LEARN DIFFERENT

Silicon Valley disrupts education.

BY REBECCA MEAD

seen from the outside, AltSchool Brooklyn, a private school that opened in Brooklyn Heights last fall, does not look like a traditional educational establishment. There is no playground attached, no crossing guard at the street corner, and no crowd of children blocking the sidewalk in the morning. The school is one floor up, in a commercial building overlooking Montague Street. On the building’s exterior is a logo: a light-blue square, with rounded corners, bearing the word “Alt.” It looks like an iPhone app awaiting the tap of a colossal finger.

Inside, the space has been partitioned with dividers creating several classrooms. The décor evokes an IKEA showroom: low-slung couches, beanbags, clusters of tables, and wooden chairs in progressively smaller sizes, like those belonging to Goldilocks’s three bears. There is no principal’s office and no principal. Like the five other AltSchools that have opened in the past three years—the rest are in the Bay Area—the school is run by teachers, one of whom serves as the head of the school. There is no school secretary: many administrative matters are handled at AltSchool’s headquarters, in the SOMA district of San Francisco. There aren’t even many children. Every AltSchool is a “micro-school.” In Brooklyn Heights, there are thirty-five students, ranging from pre–kindergarten to third grade. Only a few dozen more children will be added as the school matures. AltSchool’s ambition, however, is huge. Five more schools are scheduled to open by the end of each grade. But AltSchool’s ethos is fundamentally opposed to the paradigm of standardization that has dominated public education in recent decades, and reflects a growing shift in emphasis among theorists toward “personalized learning.” This approach acknowledges and adapts to the differences among students: their abilities, their interests, their cultural backgrounds.

A girl in the class was completing an offline task—reading a book about polar bears. A boy lay on his stomach on the carpeted floor, headphones on, using a Web site called BrainPOP to learn how to calculate the perimeters of basic shapes. “Two out of five!” he shouted at one point, as oblivious of those around him as a subway rider wearing earbuds and singing along to Drake.

Not all the activities were solitary. Two girls sat together, laptops before them, using Google Images to scroll through pictures of seals for a social-studies assignment; occasionally, they paused to compare notes. Every so often, a student spoke with the teacher, a young woman in jeans and a loose top, her iPhone tucked under her thigh as she sat on the carpet. One girl had been using her laptop to research castles—an area of sustained interest. She and the teacher discussed princesses and castles, and whether they always went together. “That’s a good question,” the teacher said, and then asked, “Does America have princesses?”

A girl working nearby said, “Yes—my mom told me there was a princess and she died because of the paparazzi.” “My mom says that every castle has got a torture place,” the girl who was studying castles said.

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“What is a castle?—that was your starting question today,” the teacher said. After the girl wrote a response, on paper, the teacher snapped a photograph of the page, in order to upload it to the girl’s playlist card.

She might also send it to a parent’s phone, using AltSchool Stream, an app
AltSchool embeds fish-eye lenses in the walls of its classrooms, capturing every word, action, and interaction, for potential analysis.
that enables instant communication between home and school. Meanwhile, above the students’ heads, a network of white audio recorders hung from the ceiling, and fish-eye lenses were embedded in the walls. The goal of this surveillance system, AltVideo, is to capture every word, action, and interaction, for potential analysis.

“Does every castle have torture?” the teacher asked, her voice sounding sunny, if a bit distracted. “That’s a good starting question for tomorrow.”

Max Ventilla, Altschool’s thirty-five-year-old founder, is a native New Yorker who attended Buckley, on the Upper East Side, and proceeded to Andover, the New England prep school. He went to Yale, where he majored in math and physics, and then earned an M.B.A. Ventilla worked briefly for Google and then launched a startup, Aardvark, which developed a tool for “social search”—the ability to direct a question to a targeted group of people. In 2010, he sold the company to Google, reportedly for fifty million dollars. Ventilla rejoined Google as a group product manager, and eventually became responsible for creating a “unity of experience” across the company’s products—insuring that, say, a user’s search results are informed by her YouTube browsing history. When Ventilla quit Google to start Altschool, in the spring of 2013, he had no experience as a teacher or an educational administrator. But he did have extensive knowledge of networks, and he understood the kinds of insights that can be gleaned from big data.

