

EDUCATION DISRUPTED

How Google Took Over the Classroom

The tech giant is transforming public education with low-cost laptops and free apps. But schools may be giving Google more than they are getting.

By **Natasha Singer**

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CHICAGO — The sixth graders at Newton Bateman, a public elementary school here with a classic red brick facade, know the Google drill.

In a social-science class last year, the students each grabbed a Google-powered laptop. They opened Google Classroom, an app where teachers make assignments. Then they clicked on Google Docs, a writing program, and began composing essays.

Looking up from her laptop, Masuma Khan, then 11 years old, said her essay explored how schooling in ancient Athens differed from her own. “Back then, they had wooden tablets and they had to take all of their notes on it,” she said. “Nowadays, we can just do it in Google Docs.”

Chicago Public Schools, the third-largest school district in the United States, with about 381,000 students, is at the forefront of a profound shift in American education: the Googlification of the classroom.

In the space of just five years, Google has helped upend the sales methods companies use to place their products in classrooms. It has enlisted teachers and administrators to promote Google’s products to other schools. It has directly reached out to educators to test its products — effectively bypassing senior district officials. And it has outmaneuvered Apple and Microsoft with a powerful combination of low-cost laptops, called Chromebooks, and free classroom apps.

Today, more than half the nation’s primary- and secondary-school students — more than 30 million children — use Google education apps like Gmail and Docs, the company said. And Chromebooks, Google-powered laptops that initially struggled to find a purpose, are now a powerhouse in America’s schools. Today they account for more than half the mobile devices shipped to schools.

“Between the fall of 2012 and now, Google went from an interesting possibility to the dominant way that schools around the country” teach students to find information, create documents and turn them in, said Hal Friedlander, former chief information officer for the New York City Department of Education, the nation’s largest school district. “Google established itself as a fact in schools.”



Chicago Public Schools, the third-largest school district in the country, decided in 2012 to adopt Google's platform. Whitten Sabbatini for The New York Times

In doing so, Google is helping to drive a philosophical change in public education — prioritizing training children in skills like teamwork and problem-solving while de-emphasizing the teaching of traditional academic knowledge, like math formulas. It puts Google, and the tech economy, at the center of one of the great debates that has raged in American education for more than a century: whether the purpose of public schools is to turn out knowledgeable citizens or skilled workers.

The director of Google's education apps group, Jonathan Rochelle, touched on that idea in a speech at an industry conference last year. Referring to his own children, he said: "I cannot answer for them what they are going to do with the quadratic equation. I don't know why they are learning it." He added, "And I don't know why they can't ask Google for the answer if the answer is right there."

Schools may be giving Google more than they are getting: generations of future customers.

Google makes \$30 per device by selling management services for the millions of Chromebooks that ship to schools. But by habituating students to its offerings at a young age, Google obtains something much more valuable.

Every year, several million American students graduate from high school. And not only does Google make it easy for those who have school Google accounts to upload their trove of school Gmail, Docs and other files to regular Google consumer accounts — but schools encourage them to do so. This month, for instance, Chatfield Senior High School in Littleton, Colo., sent out a notice urging seniors to "make sure" they convert their school account "to a personal Gmail account."

That doesn't sit well with some parents. They warn that Google could profit by using personal details from their children's school email to build more powerful marketing profiles of them as young adults.

"My concern is that they are working on developing a profile of this child that, when they hit maturity, they are able to create a better profile," said David Barsotti, an information technology project manager in the Chicago area whose daughter uses Google tools in elementary school. "That is a problem, in my opinion."

Mr. Rochelle of Google said that when students transfer their school emails and files to a personal Google account, that account is governed by Google's privacy policy. "Personal Gmail accounts may serve ads," he said, but files in Google Drive are "never scanned for the purpose of showing ads."

Google, a unit of the \$652 billion Alphabet, is the latest big contender in a decades-old battle among tech companies to hook students as future customers. "If you get someone on your operating system early, then you get that loyalty early, and potentially for life," said Mike Fisher, an education technology analyst at

Futuresource Consulting, a research company.

Google captured these next-generation users so quickly by outpacing its rivals in both educational product development and marketing.

In 2013, while other tech firms seemed largely content to sell their existing consumer and business offerings to schools, Mr. Rochelle, a co-developer of Google Docs, set up a team at Google to create apps specifically for schools.

