

A Harlem Middle School Bets on Technology

by Andrea Gabor

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Andrea Gabor A key idea behind Global Tech is that technology, being used here in a Spanish class, can engage students and finally improve middle school achievement.

Visit the common room of [Global Technology Preparatory](#) , a new middle school in Harlem, almost any morning of the week, and by 8:30 a.m., 15 minutes before the official start of school, you will find most of the school's 60 or so students, neatly dressed in blue and khaki uniforms. Some sprawl on the floor, some lounge in beanbag chairs, their laptops propped in their laps or on the floor. Groups of boys play [Dimension M](#) , a competitive math video game, while some check their e-mail. A small group of girls, noses in old-fashioned printed books, form a reading circle in one corner.

Attendance, the bane of many schools that, like Global Tech, serve a community of mostly poor minority kids, is not a problem here.

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"Tabitha used to hate to go to school, now she loves it," said Maria Ortiz of her granddaughter Tabitha Colon who transferred out of a Catholic school to attend Global Tech. "We've had great experiences with every teacher," said Ortiz, adding that the school's focus on technology was a major draw for Tabitha.

As its name implies, this school relies on technology to capture the attention of its students, and to give them a sense of responsibility and empowerment as well as to teach academic subjects, such as math and English language arts, in new and more engaging ways.

With this approach, Global Tech is a poster child for one of New York City Schools Chancellor Joel Klein's latest experiments, the so-called [Innovation Zone](#), or iZone. This effort seeks to use new approaches to education, including more flexible class schedules that extend learning throughout the day and calendar year, and digital technology to improve student engagement and performance. This school year, Global Tech is one of 10 pilot schools in the iZone, which will be expanded to 81 public schools in the 2010-2011 school year. The education department is hoping that Global Tech and other schools like it can finally do something to improve middle school achievement and solve one of the most intractable problems in the city's education system.

Across the Digital Divide

The majority of the student body at Global Tech is poor -- it is a universal [Title I](#) school -- and almost all are black or Latino. Only about half the kids have computers at home and even fewer have Internet access.

As it seeks to bridge the digital divide, the school has been using technology to "personalize" learning -- for example, using software and online instruction to offer multiple languages. Other technology allows teachers to identify, in real-time, how students are absorbing a lesson and to gauge when they need extra help or more challenging topics. A major goal is to let students work "at their own pace and allow them access and exposure to the world," rather than locking them away in the classroom, explained Julian Cohen, executive director of school innovation at the city Department of Education.

Using technology -- and the individualized education it affords -- Global Tech, one of the first two middle schools in the iZone, believes it can close the growing gap between what middle schools teach and what is required for success in high school. In 2009, less than 60 percent of middle-school students [met or exceeded](#) the English language arts standards; among eighth

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graders, only 71.3 percent standards.

[met or exceeded](#) math

Chrystina Russell, the 29-year-old principal of Global Tech, is convinced that giving every child a laptop that bears his or her name will help provide students the differentiated instruction that they need and instill in them a sense of responsibility -- laptop "free time" is withheld when students misbehave -- as well as the conviction that they are both entitled to good schooling and capable of achieving, "just like suburban kids," she said.

The school's small size and technology infrastructure lets teachers more easily identify the strengths and weaknesses of individual students and prepare them -- academically, socially and psychologically --for high school and, eventually, college, according to Russell.

"Often the academic piece is there, but the responsibility piece is missing," explained Jackie Pryce-Harvey, 57, a special education teacher who helped Russell launch the school and plans to complete a certification program that will allow her to become Russell's assistant principal. "By ninth grade, if you don't know what's expected, it's too late; you can't go to Bronx Science," she added.

So far the plan seems to be working. The students treat their Dell tablets with care, and there have been virtually no accidents or vandalism. Russell, who worked as a special education teacher before becoming a principal, had hoped to let the students take their computers home, but the education department vetoed the idea. Parents objected, worried that the computers would make their children, many of whom live in unsafe neighborhoods, targets of violence.



Andrea Gabor Before class, students hang out, many reading, playing math games or checking out e-mail on their school-issued laptops.

The students are expected to develop a digital portfolio of their work, which they will submit with their high-school applications. "Kids, when they leave eighth grade with their portfolios, will already be thinking about college," said Russell. These kids, many of whom feel "beaten down" by poverty, the loss of a parent and sometimes both will be "confident about who they are," she said.

