

“IN 500 YEARS I HOPE PEOPLE LOOK BACK AND SAY, “IMAGINE, KIDS HAD TO LEARN IN CLASSROOMS THAT WERE LIKE FACTORIES AND IT WAS UNHEARD OF FOR AN EIGHT-YEAR-OLD TO UNDERSTAND QUANTUM PHYSICS””

What Salman Khan, the founder of the non-profit online school Khan Academy, has to say to the parent of an 11-year-old is frankly terrifying: ‘If your child is not placed in the fast track for math in sixth grade, his chances of going to Stanford are close to zero. His chances of becoming a doctor or an engineer are probably zero. And it’s decided when he’s 11 years old.’

That’s tragic, I find myself blurting out when we meet at his office in Mountain View, California, the heart of Silicon Valley. As the mother of an 11-year-old who has just started sixth grade at a California middle school – and still waiting for the results of the deciding test – this pronouncement hits rather too close to home. ‘It is,’ Khan agrees wholeheartedly. ‘And many of those kids who don’t get into the fast track could easily be there. They just didn’t test well on the day.’

This is exactly what happened to his cousin Nadia. Usually a straight-A student, she had done poorly in a maths streaming test in sixth grade because she had failed to understand one concept. This one test result, Khan says, might have harmed her academic destiny. Nadia’s distraught mother turned to Khan for help. At the time he was a hedge-fund analyst in Boston, Massachusetts, and was known in the family for having a head for numbers. After persuading the school to let her retake the test, Khan tutored her remotely over the phone and using a simple computer program called Yahoo Doodle. Nadia passed her retake with flying colours, and soon many more relations and friends wanted Khan’s help. Unable to handle the volume

of requests, at the suggestion of a friend he started to record his lessons on video and post them on YouTube.

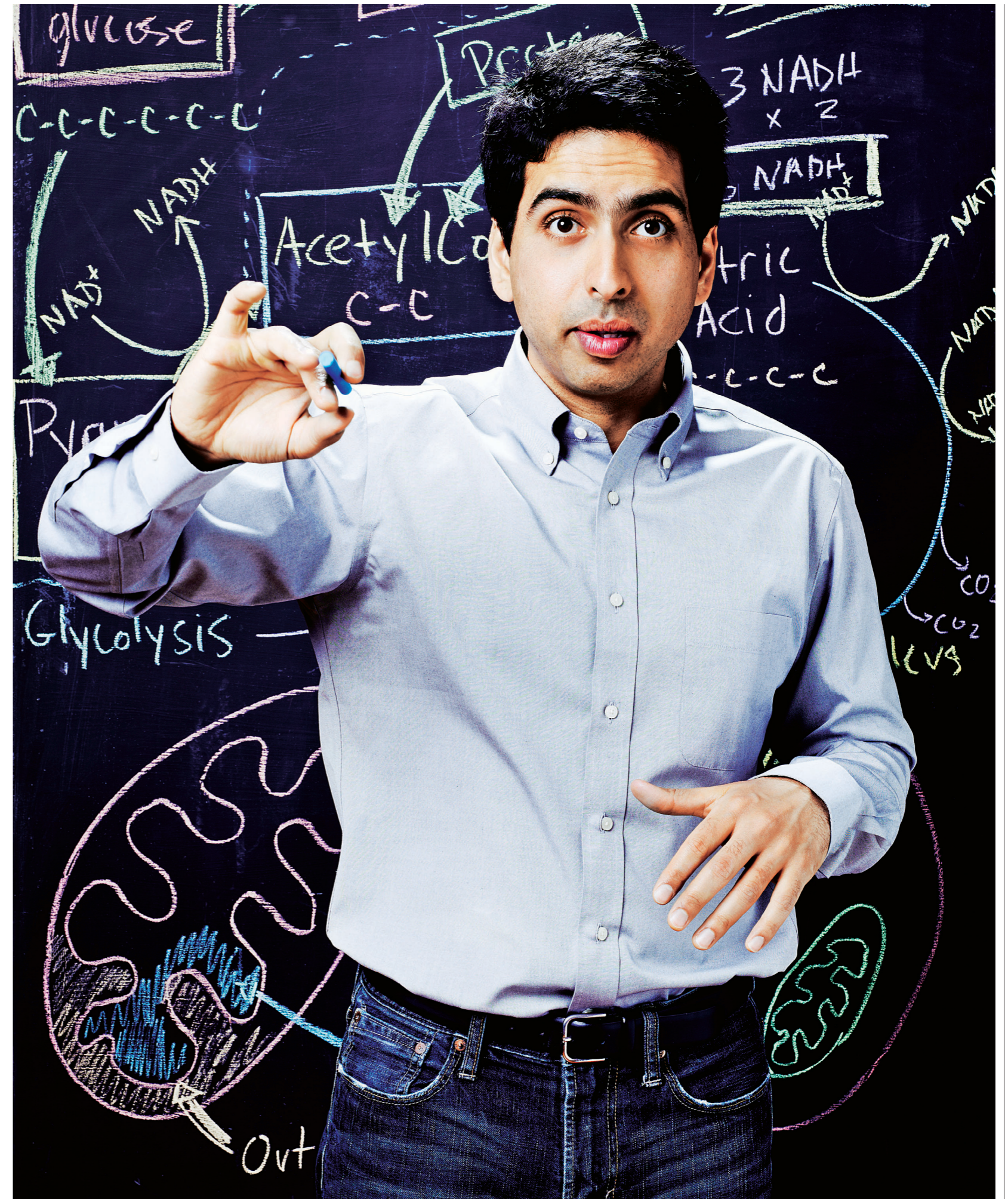
‘At first I was dismissive,’ Khan says. ‘I thought YouTube was for dogs on skateboards.’ He now has more than 3,000 videos to his name, which are watched by nearly three million unique users a month, via YouTube and his own website, khanacademy.org. His friendly, avuncular style, coupled with his knack for making difficult concepts seem simple, has helped children – and adults – all over the world move into the fast track. As well as videos, the Khan Academy website incorporates an exercise system that generates problems for students based on skill level and performance, and a data dashboard so that teachers can monitor individual progress.