To spread those tools, Jaime Casap, Google's global education evangelist, began traveling around the country with a motivational message: Rather than tout specific Google products, Mr. Casap told educators that they could improve their students' college and career prospects by creatively using online tools.

"Teachers really helped to drive adoption of Google in the classroom, while Apple and Microsoft continued to leverage traditional sales channels," said Phillip DiBartolo, the chief information officer of Chicago Public Schools.

But that also caused problems in Chicago and another district when Google went looking for teachers to try a new app — effectively bypassing district administrators. In both cases, Google found itself reined in.

Unlike Apple or Microsoft, which make money primarily by selling devices or software services, Google derives most of its revenue from online advertising — much of it targeted through sophisticated use of people's data. Questions about how Google might use data gleaned from students' online activities have dogged the company for years.

"Unless we know what is collected, why it is collected, how it is used and a review of it is possible, we can never understand with certainty how this information could be used to help or hurt a kid," said Bill Fitzgerald of Common Sense Media, a children's advocacy group, who vets the security and privacy of classroom apps.

Google declined to provide a breakdown of the exact details the company collects from student use of its services. Bram Bout, director of Google's education unit, pointed to a Google privacy notice listing the categories of information that the company's education services collect, like location data and "details of how a user used our service."

Mr. Bout said that student data in Google's core education services (including Gmail, Calendar and Docs) "is only used to provide the services themselves, so students can do things like communicate using email." These services do not show ads, he said, and "do not use personal data resulting from use of these services to target ads."

Some parents, school administrators and privacy advocates believe that's not enough. They say Google should be more forthcoming about the details it collects about students, why it collects them and how it uses them.

"If my daughter came home and logged on to Google Docs on my computer at home, they'll know it was now coming from this address," said Mr. Barsotti, the Chicago-area project manager. "If this is truly for educational purposes, what is their business model and why do they need to collect that?"

A Campus Marketing Machine

Mr. Casap, the Google education evangelist, likes to recount Google's emergence as an education powerhouse as a story of lucky coincidences. The first occurred in 2006 when the company hired him to develop new business at its office on the campus of Arizona State University in Tempe.

Mr. Casap quickly persuaded university officials to scrap their costly internal email service (an unusual move at the time) and replace it with a free version of the Gmail-and-Docs package that Google had been selling to companies. In one semester, the vast majority of the university's approximately 65,000 students signed up.



When Google's education strategy proved successful at the college level, Jaime Casap, the company's global education evangelist, decided to apply it to public schools. Nick Cote for The New York Times

And a new Google business was born.

Mr. Casap then invited university officials on a road show to share their success story with other schools. "It caused a firestorm," Mr. Casap said. Northwestern University, the University of Southern California and many others followed.

This became Google's education marketing playbook: Woo school officials with easy-to-use, money-saving services. Then enlist schools to market to other schools, holding up early adopters as forward thinkers among their peers.

The strategy proved so successful in higher education that Mr. Casap decided to try it with public schools.

As it happened, officials at the Oregon Department of Education were looking to help local schools cut their email costs, said Steve Nelson, a former department official. In 2010, the state officially made Google's education apps available to its school districts.

"That caused the same kind of cascade," Mr. Casap said. School districts around the country began contacting him, and he referred them to Mr. Nelson, who related Oregon's experience with Google's apps.

By then, Google was developing a growth strategy aimed at teachers — the gatekeepers to the classroom — who could influence the administrators who make technology decisions. "The driving force tends to be the pedagogical side," Mr. Bout, the Google education executive, said. "That is something we really embraced."

Google set up dozens of online communities, called Google Educator Groups, where teachers could swap ideas for using its tech. It started training programs with names like Certified Innovator to credential teachers who wanted to establish their expertise in Google's tools or teach their peers to use them.

Soon, teachers began to talk up Google on social media and in sessions at education technology conferences. And Google became a more visible exhibitor and sponsor at such events. Google also encouraged school districts that had adopted its tools to hold "leadership symposiums" where administrators could share their experiences with neighboring districts.



