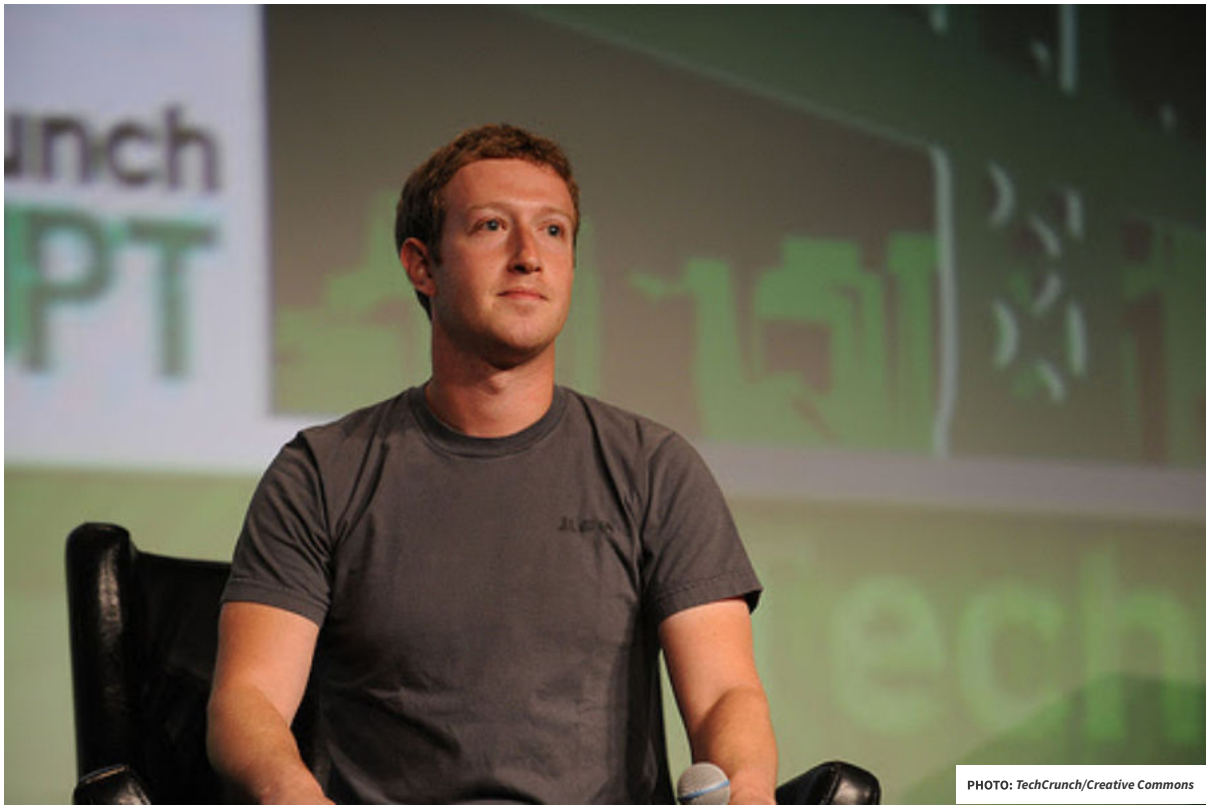
BEHIND THE NUMBERS

Why ‘personalized learning’ advocates like Mark Zuckerberg keep citing a 1984 study — and why it might not say much about schools today

BY MATT BARNUM - 5 HOURS AGO



Facebook founder Mark Zuckerberg.

Facebook founder Mark Zuckerberg made a bold statement in a recent essay: By giving students individual help, average students can be turned into exceptional ones.

"If a student is at the 50th percentile in their class and they receive effective one-on-one tutoring, they jump on average to the 98th percentile," Zuckerberg wrote.

It's a remarkable claim, one that strains the limits of belief. And for good reason: The results from the 1984 study underlying it have essentially never been seen in modern research on public schools.

Still, the results have become a popular talking point among those promoting the "personalized learning" approach that Zuckerberg's philanthropy is advancing. One video created by the Chan Zuckerberg Initiative features an illustration of a 50 on a graph zooming upward to hit 98. The New Schools Venture Fund, another influential education group that backs personalized learning, cites the same work by Benjamin Bloom.

But a close look at the study raises questions about its relevance to modern education debates and the ability of new buzzed-about programs to achieve remotely similar results.

"If you're really going to make these huge investments and huge pushes [based on this study], you might want to be absolutely sure that the analysis of that research is solid," said Ben Riley, head of the group Deans for Impact and a skeptic of personalized learning.

Jim Shelton, who heads CZI's education work, said in an interview that the organization relies on a great deal of other research, but highlights Bloom to illustrate in the best case scenario for what schools might accomplish.

