JOSHUA DAVIS BUSINESS OCT 15, 2013 6:30 AM

A Radical Way of Unleashing a Generation of Geniuses

Students in Matamoros, Mexico weren't getting much out of school -- until a radical new teaching method unlocked their potential. And then everything changed.

These students in Matamoros, Mexico, didn't have reliable Internet access, steady electricity, or much hope—until a radical new teaching method unlocked their potential. PETER YANG

SAVE

YOU CAN READ a version of this story in Spanish here. Pueden leer una versión de esta historia en español aquí.

José Urbina López Primary School sits next to a dump just across the US border in Mexico. The school serves residents of Matamoros, a dusty, sunbaked city of 489,000 that is a flash point in the war on drugs. There are regular shoot-outs, and it's not uncommon for locals to find bodies scattered in the street in the morning. To get to the school, students walk along a white dirt road that parallels a fetid canal. On a recent morning there was a 1940s-era tractor, a decaying boat in a ditch, and a herd of goats nibbling gray strands of grass. A cinder-block barrier separates the school from a wasteland—the far end of which is a mound of trash that grew so big, it was finally closed down. On most days, a rotten smell drifts through the cement-walled classrooms. Some people here call the school *un lugar de castigo*—"a place of punishment."

For 12-year-old Paloma Noyola Bueno, it was a bright spot. More than 25 years ago, her family moved to the border from central Mexico in search of a better life. Instead, they got stuck living beside the dump. Her father spent all day scavenging for scrap, digging for pieces of aluminum, glass, and plastic in the muck. Recently, he had developed nosebleeds, but he didn't want Paloma to worry. She was his little angel—the youngest of eight children.

After school, Paloma would come home and sit with her father in the main room of their cement-and-wood home. Her father was a weather-beaten, gaunt man who always wore a cowboy hat. Paloma would recite the day's lessons for him in her crisp uniform—gray polo, blue-and-white skirt—and try to cheer him up. She had long black hair, a high forehead, and a thoughtful, measured way of talking. School had never been challenging for her. She sat in rows with the other students while teachers told the kids what they needed to know. It wasn't hard to repeat it back, and she got good grades without thinking too much. As she headed into fifth grade, she assumed she was in for more of the same—lectures, memorization, and busy work.

Sergio Juárez Correa was used to teaching that kind of class. For five years, he had stood in front of students and worked his way through the government-mandated curriculum. It was mind-numbingly boring for him and the students, and he'd come to the conclusion that it was a waste of time. Test scores were poor, and even the students who did well weren't truly engaged. Something had to change.

He too had grown up beside a garbage dump in Matamoros, and he had become a teacher to help kids learn enough to make something more of their lives. So in 2011—when Paloma entered his class—Juárez Correa decided to start experimenting. He began reading books and searching for ideas online. Soon he stumbled on a video describing the work of Sugata Mitra, a professor of educational technology at Newcastle University in the UK. In the late 1990s and throughout the 2000s, Mitra conducted experiments in which he gave children in India access to computers. Without any instruction, they were able to teach themselves a surprising variety of things, from DNA replication to English. Juárez Correa didn't know it yet, but he had happened on an emerging educational philosophy, one that applies the logic of the digital age to the classroom. That logic is inexorable: Access to a world of infinite information has changed how we communicate, process information, and think. Decentralized systems have proven to be more productive and agile than rigid, top-down ones. Innovation, creativity, and independent thinking are increasingly crucial to the global economy.

And yet the dominant model of public education is still fundamentally rooted in the industrial revolution that spawned it, when workplaces valued punctuality, regularity, attention, and silence above all else. (In 1899, William T. Harris, the US commissioner of education, celebrated the fact that US schools had developed the "appearance of a machine," one that teaches the student "to behave in an orderly manner, to stay in his own place, and not get in the way of others.") We don't openly profess those values nowadays, but our educational system—which routinely tests kids on their ability to recall information and demonstrate mastery of a narrow set of skills—doubles down on the view that students are material to be processed, programmed, and quality-tested. School administrators prepare curriculum standards and "pacing guides" that tell teachers what to teach each day. Legions of managers supervise everything that happens in the classroom; in 2010 only 50 percent of public school staff members in the US were teachers.