The first Altschool opened that September, in the Dogpatch neighborhood of San Francisco. The idea grew out of the search that Ventilla and his wife, Jenny Stefanotti, a former Google executive, conducted to find a preschool for their daughter, who is now four. (They also have a two-year-old son.) “It was a startlingly miserable experience,” he told me. “You are thrown into this high-stakes world of trying to get your two-year-old into a school, and all the places that are desirable have a hundred times more people applying than they admit, and if you don’t pick your preschool right your child will be penniless and alone at thirty. And there is, absurdly, a little bit of truth to that.” While visiting schools, Ventilla was struck by how little education had changed since he began school. “A three-year-old today isn’t that different,” he told me. But, largely because of technology, “a thirteen-year-old is really different.”

The more Ventilla thought about education, the more he thought that he could bring about change—and not just for his own children. Instead of starting a “one-off school,” he would create an educational “ecosystem” that was unusually responsive to the interests of children, feeding them assignments tied to subjects they cared about. Ventilla’s vision fit the prevailing ethos of middle-class child rearing, in which offspring are urged to find their enthusiasms and pursue them into reward.

Ventilla also wanted students to focus on developing skills that would be useful in the workplace of the future, rather than forcing them to acquire knowledge deemed important by historical precedent. “Kids should be spending less time practicing calculating by hand today than fifty years ago, because today everyone walks around with a calculator,” Ventilla told me. “That doesn’t mean you shouldn’t be able to do math—I shouldn’t have to whip out my phone to figure out if someone gave me the correct change. But you should shift the emphasis to what is relatively easier, or what is relatively more important.” Ventilla loves languages—his parents are Hungarian, and he grew up bilingual before studying French and Latin in school. He later learned some Persian, so that he could understand what a girlfriend’s family was saying about him at the dinner table. But he’s not certain that his daughter should devote similar energy to language acquisition. “If the reason you are having your child learn a foreign language is so that they can communicate with someone in a different language twenty years from now—well, the relative value of that is changed, surely, by the fact that everyone is going to be walking around with live-translation apps,” he said.

I recently toured the Dogpatch facility, which is situated in a former industrial building near the waterfront. “It was basically put together with spit and toilet paper,” Carolyn Wilson, one of

“You call this guacamole?”
AltSchool's founding teachers, who is now the company's director of education, told me. Today, the company employs more than a hundred and fifty people, split evenly among educators, technologists, and operations managers. This rapid growth has been funded by a hundred and ten million dollars in venture capital—and twenty million in venture debt—that has been raised over the past two years, among the largest investments ever made in education technology. AltSchool's capital comes from some of Silicon Valley's top investors, including the Founders Fund, Andreessen Horowitz, and John Doerr. Last year, the philanthropic Silicon Valley Community Foundation invested fifteen million dollars in AltSchool, through a fund financed by Mark Zuckerberg and his wife, Priscilla Chan. (Currently, tuition fees cover most of the expenses of running the schools, including teacher salaries; the investment money helps cover technologists' salaries, real-estate costs, and other expenditures related to the company's growth.) None of these backers want merely to own part of a chain of boutique micro-schools. Rather, they hope that AltSchool will help "reinvent" American education: first, by innovating in its micro-schools; next, by providing software to educators who want to start up their own schools; and, finally, by offering its software for use in public schools across the nation, a goal that the company hopes to achieve in three to five years.

Silicon Valley entrepreneurs are convinced that the flexibility and innovation of the tech sphere can be productively and profitably applied to the education sector, which is perceived as sclerotic. Sal Khan, who in 2005 founded Khan Academy, the popular online math-tutorial platform, says, "Most of the people who end up doing well in Silicon Valley did very well academically, that by looking in those neighborhoods, that by looking for standards to pull everyone up we are forgetting to address what the individual needs. We are forgetting to think about how kids learn and what they need to be successful in life."

