

Education

MONDAY, APRIL 8, 2019

Notebook is a mobile-first product that combines video and text content to deliver education according to school curricula. "The format we use is augmented storytelling. It consists of a relatable narrative style of explaining a topic through an instructor on screen where the language lies somewhere in between theatrical monologue and classroom lecture," says Achin Bhattacharyya, founder & CEO of Notebook. How it works is that syllabi across CBSE, ICSE and state boards are broken down into topics and sub-topics, and every sub-topic is then converted into a script for the video. This, Bhattacharyya says in an interview with FE's Vikram Chaudhary, makes it easy for kids to learn, and retain knowledge. Excerpts:

There are dozens of edtech platforms in India. What makes Notebook unique?

As clichéd as it might sound, it is only the quality of content that sets Notebook apart from the current offerings in edtech in India. At Notebook, we offer the most engaging videos that will help a student develop interest in a particular topic. Apart from lesson videos, we also offer crisp recap videos for all topics, which not only summarise a lesson but also highlight the main takeaways. This is followed up with Q&A videos, where the teacher answers the most important questions.

Besides videos, we have exhaustive notes on each topic, where we have tried to strike a balance between internalised knowledge and exam-readiness by giving well-researched and curated content.

At Notebook, we have taken perfection to the highest levels. We have not cut any corners. The brief to the team was simple: Let's do something together that we will be proud of forever. We can proudly say that we are not merely ahead in terms of

● **INTERVIEW:** ACHIN BHATTACHARYYA, Founder & CEO, Notebook

Education is far too important a sector to aggressively oversell

quality, we are ahead by a decade or more.

To access your solutions, what all does a schoolchild need?

Notebook was built on the principle of inclusion. Seeing how prices of edtech products have become a barrier to adoption for many parents, we decided to not provide Notebook as a preloaded device like some others are doing, which would essentially mean charging the parent the price of a device and only offering a hefty one-time annual subscription fee. Instead, we chose the path of online streaming with the option of monthly subscription to make it accessible and affordable to a much larger audience. This would need the student to have access to an internet-capable device—not necessarily an expensive smartphone or a laptop, but even a basic feature phone that can access the internet. Also, we are engaging with some schools for them to have free access to Notebook content on their library computers.

What is your 'storytelling' format? Is it proven to deliver measurable results?

Augmented storytelling is the format we have used. It consists of a relatable narrative style of explaining a topic through a human instructor on screen where the lan-



guage lies somewhere in between theatrical monologue and a classroom lecture. This narrative is supported with visual cues as opposed to animation. It employs a

sequence of high-quality hand-drawn illustrations and other artwork to invite students to use their imagination to fill up the gaps between the images. This acti-

vates the parts of the brain responsible for reasoning as opposed to just rote-learning or memory. We have tested this format across some students and a large percentage has shown remarkable improvement in engagement levels—internalising the concepts far better than a class lecture. It is like watching a good movie—you would remember a 'Titanic' or a 'Sholay' because of the relatable narrative that forces you to suspend your disbelief. We have seen that this format coaxes the students into abandoning scepticism and getting engaged with the story being told on the screen.

Using Notebook courses is free as of now. How do you make money?

We offer a 30-day free trial period with unlimited content access, post which the subscribers need to avail of a paid monthly or annual subscription for single or multiple subjects depending on the plan they choose. Monthly and subject-wise subscription is a complete game-changer in the edtech sector and only reflects our self-belief in the quality of our

Considering that edtech is a sunrise sector in India, where more than 90% of the market is still untapped, commercial scalability is the last challenge we live with

content, which is way ahead of our peers in terms of both engagement and coverage. We respect students' right to opt out if we are not able to fulfil their expectations, or to choose only a particular subject they want. We have laid out an entire buffet and you may choose what you want.

Considering that edtech is a sunrise sector in India, where more than 99% of the market is still untapped, commercial scalability is the last challenge we live with. Here the issue is not on the demand-side, but more on the supply-side where we need to ensure that we deliver content which is the best, and which provides value for parents' hard-earned money.

Have you tied-up with individual schools for promoting your courses?

We have tied up with a forum that has more than 2,000 school principals as their members, but the objective for this tie-up was more to seek active feedback. Unlike other products/services, we believe education is far too important a sector to aggressively oversell. More than selling, we believe in creating awareness and then allowing the content to speak for itself, which holds sufficient merit. We believe

that word-of-mouth publicity is still the best form of publicity in student community, and that will happen only when students are genuinely satisfied and benefit. Unlike many other brands, our request to parents and students will be to benchmark us against any other digital content available in this space.

Jobs in the field of agrochemical industry in India

RAJESH AGRAWAL

THERE IS LITTLE doubt that agriculture and allied activities have undergone a major change in the past few decades. From manual to mechanised, from labour-intensive to capital-intensive, the field has witnessed a paradigm shift. Not only has the market-driven economy brought about a change in the way agriculture is practised, it has also introduced new fields and career prospects, including in the agrochemical industry. These include:

Agricultural research: It includes chemistry and bio-efficacy. The research specialises in the domains of insects, weeds and crop diseases. The educational qualification needed for this area ideally is Master of Science in Agriculture or PhD.