The results speak for themselves: Hundreds of thousands of kids drop out of public high school every year. Of those who do graduate from high school, almost a third are "not prepared academically for first-year college courses," according to a 2013 report from the testing service ACT. The World Economic Forum ranks the US just 49th out of 148 developed and developing nations in quality of math and science instruction. "The fundamental basis of the system is

fatally flawed," says Linda Darling-Hammond, a professor of education at Stanford and founding director of the National Commission on Teaching and America's Future. "In 1970 the top three skills required by the Fortune 500 were the three Rs: reading, writing, and arithmetic. In 1999 the top three skills in demand were teamwork, problem-solving, and interpersonal skills. We need schools that are developing these skills."

That's why a new breed of educators, inspired by everything from the Internet to evolutionary psychology, neuroscience, and AI, are inventing radical new ways for children to learn, grow, and thrive. To them, knowledge isn't a commodity that's delivered from teacher to student but something that emerges from the students' own curiosity-fueled exploration. Teachers provide prompts, not answers, and then they step aside so students can teach themselves and one another. They are creating ways for children to discover their passion—and uncovering a generation of geniuses in the process.

At home in Matamoros, Juárez Correa found himself utterly absorbed by these ideas. And the more he learned, the more excited he became. On August 21, 2011—the start of the school year — he walked into his classroom and pulled the battered wooden desks into small groups. When Paloma and the other students filed in, they looked confused. Juárez Correa invited them to take a seat and then sat down with them.
He started by telling them that there were kids in other parts of the world who could memorize pi to hundreds of decimal points. They could write symphonies and build robots and airplanes. Most people wouldn't think that the students at José Urbina López could do those kinds of things. Kids just across the border in Brownsville, Texas, had laptops, high-speed Internet, and tutoring, while in Matamoros the students had intermittent electricity, few computers, limited Internet, and sometimes not enough to eat.

"But you do have one thing that makes you the equal of any kid in the world," Juárez Correa said. "Potential."

He looked around the room. "And from now on," he told them, "we're going to use that potential to make you the best students in the world."

Paloma was silent, waiting to be told what to do. She didn't realize that over the next nine months, her experience of school would be rewritten, tapping into an array of educational innovations from around the world and vaulting her and some of her classmates to the top of the math and language rankings in Mexico.

"So," Juárez Correa said, "what do you want to learn?"

In 1999, Sugata Mitra was chief scientist at a company in New Delhi that trains software developers. His office was on the edge of a slum, and on a hunch one day, he decided to put a computer into a nook in a wall separating his building

from the slum. He was curious to see what the kids would do, particularly if he said nothing. He simply powered the computer on and watched from a distance. To his surprise, the children quickly figured out how to use the machine.

Over the years, Mitra got more ambitious. For a study published in 2010, he loaded a computer with molecular biology materials and set it up in Kalikuppam, a village in southern India. He selected a small group of 10- to 14-year-olds and told them there was some interesting stuff on the computer, and might they take a look? Then he applied his new pedagogical method: He said no more and left.

Over the next 75 days, the children worked out how to use the computer and began to learn. When Mitra returned, he administered a written test on molecular biology. The kids answered about one in four questions correctly. After another 75 days, with the encouragement of a friendly local, they were getting every other question right. "If you put a computer in front of children and remove all other adult restrictions, they will self-organize around it," Mitra says, "like bees around a flower."

A charismatic and convincing proselytizer, Mitra has become a darling in the tech world. In early 2013 he won a $1 million grant from TED, the global ideas conference, to pursue his work. He's now in the process of establishing seven "schools in the cloud," five in India and two in the UK. In India, most of his schools are single-room buildings. There will be no teachers, curriculum, or separation into age groups—just six or so computers and a woman to look after the kids' safety. His defining principle: "The children are completely in charge."

> The bottom line is, if you're not the one controlling your learning, you're not going to learn as well.

Mitra argues that the information revolution has enabled a style of learning that wasn't possible before. The exterior of his schools will be mostly glass, so outsiders can peer in. Inside, students will gather in groups around computers and research topics that interest them. He has also recruited a group of retired British teachers who will appear occasionally on large wall screens via Skype, encouraging students to investigate their ideas—a process Mitra believes best fosters learning. He calls them the Granny Cloud. "They'll be life-size, on two walls" Mitra says. "And the children can always turn them off."

