City Schools Gamble on Going Digital

by Andrea Gabor
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Photos by Andrea Gabor The iSchool, a selective high school in Manhattan, is experimenting with new methods of teaching and of challenging its students.

At City Polytechnic High School in Brooklyn some students take courses on engineering and architecture taught by college professors; they also can accumulate enough credits to graduate in just three years or earn an associate's degree in five years. The students can do all this because City Poly has divided the school year into trimesters, packing core requirements into a shorter time frame, allowing them to use the third trimester for less traditional classes.

Across the city in Harlem, every student at Global Technology Preparatory , a middle school, receives a laptop at the start of the school year. They use them to develop Power Points for social-studies presentations, take online language classes, play math games and build a digital portfolio that the students will use in their high-school applications. This year, the school day also has been extended to 6 p.m.

These new schools are part of the New York City Department of Education's innovation zone ,

a high-stakes gamble to reinvent New York City public schools. Launched two years ago as part of what has become the iZone, it originally included 10 schools and now has ballooned to 81. So far, the schools have shown promise by many measures, including attendance, student and parent satisfaction, and student progress toward graduation. The city now hopes to expand the iZone to 300 schools within the next few years.

Some question, though, whether the Department of Education has the money to continue and expand the initiative. A dearth of research on kindergarten through 12 online education means that much of what the iZone is doing is highly experimental. And now, at the start of its third year, the iZone is undergoing a raft of changes that could unsettle the experiment -- and even help determine whether it succeeds or fails.

Harnessing Technology

The iZone is rooted in using digital technology to better serve and educate New York's 1 million public school students. "In any field but education, if you fell asleep 100 years ago and woke up today you wouldn't have a clue what was going on," Schools Chancellor Joel Klein said at a gathering of iZone principals, teachers and vendors Thursday night. "The notion of the teacher behind closed doors delivering instruction has to change."

The disconnect between students' wired lives and the typical chalk-and-blackboard classroom makes kids today less receptive to traditional modes of education than previous generations, argues a 2008 white paper by Cisco , the high-tech company that has been the iZone's "thought partner."

"How can traditional modes of classroom instruction engage and inspire students when life outside the classroom has changed so dramatically?" asks the paper, "Equipping Every Learner for the 21st Century." The paper also argues that a changing and global workforce has put a premium on cross-cultural knowledge, multilingualism and collaboration, including problem-solving, decision-making, and creative and critical thinking, as well as written and oral communication.

What is at stake is the ability to teach young people -- many who are poor and have limited access to computers and the internet -- the skills they need to function in a global, digital world. The scope of that challenge was highlighted by a 2010 report by the Schott Foundation for Public Education , which found that only 28 percent of black males in New York City received Regents high school

diplomas, compared to 50 percent for white males and well below the national high school graduation average of 48 percent for black males.

Two key features characterize the iZone's middle- and high-schools: First, fully half are "virtual schools," many of them developing a so-called blended model that combines in-class teaching with a range of digital technologies. Second, the schools offer new approaches to scheduling that include City Poly's trimester system and extended-day programs.

Virtual Classes

The push to go digital, though, represents the greatest change for the schools and, arguably, the biggest challenge for the education department.

In seeking to offer more education online, the department is tackling three hurdles at once. One is money: Online instruction requires a huge upfront investment in technology and infrastructure. Second, introducing online education requires a drastic rethinking of education -- nothing less in the words of one iZone participant, than turning traditional notions of schooling "upside down." For one thing, a wired school can redefine the role of a teacher from being the primary conduit of knowledge to more of a facilitator.

Students at the iSchool use a variety of digital technologies to help develop collaborative projects.

Finally, the iZone is entirely experimental, and while many experts laud the education department's efforts toward going digital, scant research exists on which specific strategies are effective for grades kindergarten through 12, and which are not. If it wants to learn from its experiment and expand on it, the education department, which has become notorious for seasonal changes in everything from organization to curricula to personnel, will need to stick with the iZone long enough -- and monitor it closely enough -- to figure out what works, what doesn't work and how it will know.

A number of changes in the program as the school year began also raised concerns among iZone participants. Julian Cohen, who served as executive director of school innovation and

was well respected in the schools and a welcome buffer from department politics, has moved to a different job in the department.

Cisco, which has been providing technical and financial support on a philanthropic basis has taken a step back. Gene Longo a manager with Cisco's Networking Academy, one of the company's corporate responsibility programs, who oversaw Cisco's non-profit initiatives with the education department, has transferred to a new job and has not been replaced.

Cisco had promised the department free access to a much anticipated prototype portal the company was developing for commercial use. According to iZone insiders, when work on the portal fell behind schedule this summer, the education department pieced together an in-house version and took over the professional training that Cisco had been conducting. Cisco is expected to be a leading candidate for developing an ambitious expanded portal -- or "virtual learning environment" -- for which the department requested bids this summer.

"Cisco continues to support the New York City DOE," including "investment in the New York City DOE iZone innovation initiative," Robyn Jenkins-Blum, a public relations manager for Cisco, wrote in an email message. Cisco refused requests for an interview.

