Power Of

How a bunch of startups is trying to make math appealing by killing the fear of the subject among students

By RAJIV SINGH









It was an elementary question for 12-year-olds. "Which is the larger number: 0.19 or 0.2?" Manan Khurma, an IIT alumnus who started math edtech startup Cuemath in 2013, posed it to a bunch of chirpy eight graders in Bengaluru. Most of the replies were unexpected, and alarming. "If they are picking 0.19 over 0.2, then there is something fundamentally wrong," he mused. But what stunned Khurma most was something else. Decimals as a concept is introduced to the kids when they are in fourth grade. Getting a wrong reply to a question meant for fourth or fifth graders at most was disturbing.

Five years later in Jamshedpur, Mahesh Singh, an HR professional, discovered something else equally disconcerting. His daughter, studying in class VI then, was struggling to solve a simple equation: 3+6x2. She tried multiple times but in vain. The right way is to multiply first and then add. His daughter was adding first. Singh knew the basics was missing. He also knew another stark reality. If the concepts were not made clear to his ward, she would start running away from the subject. "This is what I did when I was in school," recalls Singh. Mugging up formula, looking to get the right answer even without understanding the questions, and skipping the chapters he couldn't understand a wee bit, Singh had a troubled relationship with the subject. "I dreaded math. I even bunked the classes," he recounts.

SHUTTERSTOCK



"The way math was taught to us was more like a horror show. And the message was *'darna zaroori hai* (you need to fear)."

MAHESH SINGH
HR PROFESSIONAL AND FATHER OF TWO DAUGHTERS

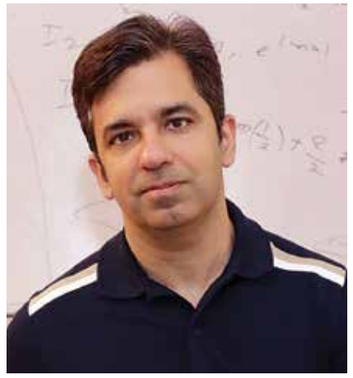
"Once I understood the concepts, I started enjoying math. I stopped running away from it."

TANUSHA SINGH (EXTREME RIGHT)
CLASS IX STUDENT

Two words, both starting with F, started haunting Singh: Fear and fail.

Meanwhile in Jalandhar early this year, Sachin Gulati was trying to kill the 'F' factor. "We first need to decode the fear," he said to a bunch of parents who had come for orientation class of math with their kids studying in grade 8. He too started with a simple question. "What do your kids fear the most," he asked the anxious parents. After getting all kinds of replies, Gulati shot the right answer. "They fear the known, and the unknown," he says, adding that both are directly proportional. If students fear the unknown, which means they don't understand the subject, then they will fear the known, which means the chances of flunking in math becomes high. "The unknown and known feed on each other. It's a vicious circle," stresses the founder of bootstrapped venture TruMath.

A bunch of edtech startups, including the ones run by Gulati and Khurma, is trying to break the vicious circle of 'known' and 'unknown' by taking fear out of math, and making it appealing to students. The idea is simple: Make kids fall in love with the subject which they get introduced to from kindergarten. No emphasis on marks, claims of putting kids into IIT, or getting an engineering seat or promise of transforming the little ones into Albert Einstein. There is no hard-sell except the promise of letting the child enjoy the subject by keeping her curiosity intact.



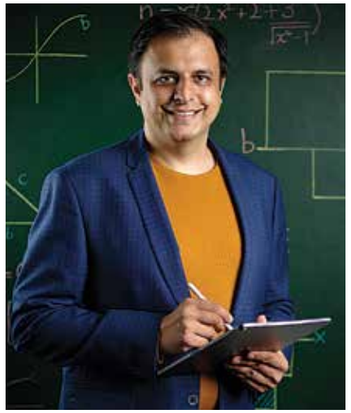
TruMath
Name and Game
- Focused on math for students from **class 8-12**
- Based out of **Jalandhar**; founded by **Sachin Gulati** in **2017**
- Bootstraped; claims to have **1.8 lakh students** across all platforms

"Math must ignite curiosity among kids, and not kill it."