"It stands to reason that many kids that currently perform at levels that we consider average or even below average could be performing at levels that we would consider superlative," he said.

Questions then and now about the meaning of Bloom's work

The conclusions on the effects of tutoring from Bloom's widely-cited paper are drawn from two studies conducted by University of Chicago graduate students.

One of those studies is available online, but reading the other requires some sleuthing. (We ended up paying for access through a service that compiles dissertations.)

In both studies, students were taught novel subject matter — probability or cartography — using different methods over the course of a few weeks. Some students were taught in a traditional lecture style, others received "mastery-based" teaching, and others received small group tutoring.

On a final test, students who were tutored one-on-one or in small groups came out far ahead, and in some cases the average tutored student beat 98 percent of those taught in the traditional way. Students who received the mastery-based teaching — which overlaps with modern conceptions of personalized learning — also did much better, though not as well as those tutored.

Jim Shelton of the Chan Zuckerberg Initiative in one of the organization's video, saying that the average student will move to 98th percentile with one-on-one tutoring.

The applicability of these studies today is an open question. Combined, the studies focus on just three schools and a few hundred students. And since this was done more than 30 years ago, things like what traditional instruction looks like may have substantially changed.

The papers include little information about those final tests, but it appears they were designed by the researchers, unlike a traditional standardized test. Researcher-created assessments on subjects that are totally new to students — like cartography and probability, in this case — tend to see students make the largest gains.

Bloom's work also doesn't focus on technology-based tutoring, a point personalized learning advocates usually acknowledge. "If it supports anything, it supports one-on-one human tutoring," Riley said.

But what earned the most attention, then and now, is how big of an impact tutoring had on students. The difference between tutoring and traditional instruction after just three weeks was two standard deviations — to researchers, a truly incredible result. It means bringing students from average to exceptional.

"I've never seen a study in education that found effects in the range of two standard deviations, so it's remarkable for that reason," said Jon Guryan, a Northwestern professor who has done research on tutoring.

Another researcher, Robert Slavin of Johns Hopkins University, logged concerns about Bloom's outsize claims as early as 1987. Focusing on such unusually large gains, he wrote, "is misleading out of context and potentially damaging to educational research," since it could lead researchers to "belittle" more realistic results.

Guryan's recent work, on tutoring of struggling students in Chicago, found what would normally be considered fairly large gains: about a quarter of a standard deviation on math standardized tests. Other recent research on intensive tutoring in public schools looks similar, in some cases showing even smaller effects. Meanwhile, studies on computer-based personalized learning have shown a range of effects — but none comes close to two standard deviations.

Bror Saxberg, CZI's vice president of learning science, acknowledged that Bloom's findings are bigger than in other research. But he said human and computer tutoring can have a substantial impact, pointing to a 2011 overview of research where results come close to a full standard deviation. (This overview included studies in a variety of contexts, including outside K-12 education.)

In sum, a number of studies suggest that Bloom's huge results are not plausible to expect in public schools today, and they have rarely been seen in other research.

Meanwhile, Zuckerberg, Shelton, and CZI's public statements imply that, with the right tools, students could see similar off-the-charts improvements.

Can 'personalized learning' drive huge gains? Advocates hope so.

Shelton analogized Bloom's work to the human quest to run a four-minute mile: a crazy-seeming goal that was eventually attained by a small number of elite runners.

"Everyone said it was impossible to break the four-minute mile, until somebody broke the four-minute mile," Shelton said. "Someone has broken the four-minute and its equivalent and we need to figure out how to do it and how to get a lot more people to be able to do it."

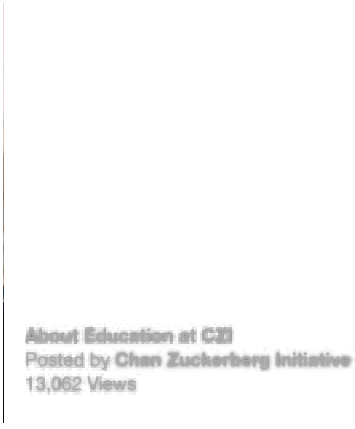
Many others also see Bloom's research less as a precise accounting of the results of tutoring and more as a call to action. Indeed, most of Bloom's paper amounts to him pondering a question philanthropists are grappling with today: How can schools get the benefits of individual tutoring without the prohibitive expense of actually hiring each student their own tutor?

"If the takeaway from Bloom is that by doing tutoring and mastery you're going to get two [standard deviation] gains — I don't think that's the right takeaway," said Todd Rose, a Harvard professor who has argued that schools need greater customization. (CZI has funded some of Rose's work.)

The value of the study, he says, is that "it speaks to a very different view of human potential than is embedded in our current system."