Jonathan Rochelle (with glasses), director of Google's education-apps group, at a party the company gave for teachers attending an education technology conference last summer. Nick Cote for The New York Times

Although business practices like encouraging educators to spread the word to their peers have become commonplace among education technology firms, Google has successfully deployed these techniques on a such a large scale that some critics say the company has co-opted public school employees to gain market dominance.

“Companies are exploiting the education space for sales and public good will,” said Douglas A. Levin, the president of EdTech Strategies, a consulting firm. Parents and educators should be questioning Google’s pervasiveness in schools, he added, and examining “how those in the public sector are carrying the message of Google branding and marketing.”

Mr. Bout of Google disagreed, saying that the company’s outreach to educators was not a marketing exercise. Rather, he said, it was an effort to improve education by helping teachers learn directly from their peers how to most effectively use Google’s tools.

“We help to amplify the stories and voices of educators who have lessons learned,” he said, “because it can be challenging for educators to find ways to share with each other.”

Dethroning Microsoft

At Chicago Public Schools, the teacher-centric strategy played out almost perfectly.

In 2012, Jennie Magiera, then a fourth-grade teacher in Chicago, wanted her students to use Google Docs, which enables multiple people to work simultaneously in the same document. Because the district wasn’t yet using Google’s apps, she said, she independently set up six consumer accounts for her class.

“We were bootlegging using Google apps,” Ms. Magiera recalled in a phone interview. “I just knew I needed my kids to collaborate,” she said, touching on one of Google’s own main arguments for its products.

Chicago administrators like Lachlan Tidmarsh, then the school district’s chief information officer, visited Ms. Magiera’s classroom to observe. Mr. Tidmarsh said he concluded that if individual teachers were already using Google’s services, the district should officially adopt the platform — to make sure, for instance, that younger children couldn’t email with strangers.

Ms. Magiera’s advocacy came at an ideal moment. Chicago Public Schools was looking to trim the \$2 million a year it was spending on Microsoft Exchange and another email service; it had opened bidding for a less expensive program.

A committee that included administrators familiar with Microsoft, as well as Ms. Magiera, reviewed presentations from several companies. In March 2012, the district chose Google.

Microsoft executives were disappointed, said Edward Wagner, the district’s director of infrastructure services. But at that time, Mr. Wagner said, Microsoft had neither a free array of web-based products for schools on par with Google’s nor Google’s level of grass-roots classroom support. “They didn’t have the teachers and the principals,” he said.

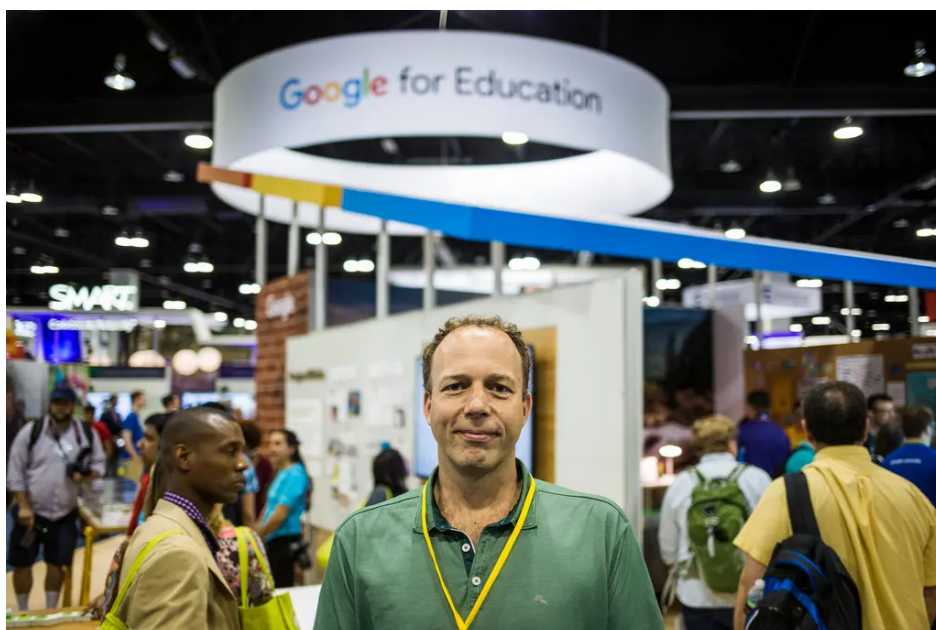
Quickly, though, a data privacy and security issue emerged, exposing a culture clash between Google’s business practices and a major school district’s values.