SACHIN GULATI
FOUNDER, TRUMATH

At Cuemath, Khurma's main focus is on the basics. "You can't learn swimming by watching a bunch of YouTube videos," he says, explaining the approach taken by his startup which has raised over $65 million from marquee backers such as Sequoia, Unitus and Google (Capital G). Math, Khurma underlines, can't be learnt by watching a teacher solve problems. The students, he says, are guided towards the answer rather than giving them the solution on a platter. "It makes learning more effective," he contends. A topic like fractions is explained using a birthday cake, while decimals is represented by the money people spend every day. Instead of completing a chapter and moving on to the next, the focus is letting students grasp the concepts by taking their own sweet time. "We make

NISHANT RATNAKAR



Cuemath
Name and Game
- A math edtech startup founded by **Manan Khurma** in **December 2013**
- Headquartered in Bengaluru; spread across **17+ countries**
- Raised around **$65 million** so far
- Last funding round was in **December 2020** when it raised **$40 million**
- Counts **Google** (Capital G), **Sequoia** and **Unitus Ventures** among backers
- Taught over **200K students**; over a quarter are from abroad
- Had **4,500 teachers** in **2020**; target for this year is **8,000**
- Posted operating revenue **₹24.43 crore** in **FY20**

"You can't learn swimming by watching a bunch of YouTube videos. Similarly, math can't be learnt by watching a teacher solve problems."

MANAN KHURMA
FOUNDER, CUEMATH

them ask 'why.' For long, they have been trained to ask 'what'," he says.

For Prerna Jhunjhunwala, the big question was how to engage 3-8 year olds and make math entertaining. The founder of the bootstrapped e-learning startup Creative Galileo found an interesting technique: The toon character 'Little Singham.' Though math, she explains, is one of the most interesting subjects, it scares many children. "We are making learning fun for children where concepts are represented through their favourite characters," she adds. The idea is to transform numbers into something creative, immersive and interactive. At a young age, Jhunjhunwala points out, children need to learn to create, use number concepts, patterns and skills, and solve problems in a playful fashion. "Teachers need to talk and teach in the language kids understand," she says.

Aanand Srinivas would agree. "Teachers think their job is to complete the syllabus," says the co-founder of Bengaluru-based StayQrious, which was started last January. The biggest problem, he points out, is that schools don't teach children how learning works. "It's kind of weird, and it's a blind spot environment," he says, explaining his point. The blind spot in education is that kids are being asked to learn for 18 years of their life, but are never told how learning works. "It's kind of imitating a bodybuilder by looking at what he is doing by standing outside the gym," he says.

There is another deep-rooted problem, which has made math unapproachable. "Parents want instant results, some sort of magical pill for their kids," says Khurma of Cuemath. The entrepreneur talks about the early part of his innings when he would struggle to get students. Reason: The rewiring phase for any student joining the startup would last for a few months. That's the time, say six months, when the kids are made to unlearn and start from scratch, he says. But the 'cooling period' was not liked by parents, who were used to quick fixes. "That was a big challenge," he adds.

Back in Jamshedpur, Singh points out another problem. Over the last decade or so in India, math has been either solely identified with engineering or computer science or commerce. "Parents and coaching

SELVAPRAKASH LAKSHMANAN



StayQrious
Name and Game
- An online edtech startup for **STEM** (science, technology, engineering and mathematics) foundations
- Co-founded by **Aanand Srinivas, Avinash Anand, and Shankar Ram** in **January 2020**; headquartered in Bengaluru
- Backed by **YCombinator**, raised a **$2 million** seed round in **July 2020**
- Investors include **Draper Associates** (backers of Spacex and Tesla)

"The biggest cause of anxiety in students is math. It's a language but is not taught like a language."