Mitra's work has roots in educational practices dating back to Socrates. Theorists from Johann Heinrich Pestalozzi to Jean Piaget and Maria Montessori have argued that students should learn by playing and following their curiosity. Einstein spent a year at a Pestalozzi-inspired school in the mid-1890s, and he later credited it with giving him the freedom to begin his first thought experiments on the theory of relativity. Google founders Larry Page and Sergey

Brin similarly claim that their Montessori schooling imbued them with a spirit of independence and creativity.
In recent years, researchers have begun backing up those theories with evidence. In a 2011 study, scientists at the University of Illinois at Urbana-Champaign and the University of Iowa scanned the brain activity of 16 people sitting in front of a computer screen. The screen was blurred out except for a small, movable square through which subjects could glimpse objects laid out on a grid. Half the time, the subjects controlled the square window, allowing them to determine the pace at which they examined the objects; the rest of the time, they watched a replay of someone else moving the window. The study found that when the subjects controlled their own observations, they exhibited more coordination between the hippocampus and other parts of the brain involved in learning and posted a 23 percent improvement in their ability to remember objects. "The bottom line is, if you're not the one who's controlling your learning, you're not going to learn as well," says lead researcher Joel Voss, now a neuroscientist at Northwestern University.

In 2009, scientists from the University of Louisville and MIT's Department of Brain and Cognitive Sciences conducted a study of 48 children between the ages of 3 and 6. The kids were presented with a toy that could squeak, play notes, and reflect images, among other things. For one set of children, a researcher demonstrated a single attribute and then let them play with the toy. Another set of students was given no information about the toy. This group played longer and discovered an average of six attributes of the toy; the group that was told what to do discovered only about four. A similar study at UC Berkeley demonstrated that kids given no instruction were much more likely to come up with novel solutions to a problem. "The science is brand-new, but it's not as if people didn't have this intuition before," says coauthor Alison Gopnik, a professor of psychology at UC Berkeley.

Gopnik's research is informed in part by advances in artificial intelligence. If you program a robot's every movement, she says, it can't adapt to anything unexpected. But when scientists build machines that are programmed to try a variety of motions and learn from mistakes, the robots become far more adaptable and skilled. The same principle applies to children, she says.

A Brief History of Alternative Schools

New research shows what educators have long intuited: Letting kids pursue their own interests sharpens their hunger for knowledge. Here's a look back at this approach. —Jason Kehe

470 BC Socrates is born in Athens. He goes on to become a long-haired teacher who famously let students arrive at their own conclusions. His questioning, probing approach—the Socratic method—endures to this day.

1907 Maria Montessori opens her first Children's House in Rome, where kids are encouraged to play and teach themselves. Americans later visit her schools and see the Montessori method in action. It spreads worldwide.



1919
The first Waldorf school opens in Stuttgart, Germany. Based on the ideas of philosopher Rudolf Steiner, it encourages self-motivated learning. Today, there are more than 1,000 Waldorf schools in 60 countries.


1921
A. S. Neill founds the Summerhill School, where kids have the "freedom to go to lessons or stay away, freedom to play for days ... or years if necessary." Eventually, such democratic schools appear around the world.

1945
Loris Malaguzzi volunteers to teach in a school that parents are building in a war-torn Italian village outside Reggio Emilia. The "Reggio Emilia approach"—a community of self-guided learning—is born.

1967
Seymour Papert, a protégé of child psychologist Jean Piaget, helps create the first version of Logo, a programming language kids can use to teach themselves. He becomes a lifelong advocate for technology's role in learning.

1999
Sugata Mitra conducts his first "hole in the wall" experiment in New Delhi, India. On their own, slum kids teach themselves to use a computer. Mitra dubs his approach minimally invasive education.

2006
Ken Robinson gives what will become the most frequently viewed TED Talk ever: "How Schools Kill Creativity." Students should be free to make mistakes and pursue their own creative interests, Robinson argues.

2012
The Common Core, a new set of curriculum standards that include student-centered learning, is adopted by 45 US states. Math students, say, should "start by explaining to themselves the meaning of a problem."

CREDITS: Waldorf School: courtesy of Waldorf School; Robinson: Robert Leslie; Malaguzzi: courtesy of Reggio Children; remaining: Getty Images

Evolutionary psychologists have also begun exploring this way of thinking. Peter Gray, a research professor at Boston College who studies children's natural ways of learning, argues that human cognitive machinery is fundamentally incompatible with conventional schooling. Gray points out that young children, motivated by curiosity and playfulness, teach themselves a tremendous amount about the world. And yet when they reach school age, we supplant that innate drive to learn with an imposed curriculum. "We're teaching the child that his questions don't matter, that what matters are the questions of the curriculum. That's just not the way natural selection designed us to learn. It designed us to solve problems and figure things out that are part of our real lives."

