

# SEVEN KINDS OF SMART

By JAMES COLLINS

**D** ID YOU KNOW THAT YOU ARE SMART in all sorts of different ways?"

Niki Mitchell is addressing her class of kindergartners on one of their first days at Coyote Creek Elementary School in Highland Ranch, Colo., a spanking-new middle-class suburb of Denver. A dozen neatly dressed five-year-olds sit on the floor in front of Mitchell as she points to a chart on the wall that lists different kinds of "smart." She describes each of them. "Maybe you like to draw pictures. That means you're picture-smart," she offers, then explains what it means to be word-smart, number-smart, body-smart, people-smart and music-smart ... "We're lots of these smarts," she says.

The children in Mitchell's class are among the newest initiates of the philosophy that is probably exciting more educators than any other right now. Like many schools around the country, Coyote Creek has based its instruction on Howard Gardner's theory of multiple intelligences, or MI. Gardner, a professor at the Harvard Graduate School of Education, first proposed the theory in his book *Frames of Mind*, which was published in 1983. Since then, Gardner's ideas have received widespread attention and acceptance among parents and have been eagerly embraced by teachers. "Multiple intelligences is clearly the biggest thing right now," says Jim Bellanca, president of a teacher-training company called SkyLight Publishing and Training. Bellanca says that since 1992, SkyLight has

provided training in MI to some 30,000 teachers and school administrators.

The increasing use of MI in schools raises a very simple question: Is this a good thing? The answer is not so simple, but there are good reasons to have doubts about this trend. To be sure, cognitive psychologists and educational researchers

tend to give Gardner high praise for helping the public understand that intelligence is multifaceted, and MI has undoubtedly helped teachers understand and value the



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# ART

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various talents a child has. Nevertheless, evidence for the specifics of Gardner theory is weak, and there is no firm research showing that its practical applications have been effective. No one says that using MI in schools is directly injurious. The danger is that it leads to wasted time, to an emphasis on less im-

portant skills and to a false sense that learning has taken place when it has not.

Sitting in his spare office at Harvard on a recent morning, a small dugout canoe made by his son resting on a nearby table, Howard Gardner talked about his work and the use others have made of it. A slender man with a soft face and hair flopping over his forehead, Gardner looks a bit like the concert pianist he might have been if he had pursued that career. After a long discussion of the merits of his theory, he tried to sum up his views. "Here's a credo I've never stated before," he said. "I'm sure there are lots of different intelligences. I'm sure kids differ in their profiles. I'm sure an educational approach that pays attention to this is going to be more effective than one that denies it."

Expressed at this level of generality, Gardner's theory is one with which few people could disagree. But the purpose of *Frames of Mind* was to identify seven specific "intelligences," and that list forms the basis of all the educational applications of MI. Gardner argued against the view of intelligence as a single faculty that is accurately measured by an IQ test. Rather, he said, we have several separate intellectual capacities, each of which deserves to be called an intelligence. The seven intelligences are linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal (the ability to understand others) and intrapersonal (the ability to understand oneself). More recently, Gardner has added a "naturalist" intelligence.

Gardner based his list on findings from neurology, developmental and cognitive psychology, and anthropology. He argued that these intelligences can be shown to be localized in the brain; that they are exhibited in extreme form by idiots savants, prodigies and geniuses; that they have a clear de-

velopmental history; and that they are used in the performance of roles that cultures value around the world. In the book's final section, Gardner explored the educational implications of the theory, suggesting ways the intelligences can be exploited and fostered.

Those who hold that intelligence is a single, general ability and those who say it consists of many factors have engaged in a long-standing, bitter debate (although even those who believe in general intelligence say there are many subordinate cognitive abilities). Reviewers praised *Frames of Mind* for eloquently making new arguments on behalf of the multifaceted position, but they complained that Gardner's theory is too speculative. "The discussion is all hunch and opinion," wrote George Miller, one of the founders of cognitive psychology. The eminent developmental psychologist Jerome Bruner, a onetime colleague of Gardner's, said the book was "in many ways brilliant" but that Gardner succeeded "only moderately well" in proving the existence and independence of the seven intelligences. In particular, Bruner said, the arguments for the kinesthetic and personal intelligences "stumble badly."