Two years ago, AltSchool Fort Mason opened in the Marina District of San Francisco, on a commercial strip next to a Starbucks. When I stopped by, in December, children in the lower grades were being entertained by a startlingly tall blond woman dressed in a very short dress of Russian folk design. She was impersonating Snegurochka, the Snow Maiden, who visits children in San Jose. "I started out thinking there was a way to close the achievement gap," she told me. "It became clear to me, teaching in those neighborhoods, that by looking for standards to pull everyone up we are forgetting to address what the individual needs. We are forgetting to think about how kids learn and what they need to be successful in life."

In San Jose, students' scores on annual state tests were made available only after the end of the school year. At AltSchool, Seyfert could keep tabs on her students' daily, if not hourly, progress. Every task card on a student's playlist is tagged to denote not just academic skills,
like math and literacy, but also social and emotional skills.

Seyfert pulled up the Learning Progression spreadsheet of one of her students, a seventh grader. Grades from kindergarten to eighth grade were denoted on the X axis, and various subject areas on the Y axis. Areas of completed study—sixth-grade math, for example—were indicated by cells filled in with green. Areas the student was still working on—seventh-grade science, for instance—were colored orange. In English, he was working well ahead of his expected grade level. Seyfert could click on each subject area to get more precise information about his progress. The effect was rather like opening an online report from a credit-card company that can show expenditures by category—Shopping, Travel—as well as specific purchases. She could see how many articles the student had read on Newsela, a site that provides Associated Press articles edited for different reading levels. She could click to see the student’s scores on the quizzes that accompanied each article, and then go into the article itself to read his annotations and marginal notes.

Here and there a solitary orange cell indicated an area that the student had not yet mastered. A student might have been sick the week that his fifth-grade class consolidated its knowledge of fractions and might not quite have grasped the principle. “If I notice he is really scoring low on a standard, I can go and look at the cards that assess that standard and see where the breakdown is happening,” Seyfert explained.

At the same time, educators at AltSchool are discussing whether children really need to attain certain skills at particular stages of their educational development, as the Common Core implies. Seyfert thinks that it might be more useful to think of learning not as linear but as scrambled, like a torrent file on a computer: “You can imagine all the things you need to learn, and you could learn it all out of order so long as you can zip it up at the end, and you are good to go.”

Like other AltSchool teachers, Seyfert was drawn to the startup because of its ambition to make systemic change. Two or three times a week, she told me, “We encourage staff members to express their pain points, step up with their ideas, take a risk, fail forward, and fail fast, because we know we are going to iterate quickly. Other schools tend to move in geologic time.” (Ventilla may question the utility of foreign-language acquisition, but fluency in the jargon of Silicon Valley—English 2.0—is required at AltSchool.)

Ventilla told me that these tools were central to a revised conception of what a teacher might be: “We are really shifting the role of an educator to someone who is more of a data-enabled detective.” He defined a traditional teacher as an “artisanal lesson planner on one hand and disciplinary babysitter on the other hand.” Educators are stakeholders in AltSchool’s eventual success: equity has been offered to all full-time teachers.

In Seyfert’s classroom, I spoke with Otto Craddock, the seventh grader whose Learning Progression I had glimpsed. He had been researching the job that he held in the simulation: secretary. His parents, an advertising consultant and an executive at BlackRock, had moved him from a well-regarded private school. Gorse Jeffries, his mother, told me that he had seemed listless. Otto said, “At my old school, they were, like, ‘O.K., you want to do architecture? Maybe in college you can do architecture.’ Here some people selected architecture, and we did a whole unit on architecture, and we built models and projects.”

The previous day, Otto said, a guest teacher had come in to lead several students in a 3-D-modelling project, using a Web site called Tinkercad. “We built little models online—some people built phone cases, or little towers, or yo-yos,” Otto said. “I built a toilet, because I thought it would be fun. It has lots of different components—you have the base, you have the seat, you have the back.” He clicked to the site and pulled up his model. “I was looking around at pictures of toilets online,” he said. “I think I want to make it a bit more shaped for your back. I also want really sanitary toilets. And I want to make it really comfy. I’m quite bony, and I’m small, and if they don’t have a cushion they hurt.” Eventually, Otto said, he planned
to 3-D print his prototype: a model toilet, fashioned to his personal specifications and preferences.