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The technology clearly is a hook for many of the kids. Stephanie Davis, one of several parents who transferred their children out of charter schools to attend Global Tech, said "The technology -- it's another way to really keep him focused; my son is learning a lot. I walk around every day bragging about this school."

The students just took their first standardized test, so scores are not yet available. But by most measures, Global Tech appears to be doing well. [Inside Schools.org](#) lists attendance at the school, which opened its doors last fall with three sixth-grade classes, at 95 percent. A review of the individual attendance records shows that attendance has improved, for most individual students, by a factor of two or three from what it was when they were fifth graders at other schools. Nor has Global Tech lost more than handful of students since the start of the school year -- a common problem for many schools in poor inner-city neighborhoods.

Paying the Bills

For schools in a cash-strapped system like New York City's, a technology-oriented curriculum presents daunting funding challenges. In addition to having to provide, and maintain, devices from smart-boards to computers and video cameras, Global Tech needed help integrating technology into the curriculum and training its teachers. Pryce-Harvey, did not even use email when she and Russell met as New York City [Teaching Fellows](#) five years ago. But with the help of an education department specialist funded by

[Cisco](#)

, she has been willing to start experimenting in her classrooms with video and PowerPoint presentations.

Much of the school's technology and support infrastructure has come from corporate donations and grant-funded programs, most of it funneled through the [Fund for Public Schools](#), an organization that supports school-reform efforts. Russell considers fund-raising a necessary part of her job and has assiduously cultivated private backers, such as

[Lazard Ltd.](#)

, an investment bank, and Cisco, which has worked closely with the education department on its iZone strategy. "Sustainability is the one thing that keeps me up at night," she said.

Math and Maps

Another key challenge is integrating technology with creative approaches to instruction. The way technology is used in schools like Global Tech dramatically changes not only how

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education is delivered by teachers and received by students but also the boundaries that traditionally have separated the classroom from the outside world.

At the most basic level, a wired classroom can help good teachers do a better job, and keep kids who have grown up as part of the Internet generation, engaged. Take David Baiz's math classes, which use a combination of animated software, computer-aided assessments, math video games and traditional pen-and-paper calculations to teach geometry. Baiz has a software program called [Geometer's Sketchpad](#) that animates geometric shapes, showing rotations, dilations and reflections.

"The visual stuff is much easier to teach using such software," said Baiz who doubles as the school's tech guru. While Baiz believes that kids have to learn basic computation skills, he said, "The technology is more engaging -- it provides more manipulations, more visuals, more critical thinking."

Several times during the course of a lesson, Baiz conducts a quick assessment. He projects math problems on the smart board. The students, using clickers, select the right answer from a multiple-choice list; their answers register on Baiz's laptop so he can see instantly which kids are having trouble grasping a concept.

Anecdotal evidence suggests that Baiz's wired math classes are working. For one thing, math games have become a favorite competitive sport at Global Tech.

In March, Derek Ortiz, a Global Tech special-education student, was the only child from a Manhattan public school to qualify for the DimensionM competition that tests students for speed and accuracy. Derek was one of 12 students to qualify for the middle school individual competition, held at Columbia University in March. Despite being one of the youngest competitors in a pool of mostly seventh and eighth graders, Derek, a sixth grader, came in tenth. That has inspired his friends at Global Tech to try to qualify next year.

Weaker math students also are excelling. For example, Tabitha Colon, who struggled with math since kindergarten, has finally reached grade level in math, and her grandmother Maria Ortiz credits Baiz's class.

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How much of this is Baiz's teaching style and how much is it the technology? "I'm getting better as a teacher," said Baiz, 27, with a wry smile. "But not *that much* better."

In social studies, Global Tech uses online mapping technologies, such as [Mapquest](#) and [Google Earth](#) to teach kids both geography and about their local neighborhood. The students learned latitude and longitude, how to read maps, cardinal directions and compass skills. They can also take virtual walking tours of other cities. As a final project, all the children produced "urban orienteering" PowerPoint and video presentations, which will go into their portfolios.

Redefining School

Technology also is pushing the physical boundaries of the classroom and allowing the school to offer more with limited resources. Valerie Miller, the school's Spanish teacher speaks no other foreign language but supervises a classroom of students who are taking any one of four languages -- Spanish, French, German or Mandarin/Chinese. Wearing headphones, each student works at a computer terminal using [Powerspeak](#), a foreign-language software program.

Occasionally, the students receive live instruction from a Powerspeak teacher elsewhere in the country who interacts with the student via voice -- the kids wear headphones -- as well as via live chat on their computers and on a smart board.