Some of the strongest doubts about Gardner's evidence were expressed in *Frames of Mind* by Gardner himself. "The most I can hope to accomplish here is to provide a feeling for each specific intelligence," he wrote. "I am painfully aware that a convincing case for each candidate intelligence remains the task of other days and other volumes." And at the very end of the book, he warned that his work "needs to be amply discussed and tested" in the fields of biology and cognitive science before it is put into practice. "We are not yet certain," he said, "of the goodness of the idea of multiple intelligences."

In the 15 years since *Frames of Mind* was published, those other volumes have never appeared. Nor, as Gardner acknowledges, have those discussions and tests been undertaken. He now says that as a scientist he preferred to move on to other matters within MI and outside it. Moreover, he says, it goes against the grain of his philosophy to develop tests to measure the intelligences, a prerequisite psychologists say would be necessary to determine the validity of the theory. Gardner also points out that the overall trends in neurology and cognitive psychology strongly support his view that intelligence comprises many abilities.

Gardner is right about that. Still, many neurologists and psychologists believe recent discoveries in brain science—the localization of particular traits, the prolifera-



—Teacher trainer  
Jim Bellanca

# HOW TO MAKE A BETTER STUDENT

tion and pruning of synapses—are far too poorly understood to guide educators. Meanwhile, students of cognition, even those who give Gardner much credit, cite research that contradicts him. “The different intelligences show correlations in many cases, and within intelligence, there is a lack of unity,” said Robert Sternberg, a professor of psychology and education at Yale. In other words, some of Gardner’s intelligences do not seem to be independent faculties, while other intelligences divide up into more than one faculty.

As science, then, there may be less to the theory of multiple intelligences than many educators seem to believe. That may not matter so much. Gardner and other researchers say it’s not necessary for a theory to enjoy absolute scientific confirmation as long as it shows good results in the classroom. But does MI show such results?

Gardner has never laid down a detailed plan for applying his theory in schools, and the consultants and publishers who offer training in MI operate independently of him, so there is a wide range of actual practices. A few hundred schools, like Coyote Creek, use the theory in a thoroughgoing way; thousands more adopt pieces of it. The result is that the methods that go under the name of multiple intelligences are often ones Gardner would not approve of. He insists, for example, that it is a waste of time to simply “exercise the intelligence muscles.”

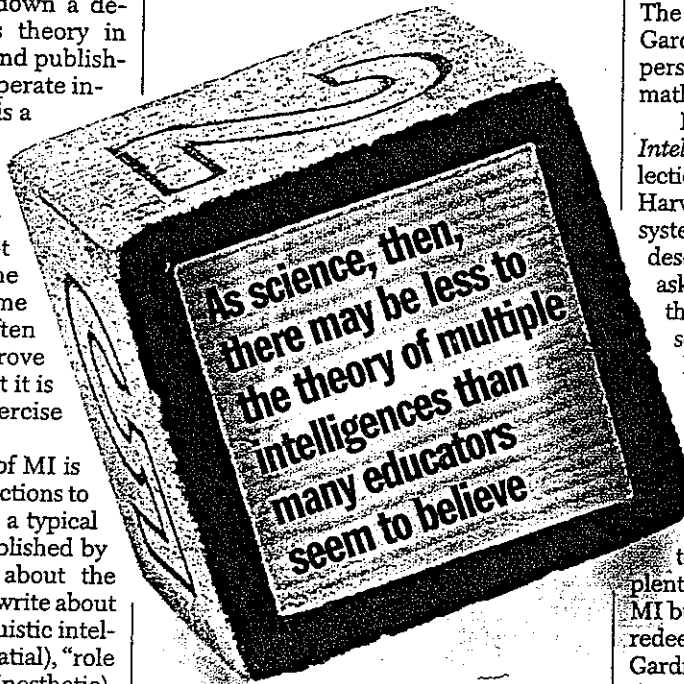
Yet the most common use of MI is to attack a topic from seven directions to fit in all the intelligences. Take a typical project described in a book published by SkyLight. To teach children about the oceans, it is suggested that they write about cleaning a fish (tapping the linguistic intelligence), draw a sea creature (spatial), “role play” a sea creature (bodily-kinesthetic), use a Venn diagram to compare and contrast ships (logical), tap glasses with different amounts of water (musical), design a water vehicle in a group (interpersonal) and choose a favorite sea creature (intrapersonal). All these activities will take up a lot of time, and they will teach children very little about the ocean.