Some school systems have begun to adapt to this new philosophy—with outsize results. In the 1990s, Finland pared the country's elementary math curriculum from about 25 pages to four, reduced the school day by an hour, and focused on independence and active learning. By 2003, Finnish students had climbed from the lower rungs of international performance rankings to first place among developed nations.

Nicholas Negroponte, cofounder of the MIT Media Lab, is taking this approach even further with his One Laptop per Child initiative. Last year the organization delivered 40 tablets to children in two remote villages in Ethiopia. Negroponte's team didn't explain how the devices work or even open the boxes. Nonetheless, the children soon learned to play back the alphabet song and taught themselves to write letters. They also figured out how to use the tablet's camera. This was impressive because the organization had disabled camera usage. "They hacked Android," Negroponte says.

One day Juárez Correa went to his whiteboard and wrote "1 = 1.00." Normally, at this point, he would start explaining the concept of fractions and decimals. Instead he just wrote "½ = ?" and "¼ = ?"
"Think about that for a second," he said, and walked out of the room.

While the kids murmured, Juárez Correa went to the school cafeteria, where children could buy breakfast and lunch for small change. He borrowed about 10 pesos in coins, worth about 75 cents, and walked back to his classroom, where he distributed a peso's worth of coins to each table. He noticed that Paloma had already written .50 and .25 on a piece of paper.

"One peso is one peso," he said. "What's one-half?"

At first a number of kids divided the coins into clearly unequal piles. It sparked a debate among the students about what one-half meant. Juárez Correa's training told him to intervene. But now he remembered Mitra's research and resisted the urge. Instead, he watched as Alma Delia Juárez Flores explained to her tablemates that half means equal portions. She counted out 50 centavos. "So the answer is .50," she said. The other kids nodded. It made sense.

For Juárez Correa it was simultaneously thrilling and a bit scary. In Finland, teachers underwent years of training to learn how to orchestrate this new style of learning; he was winging it. He began experimenting with different ways of posing open-ended questions on subjects ranging from the volume of cubes to multiplying fractions. "The volume of a square-based prism is the area of the base times the height. The volume of a square-based pyramid is that formula divided by three," he said one morning. "Why do you think that is?"

He walked around the room, saying little. It was fascinating to watch the kids approach the answer. They were working in teams and had models of various shapes to look at and play with. The team led by Usiel Lemus Aquino, a short boy with an ever-present hopeful expression, hit on the idea of drawing the different shapes—prisms and pyramids. By layering the drawings on top of each other, they began to divine the answer. Juárez Correa let the kids talk freely. It was a noisy, slightly chaotic environment—exactly the opposite of the sort of factory-friendly discipline that teachers were expected to impose. But within 20 minutes, they had come up with the answer.

"Three pyramids fit in one prism," Usiel observed, speaking for the group. "So the volume of a pyramid must be the volume of a prism divided by three."

Juárez Correa was impressed. But he was even more intrigued by Paloma. During these experiments, he noticed that she almost always came up with the answer immediately. Sometimes she explained things to her tablemates, other times she kept the answer to herself. Nobody had told him that she had an unusual gift. Yet even when he gave the class difficult questions, she quickly jotted down the

answers. To test her limits, he challenged the class with a problem he was sure would stump her. He told the story of Carl Friedrich Gauss, the famous German mathematician, who was born in 1777.

When Gauss was a schoolboy, one of his teachers asked the class to add up every number between 1 and 100. It was supposed to take an hour, but Gauss had the answer almost instantly.
"Does anyone know how he did this?" Juárez Correa asked.

A few students started trying to add up the numbers and soon realized it would take a long time. Paloma, working with her group, carefully wrote out a few sequences and looked at them for a moment. Then she raised her hand.

"The answer is 5,050," she said. "There are 50 pairs of 101."

Juárez Correa felt a chill. He'd never encountered a student with so much innate ability. He squatted next to her and asked why she hadn't expressed much interest in math in the past, since she was clearly good at it.

"Because no one made it this interesting," she said.