Time magazine this year put Khan at number four on its list of the 100 most influential people in the world. Backed by Bill Gates and Google, Khan says his aim is to create ‘the world’s first free, world-class virtual school where anyone can learn anything’. Some teachers are wary of him, thinking that he is trying to supplant them, but many more embrace his approach and have started ‘flipping’ the classroom, encouraging students to watch Khan’s videos at home and then tackling maths problems together in class.

You might expect a man with such influence to have state-of-the-art headquarters, but Khan’s premises are unprepossessing. Arriving at an unmarked red door, sandwiched between a clothes shop and a Chinese restaurant, I decide I have the wrong address – especially after ringing the bell for 10 minutes with no response.

Salman Khan’s educational videos are lapped up by millions, including Bill Gates’s children. *Time* magazine has named him the fourth most influential person in the world. But why stop there? Khan has devised a formula that will revolutionise classroom learning. By Helena de Bertodano.

Photograph by Jamie Chung



Eventually I rouse someone on the telephone and the door is opened. Khan is busy in his office finishing off a video about the gravitational field of a pendulum, so I wait outside in a room with a whiteboard covered in mathematical formulae and a chart entitled *INSIDE A HAIRDRYER*. When his assistant shows me in, Khan appears at first to be slightly annoyed at this interruption. Sitting on a leather swivel chair behind a heavy oak desk surrounded by pictures of his wife – a doctor – and their two young children, he continues to work for a few minutes. But once he warms up it becomes clear that the initial awkwardness is down to shyness, not rudeness. ‘I’m not very good when people want to meet me,’ he says. ‘I want to hide a little bit.’

He is dressed in standard Silicon Valley genius attire: jeans, Nike trainers, casual shirt. A guitar is propped against the wall and in front of him is a microphone that he uses to record his lessons. The shelves are stuffed with books on subjects ranging from topology to capital markets – as well as a few in the ‘...for Dummies’ series. He was lambasted when he admitted on a chat show that he sometimes used Wikipedia to help prepare his lessons. ‘Wikipedia has been empirically proven to be more accurate than the old encyclopedias by an order of magnitude,’ he points out a little defensively now. However Khan gets his information, few can deny his impact. Offline versions of his videos have been distributed in rural areas of many developing countries in Asia, Latin America and Africa. ‘We aim to give kids in poor villages around the world virtually the same experience as kids in Silicon Valley.’

Born in New Orleans, Khan, 35, did not have

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a privileged upbringing. ‘We lived at the poverty line and I was on free school lunches,’ he says. ‘My mother [born in India] is always very embarrassed when I say that but I love that about this country: people don’t care where you come from.’

His father, born in Bangladesh, left the family when Sal – as Khan is known – was two and his mother brought him and his older sister up while trying to hold down odd jobs in convenience stores. ‘My dad moved to Philadelphia and was more of a notion than a person: I met him once for an evening when I was 12 and he passed away when I was 13,’ Khan says. ‘He never sent child support I think because he had no money, despite being a doctor. Within our means we lived well and there was always food on the table. I give my mom credit for that.’

He is not sure where his urge to teach springs from. ‘I always wanted to do something in education. I went to a very normal elementary school – perfectly OK; there were kids across the spectrum there.’ His teachers were varied. ‘Some were amazing but some didn’t even try. They just focused on memorisation. I remember a geography teacher in high school who would make us recite the countries in a continent in alphabetical order – without telling us where they were or their history.’

Aged nine, Khan was placed on the school’s gifted and talented programme. ‘Most of my really

formative memories come from that programme – that’s where I learnt to play chess, where I learnt about the great artists...’