In August, after teachers cut short vacations to attend a Cisco training session, only to find out it was being taught by the education department, one iZone insider wondered, "How many changes can the iZone sustain before it loses its credibility?"

Arthur Vanderveen, chief of innovation research and development at the education department, denied the iZone project has hit stumbling blocks. "At the school level, we're fully meeting our commitments," he said, adding that the department has "many partners" and is providing an "online environment to access courses in a seamless, integrated way."

The Cost of Innovation

The education department is expanding the iZone at a time when its budget is strapped. While the department won't provide estimates, wiring New York City's aging school buildings is an enormous challenge, as will be the expanded "virtual learning environment" that the department expects to have in operation by 2011-2012 school year and that one software vendor described as "unprecedented."

Although the department intends to allow every school to tailor its portal to its own needs, it aims to offer schools a range of options, including "anytime/anywhere access" to a catalog of online courses and the ability to customize and share courses and professional development online with other schools. It expects students to use the portal to access schoolwork anytime, communicate with teachers and collaborate with classmates. The portal also will offer teachers an easy management system for both face-to-face and online courses, and the ability to communicate online with students and parents and to share information about student work and progress with other teachers.

Even without the portal, schools face huge start-up costs for technology, including laptops, teleconferencing systems, and white boards as well as professional development. Teachers, especially the less tech-savvy, will need training along with help developing entirely new approaches to instruction.

At a single school like Global Tech, which is more than doubling its size to about 130 students, the official budget for the 2010-2011 school year is just under $1.2 million dollars, about 10 percent higher than it was last year. An additional $100,000, which comes from the iZone, helped pay for laptops for the incoming class; $25,000 from Cisco completed the purchase. Last year, Global Tech benefited from donations worth tens of thousands of dollars. (For our story on Global Tech's first year and its plans for the future, go here .)

So far, much of the technology funding for iZone schools has come from private donations. The iSchool alone has received at least $2 million in cash and in-kind grants, most of it from Cisco and Mortimer Zuckerman, owner of U.S. News & World Report and The Daily News. City Poly also has received generous private-sector donations.

Rethinking the Classroom

"There’s a whole new world out there and new learning platforms that can empower teachers" to offer differentiated instruction to kids who struggle with material, as well as those who are more advanced, Klein said at the iZone celebration in the rotunda of Tweed Courthouse, the education department headquarters. Klein reminisced about his own physics classes, and said, while his teachers were excellent, none of them influenced him more than hearing the lectures of the late Nobel Prize-winning scientist Richard Feynman . Digital technology, he added, could bring Feynman’s lectures into the classroom, and augment the curriculum.

The iSchool in Manhattan's District 2, a new selective high school, has taken that message to heart. Last year, it hired a teacher from a Bronx school to teach a virtual geometry course, via teleconferencing, to a handful of freshman who had mastered algebra. Without the technology, paying a part-time teacher would have been prohibitively expensive.

Students at the school take about seven hours of classes online each week, including one of several languages, an example of how technology allows schools to offer more options with limited resources. Under state regulations, a teacher must be present for online classes; but, eventually, the iSchool envisions students taking the courses on their own time, freeing up the school day for other work.

When done well, the key advantage of being wired is that it leads the schools to "rethink every element, including instructional design, assessment, teacher-student interaction," said Susan Patrick, president and CEO of the International Council for Online Learning . She notes that because technology places extraordinary new demands on teachers, wired schools have the added benefit of attracting “motivated and student-centered teachers."

Perhaps nowhere is the rethinking and the connection to strong teaching more evident than at the iSchool.

The iSchool's green roof project crossed disciplines, including the study of botany and government regulations.

Its challenge-based modules—nine-week collaborative projects -- cross disciplines. A green roof project, for example, includes the study of botany and government regulations. The projects also promote collaboration among students who work in teams as well as with outsiders. To develop an exhibition for the National September 11 Memorial and Museum at Ground Zero students collaborated with museum officials and, via videoconference, interviewed young people around the world about their views of the terrorist attacks.

Of course, iSchool students must still meet New York State standards and pass Regents

exams . At the iSchool, Regents courses are conducted online, allowing students to work at their own pace; 44 percent of last year's 10th graders passed their Regents exams, and most of the rest are expected to do so by this coming January.

But the online courses get some low grades from students milling in the hallways. "We hate the online component," said Ruby Craker, a ninth grader who studied American history part of last year via Compass software and partly in a traditional class. Ruby said she learned "everything" during the nine weeks when she was in a traditional class. "Sometimes the technology doesn't work," she said. "The software doesn't explain everything. You can't ask it a question. I can't stand it. I hate it."

When interviewed in June, Ruby said she also was behind in online English Language Arts and needed a teacher to keep her on task. "I feel like a guinea pig," she added.

Her friend Morgane Stuart has a somewhat different view. Describing herself as a poor foreign language student, she said that online instruction helped her progress at her own pace and avoid the embarrassment of having to speak up in class.

Ask the students what they like best about the iSchool, though, and almost all say they "love" the teachers "I always hated math, dreaded it," says Morgane. "Now I love math, love my teacher. She's got great teaching strategies, it's always fun."