Agrochemicals marketing: Marketing of agrochemicals targets both retailers as well as farmers directly. If you have a degree in marketing, you can polish it further to suit the needs of the agrochemical industry. A Bachelor of Science in Agriculture is the minimum requirement; MBA in Agribusiness would be an added benefit.

Pesticide regulatory specialist: If one wishes to stay on the greener side of the law, it is necessary to restrict the chemical composition of agrochemical products according to legal limits. This is where the role of a pesticide regulatory specialist comes in. You should be a Master of Science in Agriculture/Chemistry or PhD.

Quality assurance expert: Monitoring and reviewing raw material information, detecting environmental changes, and inspecting equipment, materials and crops are part of this job. You should ideally be a Master of Science or PhD in Organic Chemistry.

Agrochemical formulation scientist: Formulation scientists are involved in the production of agrochemicals as well as post-production work of transferring technology to the field from the laboratory. A Master of Science in Chemistry or PhD is needed.

While a fresher can earn monthly salaries ranging from Rs 18,000-25,000, an experience of 4-6 years can give you Rs 6-15 lakh per year. If you hold a Masters or PhD, salaries can go higher.

The author is MD, Insecticides India Ltd. Views are personal

LPU student bags Rs 1 crore package

In probably a first for agriculture education in India, a student of Lovely Professional University, Punjab, has bagged a package of Rs 1 crore. It has been offered by Monsanto to Kavita Faman, a final year student of MSc Agriculture (Agronomy), who will join Monsanto Canada's Manitoba office as production manager in April. The offer was made based on a preliminary test and an interview conducted by company officials. "Agri-science is at the cusp of a technology-led disruption. From innovations in biotechnology to usage of data science, the field is embracing the latest technologies and Monsanto is at the forefront of it," said Kavita.

FE BUREAU

Science & tech

Redesigning life

To understand the promise and perils of synthetic biology well, look to the past



FOR THE PAST FOUR BILLION years or so the only way for life on Earth to produce a sequence of dna—a gene—was by copying a sequence it already had to hand. Sometimes the gene would be damaged or scrambled, the copying imperfect or undertaken repeatedly. From that raw material arose the glories of natural selection. But beneath it all, gene begat gene.

That is no longer true. Now genes can be written from scratch and edited repeatedly, like text in a word processor. The ability to engineer living things which this provides represents a fundamental change in the way humans interact with the planet's life. It permits the manufacture of all manner of things which used to be hard, even impossible, to make: pharmaceuticals, fuels, fabrics, foods and fragrances can all be built molecule by molecule. What cells do and what they can become is engineerable, too. Immune cells can be told to follow doctors' orders; stem cells better coaxed to turn into new tissues; fertilised eggs programmed to grow into creatures quite unlike their parents.

The earliest stages of such "synthetic biology" are already changing many industrial processes, transforming medicine and beginning to reach into the consumer world. Progress may be slow, but with the help of new tools and a big dollop of machine learning, biological manufacturing could eventually yield truly cornucopian technologies. Buildings may be grown from synthetic wood or coral. Mammoth produced from engineered elephant cells may yet stride across Siberia.

The scale of the potential changes seems hard to imagine. But look back through history, and humanity's relations with the living world have seen three great transformations: the exploitation of fossil fuels, the globalisation of the world's ecosystems after the European conquest of the Americas, and the domestication of crops and animals at the dawn of agriculture. All brought prosperity and progress, but with damaging side-effects. Synthetic biology promises similar transformation. To harness the promise and minimise the peril, it pays to learn the lessons of the past.

The new biology calls all in doubt. Start with the most recent of these previous shifts. Fossil fuels have enabled

humans to drive remarkable economic expansion in the present using biological productivity from ages past, stored away in coal and oil. But much wilderness has been lost, and carbon atoms which last saw the atmosphere hundreds of millions of years ago have strengthened the planet's greenhouse effect to a degree that may prove catastrophic. Here, synthetic biology can do good. It is already being used to replace some products made from petrochemicals; in time it could replace some fuels, too. This week Burger King introduced into some of its restaurants a beefless Whopper that gets its meatiness from an engineered plant protein; such innovations could greatly ease a shift to less environmentally taxing diets. They could also be used to do more with less. Plants and their soil microbes could produce their own fertilisers and pesticides, ruminants less greenhouse gas—though to ensure that synthetic biology yields such laudable environmental goals will take public policy as well as the cues of the market.