Paloma's father got sicker. He continued working, but he was running a fever and suffering headaches. Finally he was admitted to the hospital, where his condition deteriorated; on February 27, 2012, he died of lung cancer. On Paloma's last visit before he passed away, she sat beside him and held his hand. "You are a smart girl," he said. "Study and make me proud."

Paloma missed four days of school for the funeral before returning to class. Her friends could tell she was distraught, but she buried her grief. She wanted to live up to her father's last wish. And Juárez Correa's new style of curating challenges for the kids was the perfect refuge for her. As he continued to relinquish control, Paloma took on more responsibility for her own education. He taught the kids about democracy by letting them elect leaders who would decide how to run the class and address discipline. The children elected five representatives, including Paloma and Usiel. When two boys got into a shoving match, the representatives admonished the boys, and the problem didn't happen again.

Juárez Correa spent his nights watching education videos. He read polemics by the Mexican cartoonist Eduardo del Río (known as Rius), who argued that kids should be free to explore whatever they want. He was also still impressed by Mitra, who talks about letting children "wander aimlessly around ideas." Juárez Correa began hosting regular debates in class, and he didn't shy away from controversial topics. He asked the kids if they thought homosexuality and abortion should be permitted. He asked them to figure out what the Mexican government should do, if anything, about immigration to the US. Once he asked a question, he would stand back and let them engage one another.

A key component in Mitra's theory was that children could learn by having access to the web, but that wasn't easy for Juárez Correa's students. The state paid for a technology instructor who visited each class once a week, but he didn't have much technology to demonstrate. Instead, he had a batch of posters depicting keyboards, joysticks, and 3.5-inch floppy disks. He would hold the posters up and say things like, "This is a keyboard. You use it to type."

As a result, Juárez Correa became a slow-motion conduit to the Internet. When the kids wanted to know why we see only one side of the moon, for example, he went home, Googled it, and brought back an explanation the next day. When they asked specific questions about eclipses and the equinox, he told them he'd figure it out and report back.
Juárez Correa also brought something else back from the Internet. It was the fable of a forlorn burro trapped at the bottom of a well. Since thieves had broken into the school and sliced the electrical cord off of the classroom projector (presumably to sell the copper inside), he couldn't actually show them the clip that recounted the tale. Instead, he simply described it.

One day, a burro fell into a well, Juárez Correa began. It wasn't hurt, but it couldn't get out. The burro's owner decided that the aged beast wasn't worth saving, and since the well was dry, he would just bury both. He began to shovel clods of earth into the well. The burro cried out, but the man kept shoveling. Eventually, the burro fell silent. The man assumed the animal was dead, so he was amazed when, after a lot of shoveling, the burro leaped out of the well. It had shaken off each clump of dirt and stepped up the steadily rising mound until it was able to jump out.

Juárez Correa looked at his class. "We are like that burro," he said. "Everything that is thrown at us is an opportunity to rise out of the well we are in."

When the two-day national standardized exam took place in June 2012, Juárez Correa viewed it as just another pile of dirt thrown on the kids' heads. It was a step back to the way school used to be for them: mechanical and boring. To prevent cheating, a coordinator from the Ministry of Education oversaw the proceedings and took custody of the answer sheets at the end of testing. It felt like a military exercise, but as the kids blasted through the questions, they couldn't help noticing that it felt easy, as if they were being asked to do something very basic.

Ricardo Zavala Hernandez, assistant principal at José Urbina López, drinks a cup of coffee most mornings as he browses the web in the admin building, a cement structure that houses the school's two functioning computers. One day in September 2012, he clicked on the site for ENLACE, Mexico's national achievement exam, and discovered that the results of the June test had been posted.

Zavala Hernandez put down his coffee. Most of the classes had done marginally better this year—but Paloma's grade was another story. The previous year, 45 percent had essentially failed the math section, and 31 percent had failed Spanish. This time only 7 percent failed math and 3.5 percent failed Spanish. And while none had posted an Excellent score before, 63 percent were now in that category in math.

The language scores were very high. Even the lowest was well above the national average. Then he noticed the math scores. The top score in Juárez Correa's class was 921. Zavala Hernandez looked over at the top score in the state: It was 921. When he saw the next box over, the hairs on his arms stood up. The top score in the entire country was also 921.
He printed the page and speed-walked to Juárez Correa's classroom. The students stood up when he entered.