After high school, he went to the University of New Orleans where he won a scholarship to the Massachusetts Institute of Technology. He graduated with degrees in mathematics, electrical engineering and computer science. (He was never a total nerd, also becoming the lead singer in a heavy metal band.) Later he pursued an MBA at Harvard Business School, which led him into hedge funds. ‘It was a good intellectual job with good compensation and a good lifestyle. I had it in my mind that if I made enough money I could retire early and start a school. My dream was – and still is – to have a small Hogwarts kind of school, where I could be surrounded by really neat kids and other faculty members and just play: build robots, do whatever. I want a school where you have the ability to flex your creativity without sacrificing academic rigour.’

At first Khan tried to juggle his job with making videos. But eventually, in 2009, with tens of thousands of virtual students, he quit to devote himself full-time to Khan Academy. ‘The resources available to this new entity were almost comically meagre,’ he writes in his new book, *The One World Schoolhouse*. ‘The Academy owned a PC, \$20 worth of screen-capture software, and an \$80 pen tablet... The faculty, engineering team, support staff and administration consisted of exactly one person: me. The budget consisted of my savings.’

For several months, it was touch and go. ‘We didn’t own a house then and, without a job, I

couldn't get a mortgage. My savings were bleeding \$5,000 a month. It was stressful.'

One day, a cheque for \$10,000 arrived. It was from Ann Doerr, the wife of the venture capitalist John Doerr. Khan wrote to thank her and she suggested lunch. Horrified to hear that Khan was living off his savings, she sent him a text message after lunch saying, 'You need to support yourself. I am sending you a cheque for \$100,000.'

Backers appeared as if by magic. A couple of months later, Bill Gates stood on a stage at the Aspen Ideas Festival and announced that he was a huge fan of Khan Academy and was using it with his children. He followed this up with a grant for \$1.5 million; soon after, Google awarded the academy \$2 million. Gates then threw in another \$4 million, saying of Khan, 'It was a good day his wife let him quit his job.'

Now Khan Academy has 31 full-time employees and although Khan himself still does the majority of the videos, he collaborates with experts in other fields who present videos on specialist topics.

Khan believes that the rigidity of the school system is outdated and deadens a child's natural curiosity. 'Aged one to four, kids are excited by anything new, they want to figure it out, then all of a sudden when they turn five you start seeing fewer curious kids, by nine or 10 you see very few with any curiosity, and by 18 it's very much the exception. Curiosity is just stamped out of them. I'm convinced it's indoctrination, not a genetic thing. Kids are herded together, the bell rings, you're rewarded for passivity, you're rewarded for compliance, that's what keeps you moving through the system.' Because

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children are not enabled to reach their full potential, society remains at a status quo. 'I think the potential for society is not just five or 10 per cent better, but an order of magnitude better. We could be going faster than the speed of light to the stars, GDP would grow, people would be happy.'

Private school education makes little difference, he says. 'Most private schools do not show a discernible difference in results.' Nor does he believe that student-teacher ratio is an issue. 'The idea that smaller classes will magically solve the problem of students being left behind is a fallacy.' As he points out, if a teacher's main job is lecturing to the students, it doesn't really matter how many students are in the classroom. What matters is the 'student-to-valuable-human-time-with-teacher' ratio. What his videos do, Khan says, is free teachers up for more personal interaction.

He thinks bigger classes with more teachers would provide a more creative learning ground. In his ideal classroom there would be 75-100 students of widely varying ages, with three or four teachers. Some students would be working at computers; others would be learning economics through board games; others would be building robots or designing mobile apps; others would be working on art or creative writing. All that really counts, he says, is enabling all children to learn at their own pace before moving on to the next concept. Otherwise,

you end up with 'Swiss cheese learning' – fundamental gaps in a student's knowledge.

Khan says his academy 'is not about replacing teachers, it's about empowering teachers'. Parents too. As parents, he says, we should be much more switched on to what our children are (or are not) learning. 'It's key to get your student to the point that they find school easy. With Nadia, I taught her ahead so that there was nothing she was going to see in school that was unfamiliar. If as a parent you took an hour a day to remediate your algebra and learn cosmology, kids would see that learning is not just something you do to get a grade. If you're able to learn the material that your child's learning, then they have an awesome tutor at home.'

His dream is nothing short of revolutionary. 'In 500 years I hope people look back and say, "Imagine, kids had to learn in classrooms that were like factories and it was unheard of for an eight-year-old to truly deeply understand quantum physics. Isn't that strange?"'

Khan feels embarrassed when he is depicted as a hero. 'I'm not the Dalai Lama – I'm really enjoying myself, and I get a very good salary.' Six figures? 'Yes, absolutely.' He could be making far more if he had stayed in hedge funds, but he has no regrets. 'I have enough to be comfortable and I wake up in the morning excited at what I do. I have a 2,000 sq ft house, three Hondas, a beautiful wife, two hilarious children – what else does a man need?'

'The One World Schoolhouse' by Salman Khan (Hodder & Stoughton, £14.99) is available for £12.99 plus £1.35 p&p from Telegraph Books (0844-871 1515; books.telegraph.co.uk)