The distance learning demonstrates both the promise and the obstacles that New York City public schools face in embracing these technologies. Russell notes that some of the remote instructors, most of whom are used to teaching kids from more affluent neighborhoods, have used "inappropriate" harsh criticism of her students, many of whom are studying a foreign language for the first time.



Andrea Gabor Principal Crystina Russell, here with some of her students, thinks by the time they leave the school, the kids, most of whom are from poor families, will feel capable of achieving, "just like suburban kids."

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"I have no problem with high standards," said Russell. "But some of these instructors don't understand the extra scaffolding that our students need."

Under current New York State rules, every class must be supervised by a certified teacher. Russell and principal's at other iZone schools are already thinking about -- and in some cases experimenting with -- remote learning. Any extension of this would almost certainly require a major change in the relatively rigid work-rules now in teachers' contracts.

Choosing a Staff

Many public school teachers put in extra work on behalf of their students. But implicit in the iZone initiative is the idea that teachers will be available, if not 24/7, then much more frequently than the contract requires. Many of the teachers at Global Tech make themselves available to students via email after hours and on weekends.

"I can email teachers; they're always on line to get emails from kids who might need help," said Jenny Lee Cruz, a sixth grader who said she recently got the power point notes for a social studies project, as well as other assignments, online when she was home sick.

Since Global Tech is a new school, Russell had the luxury of handpicking her staff. Four of the school's half-dozen full-time teachers, Baiz, Jhonary Bridgemohan, who teaches English language arts, and Courtney Lee, the science teacher, worked at [CS 4](#) in the South Bronx with Pryce-Harvey. In fact, throughout last spring and summer, before the teachers were officially hired, Russell and Pryce-Harvey hosted brunch many Sundays at Pryce-Harvey's Harlem brownstone. Over gourmet meals prepared by Pryce-Harvey, who hails from Jamaica and moonlights as a private chef in the Hamptons during the summers, the prospective staffers gathered without a job guarantee, to plan curriculum, strategize ways to recruit kids and define criteria for new hires.

The Sunday brunches underscored the collaboration and flexibility that Russell expects from her staff -- and that she insists is crucial to a successful school -- as well as an explicit understanding that their teaching responsibilities do not end when school officially lets out at 3:30.

Global Tech also has benefitted from the subtler advantages that come from being part of one

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of the chancellor's pet projects. It was allocated space in an exceptionally sunny modern building with picture windows that was especially outfitted with new overhead lights, refurbished bathrooms and wireless internet access by one of Eva Moskowitz's [Harlem Success Academy](#) charter schools. Just before the charter school moved out, Moskowitz donated two of its smart boards to Global Tech, which shares the building with [PS 7](#).

The Challenges Ahead

As Global Tech reaches the end of its first year, it faces continuing funding challenges as well as the pressures that come with much larger size and expanded programming. Positive word-of-mouth has led to a surge in applications; as of April, close to 300 students had applied for the school's incoming sixth-grade class. Russell, who scrambled to recruit her first students last summer, now hopes the education department will cap the incoming sixth grade class at 93. "Otherwise it's really not a small school anymore," she said.

After several months in which budget cuts threatened the funding to purchase laptops for next year's sixth graders, in late March, Russell got word that the education department will provide \$100,000 in funding for each iZone school.

The school also has just been selected by [Citizen Schools](#), a not-for profit after-school learning program, for a partnership that will extend Global Tech's school day to 6 p.m. Students will get homework help and academic enrichment and participate in hands-on apprenticeship programs taught by Citizen Schools teachers and volunteers.

In March, Global Tech hosted [Computers for Youth](#), a program that provides free desktop computers, loaded with educational software, and training for underprivileged young people. The program is actually designed to teach parents how to help their children with schoolwork. Almost all the school's parents signed up for the program and, following three hours of training that began at 7:30 a.m. on a cold, wet Saturday, the families, pulling metal grocery carts, hauled their desktops, bundled in plastic, home through a torrential downpour.

The desktops will help give this year's sixth-graders the tech support they need at home. But funding technology clearly will be an ongoing worry. New families, new teachers -- the school will have to hire at least six more for the next school year year in addition to at least a half dozen relatively inexperienced teachers from Citizen Schools -- and more visibility also will test

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the school's ability to adapt its vision to a larger school and to serve as a model the Department of Education can use to improve middle schools throughout the city.

Andrea Gabor is a professor of Journalism at Baruch College/CUNY and the author of several books, most recently [The Capitalist Philosophers](#) (Three Rivers Press, 2000).