In interviews, Chicago administrators said they asked Google to sign a contract agreeing, among other things, to comply with the federal Family Educational Rights and Privacy Act. That law permits federally funded educational institutions to share students’ personally identifiable information with certain school vendors, provided those companies use that information only for school purposes.

Instead, Google initially proposed abiding by its own company policies, Mr. Wagner said, and followed up by emailing links to those policies — terms that the company could change at any time. “Our lawyers were a little bit apoplectic when they were given links to security things,” Mr. Wagner said. “I don’t want a link that can change.”

Mr. Nelson, the former education official in Oregon, reported similar frustrations over student privacy when his state negotiated a contract with Google. “That’s why it took 16 months,” he said.

Mr. Bout of Google said that the tech company had “always taken the compliance needs of our education users seriously.” He added that “even early versions” of the company’s agreements for its education apps had “addressed” the federal education privacy law.



Bram Bout, the director of Google’s education unit. Nick Cote for The New York Times

Today, Google’s standard agreements with schools for its education apps include a commitment to comply with

that law.

Since adopting Google apps, Chicago schools have saved about \$1.6 million annually on email and related costs, a district spokesman said.

Google then enlisted Mr. Tidmarsh, who now works in technology at a health care company, to share his enthusiasm by contributing to a Google blog. In the post, Mr. Tidmarsh described creating 270,000 school Google accounts. “It was easily the fastest and smoothest migration of this scale I have ever seen,” he wrote. (He said he did not earn a fee for the post.)

“We were always enthusiastic to tell the Google story,” Mr. Tidmarsh said. “I would like to think dozens of school districts switched, based on our success.”

Ms. Magiera, now the chief innovation officer for another district, also helped Google’s cause. In 2012, as part of her effort to become a Google Certified Innovator in education, she said, she came up with the idea of having Chicago Public Schools hold a free conference — called Googlepalooza — to train teachers on Google’s tools. The annual event, co-sponsored by Google, now draws several thousand educators from the Chicago area, as well as a few from neighboring states.

(Ms. Magiera has since occasionally worked as a paid speaker for education technology organizations that train teachers on Google’s tools.)

“You can see it radiate out from certain geographic hubs, and that is very deliberate,” Mr. Bout said of Google’s growth strategy for education. “We are taking a very geographic approach because we know it works.”

Chromebooks Find an Audience

By then, Google had developed a simplified, low-cost laptop called the Chromebook. It ran on Google’s Chrome operating system and revolved largely around web apps, making it cheaper and often faster to boot up than traditional laptops loaded with locally stored software.

Although Google had a business audience in mind for Chromebooks, reviewers complained that the devices were of limited use without internet access.

But there was one interested audience: public schools. In the fall of 2011, Google invited school administrators to its Chicago office to meet Mr. Casap, hoping to interest them in Chromebooks.

Mr. Casap didn’t talk tech specs. Instead, he held the audience spellbound as he described the challenges he had faced as a Latino student growing up on welfare in a tough Manhattan neighborhood.

His message: Education is the great equalizer, and technology breaks down barriers between rich and poor students.

In the audience, Jason Markey, principal of East Leyden High School in Franklin Park, Ill., was converted. Students in his blue-collar district near O’Hare International Airport faced similar struggles. On the spot, Mr. Markey said, he abandoned his previous plans to buy Microsoft Windows laptops for 3,500 high school students. Now he wanted Chromebooks for them instead.

“I went up to Jaime immediately after the presentation and said, ‘Are you guys ready to ship these?’” Mr. Markey said.

Then Mr. Markey went back to his district to inform administrators and teachers that he wanted to order an unproven device that most of them had never heard of. “It was a tough announcement to make,” he conceded.

It was an opportune moment for Google to pitch lower-cost laptops to schools. Districts administering new online standardized tests needed laptops for students to take them on. And Google offered a robust way for districts to manage thousands of computers online: They could lock Chromebooks remotely so that students could not search the web during tests, or disable missing ones.

Another attraction: The Chromebook's cloud-storage approach made sharing among students easier. They could gain access to their documents no matter which Chromebook they used.

