

Putting His Money Where His Math Is

A billionaire ex-mathematician believes he has a simple formula for improving math education and making America more competitive.

by JOSHUA ROEBKE • Posted September 19, 2006 04:08 AM

James Simons has a considerable amount of money. He's the head of the top-performing hedge fund in the world, Renaissance Technologies Corporation, which he started after leaving a successful academic career in mathematics. More compelling than Simon's acquisition of wealth is what he chooses to do with it. Rather than collecting art or jets like many of his Wall Street peers, the former mathematician is donating substantial quantities of cash and time to basic science and math education.

Since President Bush introduced the American Competitiveness Initiative (ACI) in his January 2006 State of the Union Address, Simons has given more than any other private citizen to the effort to keep American students competitive.

On Monday morning, flanked by New York City Mayor Michael Bloomberg, Simons pledged to double his initial \$25 million commitment to [Math for America](#) (MfA), an education program he founded in 2004. With this cash infusion, the program will provide training and support to some 400 new math teachers in New York City in the next five years. If there is a simple formula for improving math and science pedagogy in America, Simons thinks he's found it with Math for America.

Math for America started over a game of poker. In 2003, Simons was in Berkeley, Calif., raising money in a charity poker tournament, playing against other heavyweights from the New York investment world. When he looked around the room, it struck him that the assembled brainpower and capital could be used for greater good. Chatting with a few other former mathematicians, Simons put forth an idea to improve the state of math education in America. It was a notion he'd unsuccessfully tried to publish as a *New York Times* editorial a few years before: Have the people who know the subject teach the subject, and provide them with the money, training, and support they need to do so.

Math for America addresses a simple, but profound problem: Nearly 40 percent of all public high school math teachers do not have a degree in math or a related field. Even the best curriculum in the world, the reasoning goes, isn't going to inspire students if unqualified individuals are teaching them. (In a recent round of testing, the U.S. placed 24th out of 29 nations in math proficiency.) If knowledgeable teachers exude passion for the subject, they stand a greater chance of pushing students toward careers in math in science that are the technical backbone of the country's economy.



Jim Simons, businessman and founder of Math for America Credit: AP Photo/Jason DeCrow

Seed Interview: James Simons

James Simons is sometimes referred to as 'Elvis' within hedge fund circles. He's the king, and you always know when he's left the building. If you haven't heard of him, it's because he deliberately maintains a low profile. In Simon's business, secrecy is the key to abiding success. But, when rumors spread in 2005 that he was starting a new \$100 billion hedge fund, people outside of his field also began to take notice of him.

[Read More.](#)

When I met Simons in his hedge fund's offices earlier this month to discuss MfA, a row of Greeks met me at the elevator: Adorning the walls were paintings of Socrates, Plato, Archimedes, and Pythagoras, all of them caught in the act of teaching math to rapt students.

The number of students pursuing math and science degrees in America is in decline. Those that do study these subjects often enter fields that pay better than education. Simons' idea for persuading more graduates to become educators is a no-brainer: Pay them more.

"With all the good will in the world, once you get married and have kids, it's a tough job and the alternatives are so attractive," Simons said, his voice a near-pitch-perfect Humphrey Bogart, with a slight Bostonian inflection. "Teaching math and science ought to be a professional activity in which those professionals are well-paid and happy to do that as a career."

In order to turn his ideas into action, Simons recruited his poker buddies, other mathematicians, and educators to start Math for America as a non-profit pilot program in New York City.

"It's more of a challenge here than anywhere else, and mathematicians like challenges," said MfA Executive Director Irwin Kra, Simon's long-time friend and colleague in the mathematics department at SUNY-Stony Brook, about the decision to begin in New York.

Together, Simons and his colleagues devised a plan to pay for each of the program's participants (known as "fellows") to receive a master's degree in education and also provide them with stipends of \$90,000 each, on top of their salaries, spread over their first five years in the program.

In its first two years, MfA has already had an impact. Several of the teachers it has placed are career changers, reversing the tide of defections from teaching. MIT grad Alan Cheng, was previously a researcher and software engineer, and another fellow I met turned down graduate studies at Harvard to teach math in a New York City school.

Simons' vision was never limited to just the tiny island of Manhattan. He wants to turn his investment into federal legislation.

"This is a problem that doesn't just affect education, but also the economy, our security, and, because I am an old Jeffersonian, I believe it affects our democracy," said Kra. "People should know basic concepts in math and science in order to make informed decisions about the issues."