"Take a look at this," Zavala Hernandez said, handing him the printout.

Juárez Correa scanned the results and looked up. "Is this for real?" he asked.

"I just printed it off the ENLACE site," the assistant principal responded. "It's real."

Juárez Correa noticed the kids staring at him, but he wanted to make sure he understood the report. He took a moment to read it again, nodded, and turned to the kids.

"We have the results back from the ENLACE exam," he said. "It's just a test, and not a great one."

A number of students had a sinking feeling. They must have blown it.

"But we have a student in this classroom who placed first in Mexico," he said, breaking into a smile.

Paloma received the highest math score in the country, but the other students weren't far behind. Ten got math scores that placed them in the 99.99th percentile. Three of them placed at the same high level in Spanish. The results attracted a quick burst of official and media attention in Mexico, most of which focused on Paloma. She was flown to Mexico City to appear on a popular TV show and received a variety of gifts, from a laptop to a bicycle.

Juárez Correa himself got almost no recognition, despite the fact that nearly half of his class had performed at a world- class level and that even the lowest performers had markedly improved.

His other students were congratulated by friends and family. The parents of Carlos Rodríguez Lamas, who placed in the 99.99th percentile in math, treated him to three steak tacos. It was his first time in a restaurant. Keila Francisco

Rodríguez got 10 pesos from her parents. She bought a bag of Cheetos. The kids were excited. They talked about being doctors, teachers, and politicians.

Juárez Correa had mixed feelings about the test. His students had succeeded because he had employed a new teaching method, one better suited to the way children learn. It was a model that emphasized group work, competition, creativity, and a student-led environment. So it was ironic that the kids had distinguished themselves because of a conventional multiple-choice test. "These exams are like limits for the teachers," he says. "They test what you know, not what you can do, and I am more interested in what my students can do."

Like Juárez Correa, many education innovators are succeeding outside the mainstream. For example, the 11 Internationals Network high schools in New York City report a higher graduation rate than the city's average for the same populations. They do it by emphasizing student-led learning and collaboration. At the coalition of Big Picture Learning schools—56 schools across the US and another 64 around the world—teachers serve as advisers, suggesting topics of interest; students also work with mentors from business and the community, who help guide them into internships. As the US on-time high school graduation rate stalls at about 75 percent, Big Picture is graduating more than 90 percent of its students.
But these examples—involving only thousands of students—are the exceptions to the rule. The system as a whole educates millions and is slow to recognize or adopt successful innovation. It's a system that was constructed almost two centuries ago to meet the needs of the industrial age. Now that our society and economy have evolved beyond that era, our schools must also be reinvented.