Debbie Veney, a spokesperson for New Schools Venture Fund, which is supported by CZI, had a similar take: "[Bloom's results] inspired and challenged many to figure how to achieve similar conditions in a more cost-effective way — which spawned many creative concepts and efforts to scale similar results."

That's in line with CZI's sweeping ambitions — "empower every teacher everywhere," as described in one CZI video — and deep pockets.



Zuckerberg and his wife Priscilla Chan have pledged to donate 99 percent of their Facebook shares — worth an estimated $45 billion in late 2015 — to CZI over their lifetime. The organization — which also focuses on criminal justice, immigration, and economic policy — is expected to give "hundreds of millions of dollars" per year to education causes.

The group has already supported a number of tech-based approaches to school, including the Summit learning platform, a computer program created by a charter network to help teachers personalize learning. CZI has also tried to broaden the

definition of personalized learning, funding organizations that offer free eye exams and small-group, in-person tutoring.

A spokesperson pointed to other research CZI relies on, including psychological studies from Rose and others on how children learn and develop and the work of Stanford professor Carol Dweck, which suggests that people with a "growth mindset" are more likely to succeed.

But Sarah Reckhow, who studies education philanthropy at Michigan State University, suggests that CZI's ambitious goals will meet the hard realities of the classroom and fall far short of Bloom's results.

"I do think they're setting themselves up to fail," she said. "If you look at educational research, if you look at what will most definitely vary once you to put something into practice … those effect sizes won't be replicated, but also there will probably be some cases where it will not turn out well or there will be unintended consequences."

Asked about his benchmarks for success, Shelton said it's not clear yet what is possible.

"We're at the beginning of our journey, not the end of our journey," he said. "We are in the business of trying to figure out how to solve this problem that has never been solved before."

By Matt Barnum @MATT_BARNUM MBARNUM@CHALKBEAT.ORG

IN THIS STORY: BEN RILEY, BENJAMIN BLOOM, BROR SAXBERG, CAROL DWECK, CHAN ZUCKERBERG INIATIVE, DEBBIE VENEY, JIM SHELTON, JON GURYAN, MARK ZUCKERBERG, NEW SCHOOLS VENTURE FUND, PERSONALIZED LEARNING, RESEARCH, SARAH RECKHOW, TODD ROSE

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SECOND BEST

Report: Colorado's charter school laws are the second best in the nation

BY ERICA MELTZER - 3 HOURS AGO

A student does classwork at James Irwin Charter Elementary School in Colorado Springs. (Denver Post file)

Last year's compromise on funding equity led the National Alliance for Public Charter Schools to move Colorado up to second place in its national ranking of the legal and regulatory environment in which charter schools have to operate.

The National Alliance for Public Charter Schools releases an annual ranking of which states have the best laws to support charter schools. Indiana remains at the top of this list for the third year in a row, while Colorado moved from No. 5 in 2017 to No. 2 in 2018.

The Alliance looks at how states measure up against a model charter law with 21 elements, the first of which is no caps on the number of charter schools that can exist. Other criteria include having multiple authorizers; transparent processes for application, renewal, and revocation; performance-based contracts; comprehensive monitoring and data collection; clear responsibilities around special education; automatic exemption from collective bargaining; and equal access to public funds for both operational and capital needs.

A compromise reached in the final days of the 2017 legislative session requires that school districts share revenue from voter-approved mill levy overrides with charter schools in those districts. Statewide, this change will mean tens of millions more dollars for the operating budgets of charter schools.

Here's what else the Alliance had to say about Colorado:

> Colorado's law does not cap public charter school growth, provides a fair amount of autonomy and accountability to charter schools, and provides multiple authorizers or a robust appellate process for charter school applicants. It has also made notable strides in recent years to provide more equitable funding to charter public schools — although some work remains to be done.
>
> Potential areas for improvement in the law include continuing to strengthen equitable access to capital funding and facilities and strengthening accountability for full-time virtual charter schools.

You can read the full report here.

By Erica Meltzer EMELTZER@CHALKBEAT.ORG

IN THIS STORY: CHARTER SCHOOLS, NATIONAL ALLIANCE FOR PUBLIC CHARTER SCHOOLS, RANKINGS, SCHOOL FUNDING

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MONEY MATTERS

Here's how New York City divvies up school funding — and why critics say the system is flawed

BY MONICA DISARE - 5 HOURS AGO

Governor Cuomo delivers his executive budget address.

One of Gov. Andrew Cuomo's priorities this year, he said recently, is to make sure that needy schools get their fair share of funding.

"Right now we have no idea where the money is going," Cuomo said earlier this month. "We have a formula. We direct it to the poorer districts. But what did Buffalo do with it? What does New York City do with it?"

If he really wants to know what New York City does with its school aid, he could start by looking at the city's "Fair Student Funding" formula.