"That is one of the big reasons we took off in education," said Rajen Sheth, who oversees Google's Chromebook business. "In less than 10 seconds, a student can grab a Chromebook and be off and running."

The Chromebook's price and usability fit neatly into Mr. Casap's argument that, for students, access to technology was an issue of fairness. "I didn't want us to be vendors in the space," he said of Google's education philosophy in an interview last year at the SXSWedu conference in Austin, Tex. "I wanted us to be thought leaders, to have a point of view."

As he spoke, a group of students trooped past wearing purple superhero capes emblazoned with the logo for Microsoft OneNote, a rival classroom service. Spotting the capes, Mr. Casap said, "We don't do things like that." He added dryly, "I love gimmicks."

Some critics, though, contend that the equity argument for technology is itself a gimmick that promotes a self-serving Silicon Valley agenda: playing on educators' altruism to get schools to buy into laptops and apps.

"It centers learning on technology, not students," said Mr. Fitzgerald, the learning app analyst. "It is a very narrow lens on equity that leaves out things like student-teacher ratios."

(Mr. Casap said he would not advise school districts with deficiencies in areas like teaching or student support services to invest first in classroom technology.)

Mr. Markey, the East Leyden High School principal, had another equity concern. About 20 percent of his students lacked home internet access, he said. How would they do their homework on a Chromebook, which required a connection?



A student at Newton Bateman Elementary in Chicago. Chicago Public Schools has spent about \$33.5 million on 134,000 Chromebooks. Whitten Sabbatini for The New York Times

Google was already working on offline capabilities, Mr. Casap said, and ultimately modified its education apps so that students could take their work home on Chromebooks, then upload homework the next day using school Wi-Fi.

Soon, so many educators were visiting Leyden to see its tech setup that the district started an annual conference to host them. Last summer, Mr. Casap gave the keynote address. And Mr. Markey now occasionally works as a paid speaker for EdTechTeam, a company that holds Google boot camps for teachers.

In 2016, Chromebooks accounted for 58 percent of mobile devices shipped to primary and secondary schools in the United States, up from less than 1 percent in 2012, according to Futuresource Consulting, the research firm. Google does not make money directly from Chromebooks — which are manufactured by Samsung, Acer and other companies — but it does charge school districts a management service fee of \$30 per device. Chicago Public Schools has spent about \$33.5 million on 134,000 Chromebooks.

“I don’t think I can ever remember when a specific device and platform has taken off so quickly across different kinds of schools,” said David Andrade, a K-12 education strategist at CDW-G, a leading Chromebook dealer.

A ‘Mission Control’ App

In 2014, Google’s education juggernaut hit a speed bump in Chicago Public Schools. The culture clash illuminated profound differences between Google, a build-it-first-and-tweak-it-later Silicon Valley company, and a large, bureaucratic school district with student-protection rules to uphold.

Google had hoped that Chicago would become an early adopter of Google Classroom, its new app to help teachers take attendance, assign homework and do other tasks. In August 2014, a Google team flew to Chicago to demo Classroom at Googlepalooza, the school district’s annual teacher conference.

But Google had not anticipated Margaret Hahn.



Margaret Hahn, former director of technology change management for Chicago Public Schools, oversaw the district's yearlong pilot test of Google's Classroom app. Whitten Sabbatini for The New York Times

At the time, she was the school system's director of technology change management. Early on, she said, Google had invited teachers to try an initial version of Classroom, without first contacting the school district's technology administrators — effectively making a district policy decision from the outside. Now Google wanted Chicago Public Schools to switch on the app districtwide, she said, before determining whether it complied with local student-protection policies.

“You can't just hand out product and hope it will work in the classroom,” Ms. Hahn said. “You have to work with the districts to make sure that you are keeping the kids and the teachers safe.”

Jim Siegl, technology architect for Fairfax County Public Schools in Virginia, the nation's 10th-largest school district, reported a similar experience.

He said that Google had directly contacted certain Fairfax teachers who had volunteered to beta-test Classroom, giving them early access to the app. In so doing, he said, the company ignored the Google settings he had selected that were supposed to give his district control over which new Google services to switch on in its schools.