One afternoon in December, two dozen AltSchool technologists gathered in a conference room at the company’s headquarters for a “hackathon”—a concentrated session of brainstorming and coding. Some participants had laptops in front of them; others had curry or salad from the company kitchen. All but a few were male, and nobody looked older than forty.

The point of the hackathon was to sketch out in code potential solutions to “robot tasks”—routine aspects of a teacher’s job that don’t require teaching skills. Kimberly Johnson, the head of product success and training, addressed the team. “Basically, what we have told teachers is we have hired you for your creative teacher brains, and anytime you are doing something that doesn’t require your creative teacher brain that a computer could be doing as well or better than you, then a computer should do it,” Johnson said.

Since the previous hackathon, three months earlier, teachers at AltSchool had filed more than a hundred digital “tickets” to Johnson, indicating how AltSchool software might be improved. Some teachers had asked for a more streamlined way to input data. Johnson acknowledged, “It is a lot of work to go into each card and click the learning objective and click the score and click ‘save.’ It’s just four or five clicks, but it adds up.” The teachers also wanted to enter assessment scores to groups of kids at once. “If you say, ‘I want to give all of these kids threes, and all of these kids fours, there must be an easy way to do that,’” Johnson said. “I don’t know what it would look like, but you could probably hack something together.”

Teachers also wanted faster access to the video recordings of their classrooms, to better evaluate students’ breakthrough moments, or to see what was going wrong when the classroom grew disorderly. Currently, Johnson said, teachers were using Slack, the group-messaging app, to alert her when there was a moment in the classroom that they wished to review. She’d watch the footage in order to find the right clip to bookmark, then send a link to the teacher through e-mail. This process could take days. “That would be a cool thing to automate,” she said.

Technologists have been trying to transform the classroom for decades. In the late seventies, Seymour Papert, a pioneer of artificial intelligence at M.I.T., contended that children’s minds might be profoundly enriched by coding. A child who learns to program “both acquires a sense of mastery over a piece of the most modern and powerful technology and establishes an intimate contact with some of the deepest ideas from science, from mathematics, and from the art of intellectual model building,” Papert wrote in his book, “Mindstorms,” which was published in 1980.

Coding has become a familiar part of the curriculum, but computers are being used more and more for customized instruction. Jose Ferreira, the founder and C.E.O. of Knewton, an adaptive-learning platform that has raised more than a hundred million dollars in venture funding, recently compared his product to “a robot tutor in the sky that can semi-read your mind and figure out what your strengths and weaknesses are, down to the percentile.”

Studies of the effectiveness of online learning programs suggest that greater humility is in order. A 2010 meta-analysis commissioned by the Department of Education concluded that students whose teachers combined digital and face-to-face learning did somewhat better than students who were not exposed to digital tools, but there was a major caveat: the teachers who added digital tools were judged to be more effective educators in general.

In 2012, Teach to One, a program that incorporates software to guide middle-school students through a math curriculum, was adopted at seven schools nationwide, including some in New York City. After a year, results were mixed: one school made gains far better than the national average, one did far worse, and the remaining five were close to the national average. In the second year, the program was expanded, and the results were better: eleven schools made higher-than-average gains, two made gains significantly lower than the national average, and two performed at par. A report commissioned by Teach to One stressed that improved scores could not be attributed entirely to the software. Joel Rose, the co-founder of New Classrooms, the company that developed Teach to One, likes to use an alarming metaphor popular among Silicon Valley innovators: “You’ve got to build the plane while you’re flying.”

So far, Teach to One is limited to
math. Machines have become quite good at measuring the acquisition of arithmetical operations, but they are much less good at quantifying such skills as creativity or flexibility—let alone measuring less easily definable aspects of a humanistic education, such as literary appreciation or artistic sensibility or the development of empathy. A digital reading platform that embeds interactive vocabulary assessments and comprehension tests in literary texts may guide young readers to “just right” books, and may give teachers insight into their students’ reading stamina and their progression from one “Lexile level”—a measure of literacy—to another. It may even achieve the elusive goal of encouraging reluctant readers to become enthusiastic ones. The creators of one literacy tool, LightSail, report that many kids, especially boys, treat the embedded assessments as a competitive game, fist-pumping when they get a vocabulary word right. But, at least for now, no literacy tool can tell whether a reader laughed at “The Mouse and the Motorcycle” or wept over “The Fault in Our Stars.” Nor can an app weigh the value of those moments when a reader looks up from the digital page and stares into space. To a computer measuring keystrokes, a student zoning out because he’s bored is indistinguishable from one who is moved by her book to imagine a world of her own.