The city adopted the school-budget system in 2007 as a way to send more money to schools with the neediest students. It replaced a system where funding was tied to teacher salaries, which had advantaged high-performing schools that ended up receiving more money because they attracted more experienced teachers with higher salaries.

But a decade later, the funding formula has not lived up to its promise. Most schools have never received the full amount the formula says they're owed, while some actually get more than their fair share. And some principals say the formula has had the effect of making veteran teachers hard to afford.

One example: At the Metropolitan Expeditionary Learning School in Queens, a number of veteran staff members recently qualified for longevity-based raises that added roughly $340,000 to the school's expenses. Because the formula does not give schools more money when teacher salaries rise, the co-principals had to start charging families for after-school programs and cut a planned teaching position to make ends meet.

"Eventually if all of our teachers keep staying with us," said co-principal Damon McCord, "we won't have any money."

Now, as Cuomo shines a light on school-funding equity, here's how the process works (or not) in New York City.

How does New York City divvy up school funding?

The funding formula that New York City adopted in 2007 sets school budgets based on the grades they serve, their type (for instance, whether they are vocational or selective), and their student populations.

Schools receive extra money for students who are poor, struggling academically, have a disability, or are learning English. The idea is that needier students require extra support — and their schools need additional resources — if they're to catch up with their better-off peers.

The formula also rewards certain selective schools, under the premise that high-achieving students also need extra attention to reach their full potential.

New York City is one of about 30 districts across the country to use this type of weighted funding system, according to the Baltimore Sun. About $6 billion of the New York City education department's $30.8 billion budget flows through the formula, which is designed to cover schools' basic expenses — most importantly, teacher salaries.

In addition to allocating more money to educate the neediest schools, the formula was also designed to give principals more power. Under this system, principals can decide whether to devote more of their budgets to seasoned (and costly) teachers, or

to hire more junior teachers and spend the savings on an after-school program, for example.

The formula was also meant to impose some order on what was an opaque, freewheeling budget process. In the past, principals haggled with their superintendents for more money, favoring those who could best work the system, according to Eric Nadelstern, a former principal under the old system who was an education department official when the formula was adopted.

"You had massive inequities," said Nadelstern, now a professor at Teachers College. "The difference could amount to thousands of dollars per student, particularly for schools in middle-class neighborhoods and schools in poor neighborhoods."

What's wrong the city's budgeting system?

The Fair Student Funding formula has never quite lived up to its ambitions.

When it was first adopted, city officials wanted to avoid taking money from wealthy schools, so instead they promised to raise poorer schools' budgets. However, around the same time, the Great Recession hit, causing New York State to roll back planned increases in school aid to districts.

As a result, the formula has never been fully funded — and some poorer schools have never quite caught up to wealthier ones. Last year, only 23 percent of city schools received funding at or above the level to which the formula says they're entitled, according to numbers provided by the city's Independent Budget Office.

That creates situations like the one inside a school building in Lower Manhattan shared by New Design High School, which serves a very high-needs student population but does not see its full allocation, and the High School for Dual Language and Asian Studies, which enrolls a less needy population but gets more than its fair share.

The dual language school — where about 3 percent of students have a disability and 85 percent are poor — received 112 percent of what the Fair Student Funding formula said it was owed last year. By contrast, New Design — where nearly 28 percent of students have a disability and 100 percent are poor — got just 92 percent of its formula money.

"This whole system is just holding an old, antiquated, unfair system into place," said Scott Conti, New Design's principal.

Critics have also questioned the part of the formula that gives extra money to selective schools that enroll higher-achieving students — and which tend to enroll relatively small shares of black and Hispanic students. More than a dozen elite high schools get about $1,000 extra per student through the formula, which has added up to more than $100 million since 2012, according to WNYC.

Others have suggested that the city should spend less on district-wide initiatives, and instead give the money directly to schools to spend. Mayor Bill de Blasio's "Equity and Excellence" agenda devotes millions of dollars to a slew of efforts, including more computer-science classes, advanced courses, and college counseling. Some principals say they would rather the city pour that money into their budgets.

“My preference would be for them to cancel all those programs and give it all to the Fair Student Funding formula,” said a Bronx principal who asked to remain anonymous.

City officials say they are working to increase funding for the formula, and added that Equity and Excellence and other initiatives directly support schools. But they also said the city needs help from the state in order to fully fund the formula.

“By raising the Fair Student Funding floor citywide and making targeted investments through our Equity and Excellence for All agenda, this administration is investing more than ever in all our schools,” said education department spokesman Douglas Cohen in a statement. “To fully support Fair Student Funding, we need the state to meet its obligation to provide Campaign for Fiscal Equity funding.”

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IN THIS STORY: FAIR STUDENT FUNDING, GOVERNOR ANDREW CUOMO, JOEL KLEIN, SCHOOL FUNDING

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