The second example of biological change sweeping the world is the Columbian exchange, in which the 16th century's newly global network of trade shuffled together the creatures of the New World and the Old. Horses, cattle and cotton were introduced to the Americas; maize, potatoes, chilli and tobacco to Europe, Africa and Asia. The ecosystems in which humans live became globalised as never before, providing more productive agriculture all round, richer diets for many. But there were also disastrous consequences. Measles, smallpox and other pathogens ran through the New World like a forest fire, claiming tens of millions of lives. The Europeans weaponised this catastrophe, conquering lands depleted and disordered by disease.

Synthetic biology could create such weapons by design: pathogens designed to weaken, to incapacitate or to kill, and perhaps also to limit themselves to particular types of target. There is real cause for concern here—but not for immediate alarm.

For such weaponisation would, like the rest of cutting-edge synthetic biology, take highly skilled teams with significant resources. And armies already have lots of ways to flatten cities and kill people in large numbers. When it comes to mass destruction, a disease is a poor substitute for a nuke. What's more, today's synthetic-biology community lives up to ideals of openness and public service better than many older fields. Maintained and nurtured, that culture should serve as a powerful immune system against rogue elements.

The earliest biological transformation—domestication—produced what was hitherto the biggest change in how humans lived their lives. Haphazardly, then purposefully, humans bred cereals to be more bountiful, livestock to be more docile, dogs more obedient and cats more companionable (the last a partial success, at best). This allowed new densities of settlement and new forms of social organisation: the market, the city, the state. Humans domesticated themselves as well as their crops and animals, creating space for the drudgery of subsistence agriculture and oppressive political hierarchies.

Synthetic biology will have a similar cascading effect, transforming humans' relationships with each other and, potentially, their own biological nature. The ability to reprogram the embryo is, rightly, the site of most of today's ethical concerns. In future, they may extend further; what should one make of people with the upper-body strength of gorillas, or minds impervious to sorrow? How humans may choose to change themselves biologically is hard to say; that some choices will be controversial is not.

Which leads to the main way in which this transformation differs from the three that came before. Their significance was discovered only in retrospect. This time, there will be foresight. It will not be perfect: there will certainly be unanticipated effects. But synthetic biology will be driven by the pursuit of goals, both anticipated and desired. It will challenge the human capacity for wisdom and foresight. It might defeat it. But carefully nurtured, it might also help expand it.

THE ECONOMIST

Unmanned, a drone technology company. Gibbens and her co-founders at Trumbull previously worked on US military drones. Using AI for military uses is a major point of contention for some Google employees.

Joanna Bryson, a professor of computer science at the University of Bath, in England, who was appointed to the Google ethics council, said she also had reservations about some of her fellow council members. "Believe it or not, I know worse about one of the other people," she said on Twitter in response to a post questioning Coles James' appointment. The AI council is meant to act as a check on the company's decisions, meeting regularly and producing reports on developments in the field and in Google's technology. It does not have veto power but is meant to offer "diverse perspectives to inform our work," Google's chief legal officer Kent Walker said in a March 26 blog post.

BLOOMBERG

Helping create creative ability

Pearl Academy announces Who's Next Scholarships

FE BUREAU

PEARL ACADEMY, THE design, fashion and media school, has announced Who's Next scholarships, 2019, for 25 students. "This is our unique initiative of investing into the future of creativity. Top five successful students will be awarded 100% scholarship on tuition fee for the entire duration of the course. Another 20 successful students will be awarded 50% scholarship on tuition fee for the course," the institute said in a statement.

Nandita Abraham, the president of Pearl Academy, said, "For the past 25 years, we have strived to encourage young minds to go beyond boundaries and explore their creative potential by providing them with the best education, industry opportunities and global exposure."

To apply, one needs to submit a statement of purpose along with application form. These scholarships will be applicable for both UG and PG programmes and the last date to apply is April 20, 2019.

Asimilar drive was introduced in 2015 where Pearl Academy awarded Who's Next full scholarship to 10 students. These students are graduating this year and have already been placed in global tech giants and MNCs like Accenture and TCS.

JCU Australia forays into Indian market

Australia's James Cook University (JCU), ranked among the top 2% of world's tertiary institutions by the Academic Ranking of World Universities (Shanghai Ranking), has announced its entry into India, with the launch of the Masters of Global Development and Master of Data Science programme. JCU also announced its International Student Merit Stipends grant that provides recipients A\$700 every month throughout their degree.

FE BUREAU

IIMK starts PhD for working executives

Indian Institute of Management Kozhikode (IIMK) has launched a new doctoral programme, PhD in Management (Practice Track), for working executives with at least eight years of work experience—executives can work towards a doctoral degree while remaining in their jobs. Debashis Chatterjee, director of IIMK, said, "We are defining a PhD in the form of a Practice Track. It is an idea whose time has come. While you are in the job, you can bring real-life problems to doctoral research for investigation and discover the solutions with the kind of clarity that only a deeply embedded knowledge system can bring." Rudra Sensarma, dean (Research), added the PhD can be completed in 3-5 years. The deadline for online submission of applications on IIMK website is June 5, 2019.

FE BUREAU