Even ed-tech advocates have warned against an overzealous embrace of the digital and the measurable. Jennifer Carolan, a former teacher who is now an investor at Reach Capital, recently wrote on her blog, “With all of the investment hype and entrepreneurial frenzy, I worry that some might view personalization as yet another silver bullet for education.” There have already been several high-profile ed-tech failures. News Corp developed Amplify, an educational-software division, and appointed Joel Klein, the former New York schools chancellor, as its head, only to spin it off this fall after school districts declined to buy into it.

Unlike Amplify, AltSchool generates revenue by charging tuition. And in cities like San Francisco and New York it could prove a popular option for the many families who opt out of the public system. About a quarter of AltSchool students receive financial aid. “To provide students with a school experience that prepares them for the future, we need classrooms that are representative of the diversity in our country,” Ventilla says. AltSchool’s technological schemes, however, may be very hard to implement in less affluent public school districts. A child who doesn’t have wireless Internet access at home can’t do homework on a tablet, even if her school provides one.

Some education advocates are wary about potential privacy violations that might result from data collection on the scale intended by AltSchool, particularly given that AltSchool is a for-profit company. (Most independent schools are not-for-profit institutions.) These concerns could complicate the adoption of AltSchool software by public school systems. Ventilla says that there is no intention to use AltSchool data for commercial purposes, and that AltSchool can gather data in a way that will respect a student’s anonymity. Only salient moments in the classroom videos are saved, he says, and most are not even stored. “I would never want to record all the things a kid says and keep them around,” he said. But he added that looking at vocabulary-acquisition patterns in aggregate could provide teachers with valuable information that will help them teach each individual more effectively. “The collection of any kind of data is not free,” Ventilla acknowledged. “But the alternative is the incredibly invasive, inaccurate standardized-testing regimen that we have now, which comes at a lot of cost, psychic and otherwise, and doesn’t provide nearly the amount of benefit that we want.”

Daniel Willingham, an education scholar at the University of Virginia, told me that adopting technology in schools can be maddeningly inefficient. “The most common thing I hear is that when you adopt technology you have to write twice the lesson plans,” he told me. “You have the one you use with the technology, and you have the backup one you use when the technology doesn’t work that day.” Willingham also notes that the most crucial thing about educational software isn’t the code that assesses student performance; it’s the worthiness of the readings and the clarity of the math questions being presented on-screen. “People are very focussed on the algorithm,” he said. “But equally important is the quality of the materials.”
The gap between AltSchool’s ambitions for technology and the reality of the classroom was painfully obvious the morning that I spent in the Brooklyn school. One kindergartner grew increasingly frustrated with his tablet as he tried to take a photograph of interlocking cubes that he had snapped into a strip of ten. (He was supposed to upload the image to his playlist.) He shook the unresponsive tablet, then stabbed repeatedly at the screen, like an exhausted passenger in a cab after an overnight flight, unable to quell the Taxi TV.

Even when AltSchool’s methods worked as intended, there were sometimes questionable results. The two girls whom I watched searching for seals on Google Images found plenty of suitable photographs. But the same search term yielded times questionable results. The two girls worked as intended, there were some

The workplace of the future, it was also dispir

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Darkness in the shape of leaves flows over a building;
black ellipses on the bay
slipping and falling into place

—Rae Armantrout

That’s a woman in an arctic-fox costume singing, “Don’t you worry ’bout a thing, baby.”

I confuse worry with

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U NDER ARNE DUNCAN, who resigned as Secretary of Education in 2015 after six years in the post, U.S. schools deployed an ever-expanding regimen of standardized tests, and Common Core was widely adopted. The goal was to improve the assessment of student learning and teacher performance through the collection of data and the use of shared standards. But toward the end of his tenure Duncan acknowledged that the pressures of high-stakes testing had deformed classroom practices, to the detriment of students and teachers alike. His resignation may mark the beginning of the end of thirty years of standards-based education reform.