Mr. Siegl added that Google did not tell him which, or even how many, Fairfax teachers the company had enlisted to try out the Classroom app. And by the time he was able to shut off the app, Mr. Siegl said, teachers had already set up virtual classrooms on the service and started using it with their students.

He said he complained to Google.

“Because of who they are and how sprawling the ecosystem is,” Mr. Siegl said, “they are held up and need to meet a higher standard than any other vendor schools deal with.”

In an emailed statement, Mr. Bout said of the company's core education services, “In all cases, the use of these services is tied to the approval of an administrator who is responsible for overseeing a school's domain.”

Classroom was the brainchild of Mr. Rochelle, who started Google's education apps group, and Zach Yeskel, a Google product manager and former high school math teacher. They said they envisioned the app as a kind of "mission control" dashboard where teachers could more efficiently manage tasks like assigning and correcting homework, freeing teachers to spend more time with students. To create the app, they collaborated closely with teachers.

In May 2014, Google posted an announcement online, asking for volunteers to beta-test Classroom. More than 100,000 teachers worldwide responded, the company said, illustrating Google's power to rapidly stoke demand among educators. That August, Google made Classroom available to schools.

"They developed a real momentum with teachers," said Mr. Fisher of Futuresource Consulting. "Google Classroom was key to that."

That was too fast for Chicago Public Schools.

Administrators there wanted to test Classroom first to make sure it complied with district policies and fit their teachers' needs. So they set up a pilot program, involving about 275 teachers and several thousand students, to run for the entire school year. Every month, Ms. Hahn said, she collected teachers' feedback and sent it to Google.

"We wanted to help them do it right," Ms. Hahn said.

One immediate problem administrators identified: School board policy required employees to keep records of cyberbullying and other problematic comments. But Classroom initially did not do that. If a student wrote something offensive and a teacher deleted it, there was no archive.

"It took us a long time to get them to do it," Ms. Hahn said. She added, "Unfortunately, there were things that a district of our size needed that Google did not understand."

Google eventually added an archiving feature. The next fall, the Chicago district switched on Classroom. Teachers there later vetted other Google products, effectively becoming a test lab for the company. "We have said to Google many times, 'If it works in Chicago, it will work anywhere,'" Ms. Hahn said.

Mr. Bout of Google agreed, saying that Chicago Public Schools often made more stringent demands on Google than other school districts did.

"If you can get it in Chicago, it's sort of like you have passed a lot of tests," Mr. Bout said, "and then you can probably get it into any school in the country."



At an education technology conference last summer, a student tried out Google's virtual-reality field-trip app — software that Chicago Public Schools helped to test. Nick Cote for The New York Times

The relationship has benefited Chicago Public Schools, too.

In 2015, the district was reeling from a scandal: The Justice Department charged the Chicago Public Schools former chief executive Barbara Byrd-Bennett with steering more than \$23 million in no-bid contracts to two school vendors in exchange for kickbacks. Ms. Byrd-Bennett later pleaded guilty to one count of wire fraud and was sentenced in April to four and a half years in prison.

The fact that Chicago schools were vetting Google products, like the Classroom app, gave administrators a welcome counternarrative of the district's altruistically helping Google debug its products for schools across the country. And it remains a good story even as the district now faces a financial crisis.

Today, about 15 million primary- and secondary-school students in the United States use Classroom, Google said.

Google's ability to test its products on such a monumental scale has stoked concerns about whether the tech giant is exploiting public-school teachers and students for free labor. "It's a private company very creatively using public resources — in this instance, teachers' time and expertise — to build new markets at low cost," said Patricia Burch, an associate professor of education at the University of Southern California.

Mr. Rochelle, the Google executive, said that it was important for the company to have large, diverse sets of

educational users giving feedback — otherwise it might develop products that worked for only a few of them.

“Our goal is to build products that help educators and students,” Mr. Rochelle said. “Teachers tell us they appreciate the opportunity to get involved early and help shape our products to meet their needs.”

Ms. Hahn, who now works for the same health care company as Mr. Tidmarsh, agrees. She said that schools were getting something substantive in return from Google, something they had rarely received from other tech companies: quick product improvements that responded to teachers’ feedback.

After the Chicago schools tested Classroom, she said, members of Google’s education team started directly contacting her when they were seeking educators to try out the company’s innovations. “They no longer just turn stuff on,” she said. “They come to us first.”

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