The key for Gardner is first to decide on the facts and procedures a teacher wants a student to understand, and then to figure out how best to present this information, given the student’s strengths and weaknesses. Jean McKibben, a fifth-grade teacher at Coyote Creek, provided an example of such an approach when she de-

scribed a project her students did about the European settlement of the Americas. Among other things, she wanted them to learn about the boats that were used.

“Dave has a lot of trouble getting things down on paper,” McKibben said of one pupil. “His main emphasis is doing things with his hands. His model of the boat was fantastic. It showed he really knew the information. If I asked him to write it down, it would have been very short.” This is just the kind of application Gardner envisions: because McKibben knew that Dave understood the world in a kinesthetic way, she was better able to teach him and assess his knowledge. Dave must still learn to write well, McKibben said, but what counted here was that he showed good understanding of the material.

Yet it is possible to raise objections



even to an exemplary use of Gardner’s theory. Is it a better use of Dave’s time to work on his writing or to express himself kinesthetically? Gardner has claimed that “all the intelligences have equal claim to priority,” but historically, verbal and math skills may be stronger predictors of job performance than he allows, and employers seem to be placing a higher and higher premium on them. Then there is the problem of superficiality. How deeply can a student comprehend a given topic by relying on his strongest intelligence? Using his hands, Dave may be able to learn about the boats of the settlers, but can a kinesthetic approach help him understand central his-

torical issues, like the reasons the Europeans came to America in the first place?

A new article by Gardner, which he regards as quite important, suggests that the problem of depth remains to be solved. In “Multiple Approaches to Understanding” (to appear next year in an anthology), he sets out to show how MI theory can be used to teach evolution and the Holocaust. He first details inviting “entry points” for these topics—students strong in interpersonal intelligence, for example, could play the roles of different species. An entry point is only that, however, and Gardner proceeds to pose the “crucial educational question”: Can we use knowledge about individual strengths to convey the “core notions” of a subject? One expects Gardner to answer this question, using illustrations from his two topics. Instead, he goes off into generalities. The reader is left with no idea of how Gardner would, say, use students’ interpersonal gifts to teach them the core mathematical principles of genetics.

In 1993 Gardner published *Multiple Intelligences: The Theory in Practice*, a collection of articles written with colleagues at Harvard. The book is quite diffuse and unsystematic, and the samples in the projects described are very small. When *TIME* asked Gardner what evidence there was that MI has improved achievement in schools, there was a long pause before he answered, “The testimonials and figures are numerous enough from lots of different places to suggest it’s worth taking seriously.” (One such testimonial could come from Coyote Creek, which scores above the district average on standardized tests.) Gardner was saying there is plenty of anecdotal evidence in support of MI but no formal studies. This is not an irredeemable flaw, and others agree with Gardner that MI merits further investigation. “The ideas,” says Robert Siegler of Carnegie Mellon University, “have enough support that it would be worthwhile implementing them on a large enough scale to find out if they work.” At the moment, however, we don’t know that they work.

When evaluating the use of Gardner’s theory in schools, it is easy for people to let their emotions run away with them. The notion that a child may have important abilities that are not measured by IQ tests is immensely appealing; it also happens to be true. As Siegler said, “Howard sells hope.” Yet this hope ought to be tempered by realism, and a realistic view of MI theory may not justify the enthusiasm it has engendered thus far. ■