Meanwhile, there is a rise in interest among parents and educators about habits of success. Qualities like “grit” and “resilience,” and how to cultivate them, are much discussed in contemporary educational theory, and teachers increasingly speak of “meeting children” where their abilities and interests lie. Among educational theorists, one of the buzzwords is “blended learning”—in which students receive “content” from a combination of classroom lectures and software.

AltSchool families might be described as early adopters of this new paradigm. Ventilla is wary of the characterization. “No one who likes gadgets chooses to send a kid to a school because it’s new—it is such a meaningful, high-intensity purchase,” he told me. Still, Don MacAskill, a parent at Alt-School Palo Alto, told me, “We are very comfortable with our kids being guinea pigs. I do buy into the AltSchool mission. I believe education needs to change, not just in our little micro-school here but all over the world. We are raising a generation that will have the sum of human knowledge at their fingertips, for every minute of their life, so clearly education needs to change to accommodate that.”

I met MacAskill and several other parents one day after school. He and his wife, Liz, were wearing sweatshirts bearing the logo of SmugMug, a photosharing startup. MacAskill is its co-founder and “chief geek.” He knew Ventilla from tech circles, and recalls, ‘We ran into each other a couple of years ago, and he said, ‘I’m doing this great thing to revolutionize education.’ I said, ‘Wow, that sounds like a big hard job, dude. Good luck—I can’t wait to watch.’ And then our kids started to grow up.” The three MacAskill children—Leia, named for the princess; Logan, named for the X-Men character; and Audrey, named for Hepburn—had been in public schools, but MacAskill said, “Once our twins got into third grade, some of the issues around non-personalized learning really sort of kicked in.”

There had been some bumpy moments for the Palo Alto school, which opened last fall. One family left after concluding that there wasn’t enough homework. Other parents wanted to know the curriculum in advance—an impossible demand in a school dedicated to following children’s interests. A look around the classrooms confirmed that for some children the ability to follow their own passions reaped rich dividends. I observed the kindergarten-first-grade classroom during afternoon “choice time,” and saw two children separately involved in complicated
The remaining eight children—six boys and two girls—had selected “tablet time.” They were sitting around a table, each with headphones on, expertly swiping and clicking their way through word or number games. Their quiet immersion would be recognizable to any parent who has ever bought herself a moment’s peace from the demands of interacting with her child by opening Angry Birds on her phone.

**“Teach these boys and girls nothing but Facts,”** Thomas Gradgrind, the rigid schoolteacher in Charles Dickens’s “Hard Times,” declares. “Plant nothing else, and root out everything else.” Dickens’s novel was a satire of the philosophy of utilitarianism as it was applied to education: the idea that working-class children needed to know enough to work in factories and nothing more.

Personalized education promises an escape from the more recent Gradgrindian practice of standardized tests. In a world of personalized learning, the argument goes, every child’s particular genius will be permitted to shine. But AltSchool’s philosophy of education is also essentially utilitarian, even as it celebrates the individuality, autonomy, and creativity of its students. It holds that children should be prepared for the workplace of the future—and that the workplace of the future will demand individuality, creativity, collaboration, and critical thinking.

AltSchool’s perspective does not necessarily require abandoning texts that have long been considered central to a humanist education, but it does mean approaching them anew. One middle-school class undertook a lengthy study of the Iliad by focussing on the theme of “rage” and designing a spreadsheet that logged instances of it. They then used data-visualization techniques to show their findings, and wrote persuasive essays based on their results. Afterward, their teacher, James Earle, wrote, “Analyzing a piece of literature this way turns the work into a piece of robust data that can be understood quantitatively, in addition to allowing a qualitative reading.” The workplace of the future, according to AltSchool’s premise, will look a lot like some workplaces in the present—places like Google and Facebook, where Gradgrind’s faith in facts is matched by faith in the revelatory power of data.