Last year, Simons proposed legislation to his friend Sen. Charles Schumer (D-NY) that would expand his idea into a national program. On February 7, with Rep. Jim Saxton (R-NJ), Schumer introduced the Math Science Teaching Corps Act (MSTC). Speaking before Congress in early April, Simons gave an impassioned plea for federal funding for MSTC.

"[Simons] didn't just read from his prepared remarks," said MfA fellow Cheng, who testified along with Simons. "He went and told stories. He was very good at showing them what needs to be done."

Students pursuing math and science degrees in America enter fields that pay better than education. Simons' idea for persuading more graduates to become educators is a no-brainer: Pay them more.

Cold War. Simons excelled as a mathematician, solving a handful of conjectures for which he was awarded the top prize in the field of geometry.

After leaving academia in the mid-1970s because its pace was "too slow," Simons used capital from earlier investments to launch Renaissance Technologies. In the early 1980s, he plucked mathematicians and scientists from universities to pursue highly technical, quasi-scientific techniques for investing. Simons' mathematical approach



Jonathan Schweig, program manager at Math for America, gives a pep talk to recently graduated fellows before they begin work in classrooms in September. Credit: Scott Kawczynski

Simons' career trajectory is his own best advertisement for what nationally funded programs in science and math can achieve. In high school, he took early versions of Advanced Placement courses, and at UC Berkeley, he was the first person to receive a Ph.D under the *National Defense Education Act*. The program, a reaction to Sputnik, was designed to help American students compete with the Soviets during the

netted handsome returns.

That's when he hit a snag.

"As an employer," he said, "it's more and more difficult for me, if that were my objective, to hire Americans or American-trained-and-born people into the company. We hire research guys in math and physics in reasonable numbers, and almost all of them are non-U.S."

Between the calls to action of Thomas Friedman's *The World is Flat*, the National Academies report "Gathering Above the Rising Storm", and [congressional testimony](#) by former Federal Reserve chairman Alan Greenspan, the problem of educating American scientists and engineers has become an important bipartisan issue, said MfA board member and former MIT President Charles Vest, one of the authors of the National Academies report. He added that decisions to adopt legislation based on the recommendations of all the various pleas will be made in the coming weeks.

These bills, which could do so much to ensure the future economic prosperity of the United States, may ultimately succumb to economic realities. A recent issue of Congressional Quarterly mentions the difficulties the bill could face because of the upcoming elections and Republican senators' reticence to talk about anything but issues of national security.

"The country is in tough straights," said MfA board member Shelly Weinig. "We are fighting two wars, so where is this money going to come from?"

Simons is worried too.

"The overriding concern is that we have a very large deficit, so new programs are a hard sell in the light of budget constraints," he said. "It's so cheap compared to a number of things. This program, in total, will cost something like \$1.7 billion per year. But it would be transformational. They've just awarded a \$10 billion contract to Lockheed. That's a 5-year program. That's going to be swell. Six astronauts will go somewhere, but what's that going to transform? Not much."

"\$1.7 billion is a big number," he added, "but relative to the benefit it would bring it's not big."

To ensure the success of his brainchild, Simons is willing to shift from pushing MSTC as a stand-alone bill to including it as part of even bigger competitiveness legislation, which Congress hopes to pass before its October adjournment. In addition to Schumer, Simons and his staff have held ongoing meetings with high-ranking politicians such as Sen. Edward Kennedy (D-MA) and Sen. Hillary Clinton (D-NY), as well as Alan Greenspan, Department of Education officials, and others.

"I think the chances of passing this critical legislation are very good," Schumer said in a statement. "This is truly a bipartisan issue because we all want America to continue to be the leading superpower."

This past week, I accompanied Simons and a few MfA representatives to a meeting of the National Mathematics Advisory Panel, which was created by the President shortly after announcing the Competitiveness Initiative. In one of MIT's crisp new buildings, the panel heard testimony on a variety of issues that will help them write a report on math education that they are to present to Congress in January.

When I discussed the meeting with Simons during one of his cigarette breaks, he seemed optimistic about what he'd heard. Though neither his name, nor his foundation's, is likely to be on the final piece of legislation that might be approved in the Senate, he didn't seem to give it a thought.

His insouciance reminded me of something his friend Shelly Wenig had said: "Here's a guy with the privilege of doing anything he wants, and he chooses to do the tough one."

Putting His Money Where His Math Is, written by Joshua Roebke, posted on September 19, 2006 04:08 AM, is in the category Politics. [2 blog reactions](#)