Alisa Berger and Mary Moss, co-principals of the school, argue that some of the unhappiness with online curriculum is to be expected, especially among incoming students who were successful in their previous, traditional schools. Also, they note, the curriculum is a work in progress.

Eli Szenes-Strauss, a history teacher, concedes that some of the online software, such as the Compass history program, didn't work. "It's difficult to navigate," he said. "It's condescending. It doesn't match up to the Regents standards." So, the iSchool bought new software and Szenes-Strauss spent the summer crafting an entirely new online history curriculum.

The reworked curriculum recognizes that a passive online format has limits and will include weekly tutorials to expand on, and answer questions about, the online course. "You don't need a teacher to learn the fact that the Louisiana Purchase occurred in 1803," explains Szenes-Strauss. "You need a teacher to discuss the ideas behind manifest destiny."

A more serious problem relates to whether the new approaches -- the projects, the technology, the required internships -- can overcome prodigious gaps in student knowledge. "I never met so many smart kids with awful skills," said Szenes-Strauss who says many incoming freshman were among the smartest kids in their middle schools and got used to coasting.

Reshaping the Day

Beyond the interest in online education, many of the iZone experiments spring from a belief that the traditional school day with its 50-minute periods precludes in-depth multidisciplinary course work. The assumption is that rethinking the traditional schedule can make time for real-world experiences -- not by sacrificing basic knowledge, but by reinforcing it.

"Why do you need the quadratic equation?" asked Chris Aguirre, principal of City Poly. Aguirre then makes the connection between a mathematical abstraction and a tool that jet engine designers use to calculate thrust.

To teach students about both, Aguirre, has tried to eliminate the "padding" from the traditional school day. By squeezing requirements like geometry and algebra into two trimesters per year, he takes the slack out of the system -- students can no longer miss days of school without consequence. The extra trimester is used to give struggling students extra support or to allow more advanced kids to take applied courses on, say, Art and Architecture or Math Problems in Engineering, and to graduate early or to earn college credits at City Tech.

Meanwhile, Global Tech, where last year's digitally enriched curriculum produced off-the-charts student and parent satisfaction as well as high attendance -- is adding 2.5 hours to the schools day. Principal Chrystina Russell expects that by teaming up with Citizen Schools , a not-for-profit that partners with middle schools in poor neighborhoods to offer afternoon programs, she can boost students' academic performance and support her teachers. Over half a dozen staff from Citizen Schools start their day at Global Tech at 10 a.m., assisting in classrooms and providing continuity for the extra work that begins after the end of the traditional school day .

Expanding the Model

The challenge for the education department is how to take what the iZone schools are learning about what succeeds and what does not and adapt the lessons to existing schools that may have principals and teachers who are more resistant to change and lack mentors with deep pockets. More importantly, if the iZone schools are successful, how will the department identify what it is that makes them so: Is it the teachers? The principals? The schedules? The online technology? Or some combination?

Little research exists on the efficacy of K-12 online education. The number of U.S. students enrolled in online courses surged 47 percent in 2008 to just over 1 million, up from 700,000 two years earlier, according to two studies conducted by Anthony G. Picciano and Jeff Seaman. However, in the 2008 study, K-12 Online Learning , the authors note that as of 2007, "no organization-public or private was systematically collecting" data on K-12 online schools.

The education department says it is conducting its own research, collaborating with the Ford Foundation
to collect data on iZone schools. In addition, CUNY colleges will provide valuable data on students' college readiness.

Inside the Classroom

If these first iZone schools turn out to be successful in the long run, it may be because they have the single ingredient that research has shown, over and over, to be key to improving education: good teachers. As new schools, they have the luxury of selecting their own staffs; and, as a group, the principals seem to have taken to heart the old adage that hiring is the most important decision a manager makes.

One assumption undergirding the push to go digital is that the sheer volume of new knowledge in many fields, as well as the availability of information over the internet means that teaching kids how to think and find information is more important than learning content for its own sake. Yet, for many teachers, the biggest challenge they face -- technology or not -- is a lack of skills and fundamental knowledge among students.

Last semester, Marc Kantrowitz, the iSchool's cantankerous and well-liked science teacher

asked 80 or so students to answer the following question: How does drug trafficking increase the subjugation of women?

"Twelve minutes into the assignment, I realized that they didn't know what 'subjugation' means," says Dr. K, as he is known. "None of them knew. ... Worse, they had been sitting in front of their laptops and no one -- no one -- had looked it up."

Dr. K continues his litany: "So I said, 'what countries are the largest producers of opium?' One kid said Afghanistan."

"'Who is benefitting from the drug trade?' Not one kid out of 80 or 90 kids out of three sections could come up with the Taliban. Opium, drugs, Taliban, bad guys, subjugation of women. â€¦ Not one kid.

"I asked, â€ how many of you read The New York Times?' Only one hand went up."

How can you educate kids to be critical thinkers when they have no basic knowledge? That is Dr. K's question. For all the talk about “authentic” real-world experiences, that is a key issue that the iZone project will have to address.

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