks, for example, but what do they do with them? How complex are the structures they make? How well can they remember them? Can they revise them in various ways? All of these questions can be answered by adults observing and playing with the children.

The same environment could be equipped with musical materials, and again, children could explore on their own and with adults. If we had such environments, with periodic monitoring we could develop very good profiles of a child's propensities. This would give parents and teachers a better way of thinking about children than one or two test scores. Instead of looking at a child and saying, "He's smart" or "He's dumb," people could talk in terms of a child's strengths and weaknesses. It is a much more realistic view.

But no theory is going to tell people what to do once a child's propensities are assessed. That decision would depend on the values of those around the child. Some people would say, "Let's go with the child's strengths for all they are worth." Others would say, "It's very important to be good in language, so even though this kid isn't good in it, we're going to work on it."

The challenge for education:

As children mature, the assessments would continue in a different vein. By the age of 10 or 11, the monitoring would shift to "domains," where you might come up with analyses such as "this person has the talent to be a doctor."

While having a high intelligence in an area doesn't predict exactly what you are going to do, it predicts the direction you are likely to move in. If somebody has a very highly developed bodily intelligence, he or she could become an athlete, dancer or surgeon. If somebody has a highly developed spatial intelligence, he or she might be at home in architecture, engineering, sculpture or painting.

The challenge for the educational community is to figure out profiles or young people and then to help them find roles in which they can use their abilities in a productive way.

Recognizing the diversity of our capabilities

The Suzuki method of teaching music, developed in Japan, shows what can be done to foster a specific intelligence when the effort is undertaken intensively at an early age and a lot of energy is put into it. This method creates an environment that is rich with music; mothers play with the youngsters for 2 hours a day from the time they reach age 2. Within a few years, all participants become decent musicians.

In theory, we could "Suzuki" everything. The more time and energy invested early in life on a particular intelligence, the more you can buoy it up. I am not advocating this approach, merely pointing out the possibilities. But before we can make these kinds of decisions, we have to take a first step - recognizing the diverse intelligences of which human beings are capable.