AANAND SRINIVAS
CO-FOUNDER, STAYQRIOUS

centres are responsible for this labelling, which has done more harm," he says. A child should be allowed to enjoy the subject and then take a call of continuing with it. "You might be able to crack the IIT or get into an engineering college by mugging," he adds. But the real problem starts once you are in. Many of Singh's friends dropped out of engineering colleges because they couldn't cope with pressure. It's only when we stop glamourising Shakuntala Devi and Einstein, he adds, that the numbers will add up. F

"The Middle Class Buys Dreams. The Businessman Sells Unrealistic Ones"

Anand Kumar starts the interview by setting the context. "Let's get the math right," says the mathematician. Edtech today, underlines the man behind 'Super 30'—a programme that provides free IIT entrance coaching to 30 students from the poorest families every year—has one dominating theme. "The focus is not on how much children are learning. The emphasis is on the valuation of the startup, on how much funding it gets," Kumar laments, explaining how the education ecosystem in India has undergone a deplorable change over the last few decades. A few decades back, he lets on, the biggest compliment for a teacher was when students would come to them say: *kya padhate hain, sir* (you teach so well). Then the equation tilted more towards parents, who started valuing teachers solely on the basis of number of students who cleared engineering or medical entrance. The praise now: *'Kya exam clear karate hain, sir* (you make them pass so well). "Now the admiration for a teacher is *kahan padhate hain, sir* (where do you teach)," he says in a free-wheeling interview with *Forbes India*. Edited excerpts:



MANISH SINHA FOR FORBES INDIA

ON THE 'BUSINESS' OF EDUCATION

Who turned it into a business? Who glamourised it? When media writes about the hefty package of the guys from IIT and IIM at the campus placement, what kind of message are we conveying to the parents, kids and all stakeholders? When you talk about the valuation, unicorns and the funding of edtech, what are you portraying?

There are news and features about top rich Indians. But have we seen anything about top teachers of India or top scientists of India? The only yardstick to judge a person is how much money is he earning or how much funding he is getting into his venture. When success gets equated with money, it's natural for education to turn into a business. It's a sorry state of affairs.

"When success gets equated with money, it's natural for education to turn into a business"

— ANAND KUMAR, SUPER 30 FOUNDER

ON THE ROLE OF PARENTS

They are more concerned about how many marks have been scored by their wards. They are more bothered about their kids making it to IIT or medicine. They will spend whatever it takes to enrol them in all kinds of coaching. But have they asked if their child has done something creative? Has she written a poem? Has she learnt a new art or is she interested in some sports? Nobody asks a child to solve a mathematical problem in four different ways. We are just turning our kids into machines being programed just to earn money when they grow up. Every parent wants the best teacher for their children, but ask them: Would they like their kids to take teaching as a career? If not, from where will we get good teachers? We treat our kids like an 'unfinished mission.' What we couldn't do, we want our kids to become or achieve. The only reason I am successful today, if you think I am, is that my parents never put any pressure on me. They let me be whatever I wanted to be. That's the biggest gift a parent can give, not fancy mobiles, costly gifts or cars.

ON DECODING THE CODING MANIA

Indians, especially the ones from middle class, buy dreams. And a good businessman, a seller, knows this inherent weakness of the buyer. So they sell dreams, unrealistic dreams. They play on the mentality and mindset of the buyer. Take, for instance, what any parent does when they go shopping. The first priority is the kid. They will cut down on their expenses, but will want the best for their kids. What are the coding guys selling? They are also showing a dream: The kids who learn coding at an early age will become a prodigy, successful in life, and end up joining a big MNC or at best will make some app and earn millions. The reality, unfortunately, is nowhere close to the dream. I will share an instance which will expose how coding business is happening in India. Last week, a friend of mine who is unmarried, gets a call from one of the coding startups. The bait is tempting: 50 percent off if you get your son into the coding class. It's ridiculous. That guy doesn't have a family. You are selling a comb to a bald person. The outrageous part is how the guy on the call sweetens the deal. "Your wife came with your son last week for a free class. So we will give an additional 10 percent off if he enrols." Imagine!

ON MUSHROOMING COACHING CENTRES

Look at what is happening at Kota or other coaching centres. The parents didn't care if the child wanted to study science or medicine. They just sent them with unrealistic pressure and a dream. The coaching guys didn't check the aptitude of the kids. They just want headcount because it means money. What's the end result? Suicide. The failure tag is too grim for the child to bear. There are parents in Bihar who sell their land to send their children to Kota or other centres.

ON PAUCITY OF GOOD TEACHERS

Who is getting into this profession out of choice? Find out. The need of the hour is to find passionate people into teaching. India need teachers who can make things simple for students, who can simplify and explain even the complex of things. F

Super 30 Founder Anand Kumar believes that India needs more passionate teachers