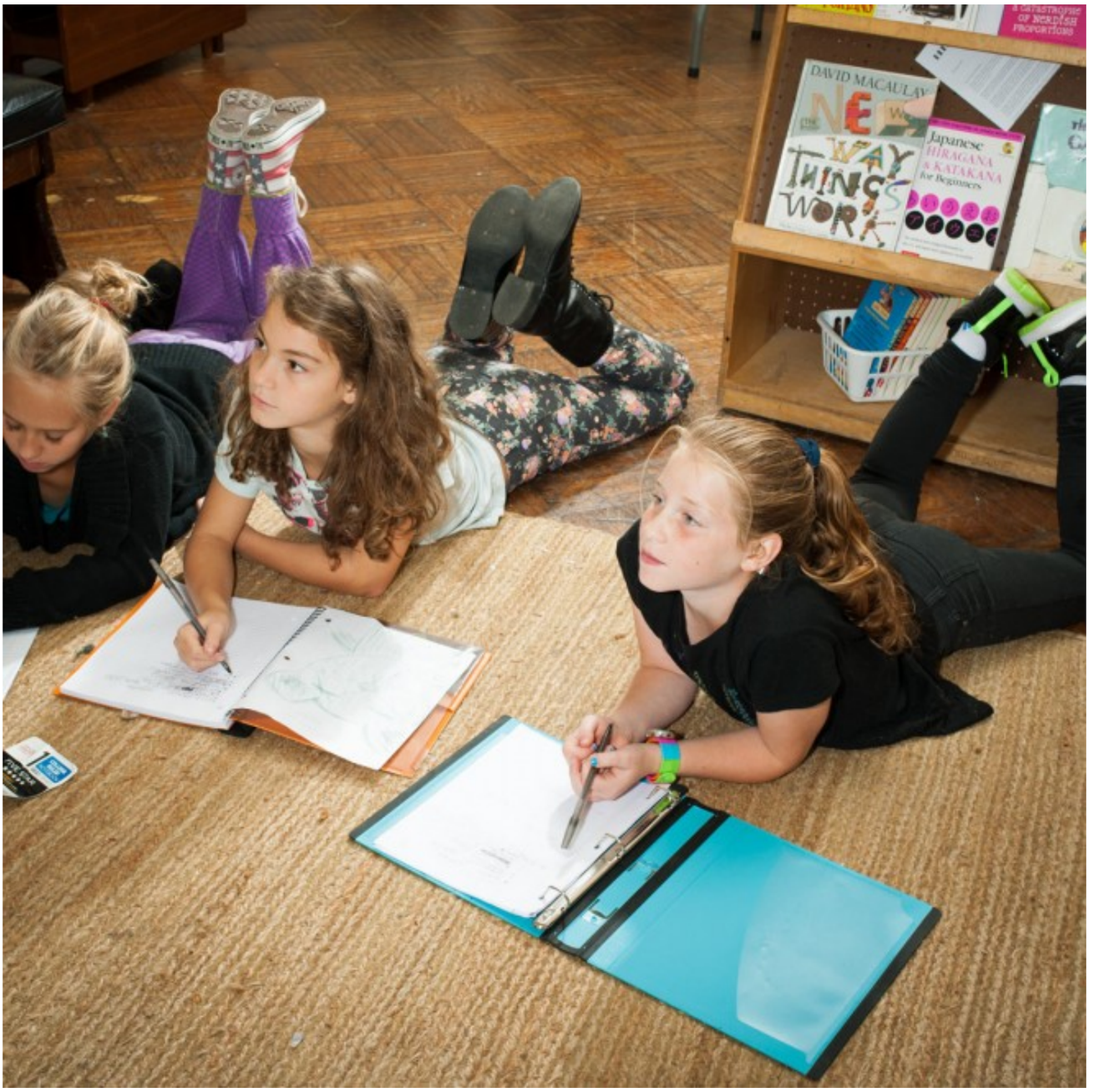
For the time being, we can see what the future looks like in places like Juárez Correa's classroom. We can also see that change will not come easily. Though Juárez Correa's class posted impressive results, they inspired little change. Francisco Sánchez Salazar, chief of the Regional Center of Educational Development in Matamoros, was even dismissive. "The teaching method makes little difference," he says. Nor does he believe that the students' success warrants any additional help. "Intelligence comes from necessity," he says. "They succeed without having resources."

More than ever, Juárez Correa felt like the burro in the story. But then he remembered Paloma. She had lost her father and was growing up on the edge of a garbage dump. Under normal circumstances, her prospects would be limited. But like the burro, she was shaking off the clods of dirt; she had begun climbing the rising mound out of the well.

Want to help teachers like Sergio Juárez Correa make a difference? Here's how you can get involved in the student-centered movement.

Where the Radical Schools Are Now

Some schools are finding new ways for technology to fuel students' curiosity so they can steer their own learning. —J.K.



Brooklyn Free School

Founded just under a decade ago, the Brooklyn Free School builds on a tradition of democratic education. In this "real, practicing democracy," students are allowed to direct their own learning. There are no grades or mandatory assignments.