Last spring, AltSchool hired Bharat Mediratta, a ten-year Google veteran, as chief technology officer. Mediratta had been running part of the search infrastructure that powered Google’s home page. I met with him in an AltSchool office in San Francisco, and he told me, “When I joined Google, no one wanted to work on this project—it was literally the world’s largest Web app, but it was mostly me doing infrastructure. And when I left I had built a team of two hundred to two hundred and fifty people.”

Joining Mediratta was Rajiv Bhatia, AltSchool’s “vice-president of product”—overseeing its software development. He previously worked at Zynga, the company behind Farmville and other online games. “I feel a little bit better about working on something a little bit more noble,” he said. “Selling virtual sheep was fun, and getting better at it was great, and I do feel the principles and constructs of reacting to what your users need, and what the market is asking you to do, is useful here.” Mediratta, too, was motivated to join AltSchool by the opportunity to have greater social impact. “For us to complete our mission, we need to get to the fifty million kids in public school,” he said. So far, AltSchool’s data pool was small, and not particularly “actionable.” But, Mediratta went on, “Raj and I both come from big-data backgrounds. We have this deep belief that, as we start pulling in data,
we will be able to find ways to help teachers and improve the system.”

Both men were particularly excited about the data that might be gathered through AltVideo. “It allows the teacher to be what I like to call ‘retroactively omniscient,’” Mediratta said. He noted that a teacher could unobtrusively observe a student who had taken a long time completing an assignment and determine if he had been struggling or goofing off. The video also allows the AltSchool real-estate team to discern how to improve the layout of its schools. Bhatia clicked on his laptop to show me a recording that had been made in a classroom the previous morning as students were settling in. “We are hoping to be able to use it to make inferences—like what peer groups exist in the classroom,” he said. (Pity the student who tries to pass notes under AltVideo’s watchful eye.)

Mediratta envisaged a time when AltSchool technology would get “into the sci-fi realm.” What insights might be drawn from aggregated data culled from video and audio? He spoke of the video moments that teachers were bookmarking. “The next useful thing would be for us to analyze all the things that are bookmarked, and to draw inferences,” Mediratta said. “Like, bookmarks seem to happen when the classroom is noisy. So let’s generate a few other interesting moments that the teacher might want to look at—say, a moment when the classroom was full of kids but was dead quiet. What was happening there? Is this good? Is this bad? Or you could look at a moment when it was absolutely chaotic—but maybe that is what the activity called for. So we can start applying machine learning to this data to start driving inferences. Maybe what we should be doing is detecting when the classroom gets noisy, and then we could have the head of the school, who is also an educator, stop by your classroom and participate and help.”

When the AltSchool technologists who participated in the December hackathon shared their discoveries at the end of the session, the team that had focussed on bookmarking video seemed particularly pleased with its innovations. The team had decided to try to find a “fun route” to help teachers request a video clip of a moment in class. “The idea is that the teacher could, in theory, just knock twice on their phone,” one team member said. He patted twice on his device, which was buried in the front pocket of his jeans, to demonstrate the ease and unobtrusiveness of the gesture. Another member of the team tapped on his laptop, and a graph that resembled an echocardiogram, with troughs and spikes, appeared on a large video screen at the head of the table. A third team member, a young man with a starter beard, tapped twice on his phone, and the graph reappeared with a new spike—the result of his tapping.

There were cheers around the room as the developers explained how they had filtered the data so that the jostling motions of a teacher walking upstairs, say, would not show up as a bookmark. “It’s reasonably robust,” one said, with pride. Someone asked about a cluster of spikes on the graph. “That was, I don’t know—me digging around with the phone in my pocket,” came the answer. From the back of the room, a woman spoke up: “Did you test it with a female?” Many participants laughed. “I’m serious,” the questioner went on. “A lot of our teachers are females, and they carry phones in different places.”

The members of the bookmark team, all of whom were male, looked deflated. In coming up with their apparently elegant solution, they had not visualized a female teacher slapping her bottom to activate a phone tucked into her back pocket. “That’s a really good point,” one of them acknowledged, his smile waning. “Yeah, it could use a lot of fine-tuning. This was just, like, get ourselves to a demo.” They had failed fast and failed forward. That was what they were supposed to do. Tomorrow, they would iterate.