New Technology High School

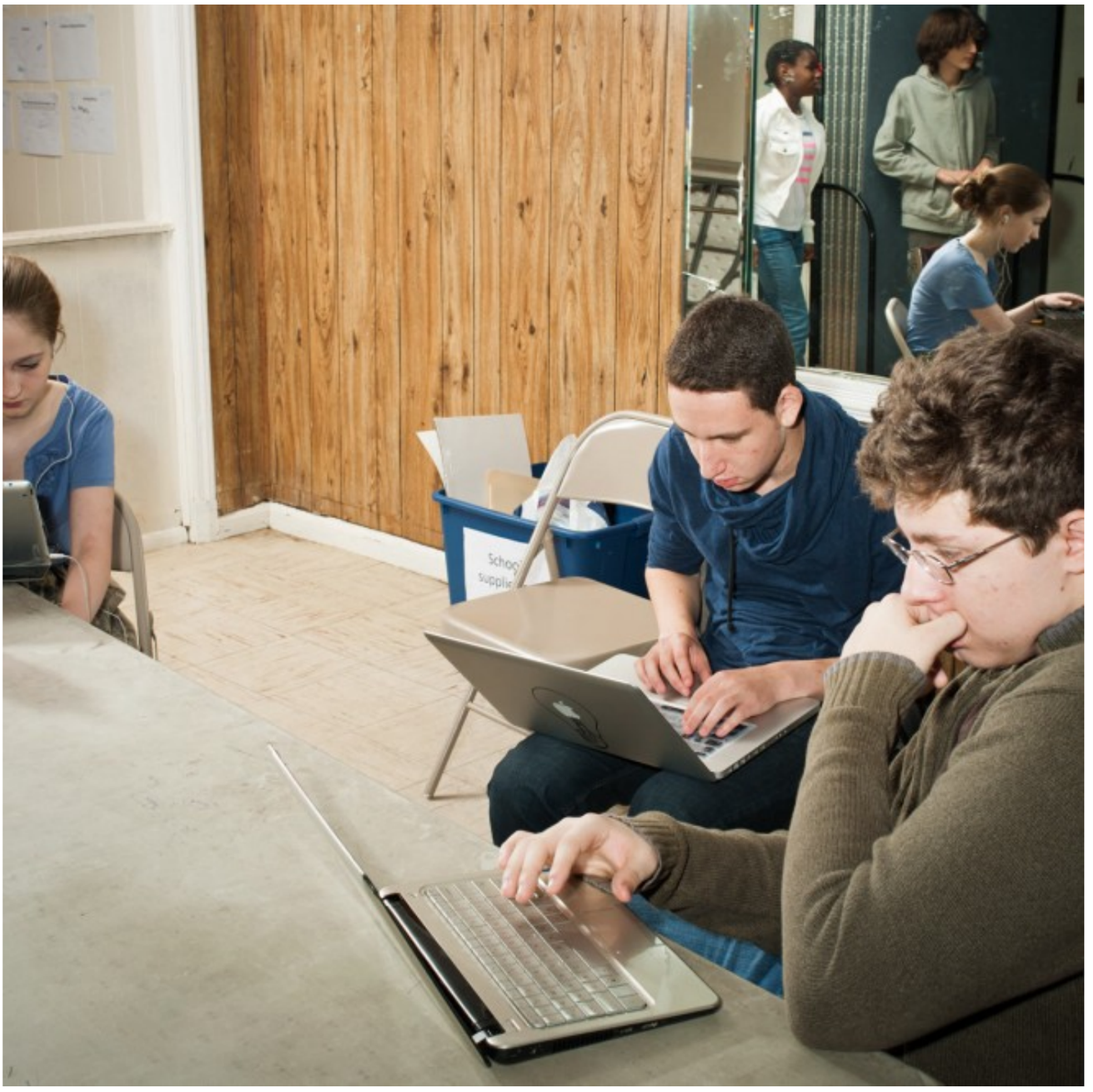
No desks, no bells, and teachers who lecture by invitation: pretty much what you'd expect of a school dreamed up by Silicon Valley types. Students at this school in Napa, California, must demonstrate technology literacy, mastering skills like digital video production and Flash programming.

NYC iSchool

Laptop-toting students at this small school in Manhattan participate in an "online collaborative space" in which they interact with teachers and experts. And not just any experts: A NASA scientist and other luminaries have delivered lectures remotely.

High Tech High

Originally a single charter school in San Diego, High Tech High is now a 12-school network that serves more than 5,000 K-12 students. With access to sleek facilities—including labs for subjects like biotech, mechanical engineering, and graphic design—students develop multimedia research projects, consult with experts, and even present their work in professional venues.



Mooresville Graded School District

The eight schools in this district outside Charlotte, North Carolina, provide students from the fourth through twelfth grades with MacBook Airs. That means less lecturing and more projects, with students seeking answers online and sharing their discoveries with one another.

School of One

Multiple skills are taught at the same time in different parts of open-space classrooms in New York City. The program's approach blends traditional lectures with computer exercises and virtual tutors, and a learning algorithm generates a daily plan for each student.

Cloud Schools

Being developed in India and England, cloud schools are education maverick Sugata Mitra's vision for the future: spaces in which children learn on their own, with occasional encouragement from teachers via Skype.

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