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CHENNAI

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# Away with the bell

## Can we (re)design timetables to take into account the rhythms of students' bodies and minds?

Salil Sahadevan

You know that kid who stares blankly at the timetable grid while filling the school bag for another day of routine? School timetables, like the ringing of the bell, signal a rigidity that suggests time is an absolute and physical entity. But that is not how learning happens. Educational time is fluid, a subjective experience influenced by an individual's emotional states. Unlike the standardised time in a timetable, learning opens uniquely for each student, a reality that traditional timetables often fail to accommodate.

**Symbol of structure**

Originally, bells were introduced to manage time and ensure punctuality; a symbol of structure and efficiency in western thought. As time passed, the bell came to segment the day into periods, allowing convenient transitions from Math to Language to Biology, and finally freedom in the evening. The school bell – much like Pavlov's bell used with dogs – conditions behaviour, though with good intentions. John Taylor Gatto described this regimented approach as a prison of measured time. What if we consider the biological clocks of students and design the schedules differently?

Eastern educational traditions take a different approach to time. Instead of mechanical devices, these systems wove time with natural biorhythms. The rising sun, the movement of leaves, or an animal call guided daily schedules. An inner awareness of the individual learner and educator alike was connected to the cycles of Nature. While it sounds overly idealistic for us today, it presents an opportunity to reflect on how we can cultivate an intuitive, self-responsible, personalised learning experience that respects the natural rhythms of learners.

Our internal biological clocks – known as circadian rhythms – govern our sleep-wake cycles and energy levels. By understanding these rhythms, educators can design schedules that fit learning activities to match periods of peak alertness and engagement. Similarly, studying sleep cycles – the distinct stages we experience during the night – offers insights into memory consolidation and cognitive function. For example, adolescents display different sleep patterns and energy levels compared to younger children and adults. Education researchers can track these rhythms through self-reporting, melatonin level measurements, and observation. By adjusting learning experiences to these individual rhythms, students are not merely present, but truly ready for optimal cognitive performance.

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Our sense of time is not just personal; it affects how we learn too. Waiting for someone we care about can change how time feels. In the same way, looking forward to a learning project can either make us more interested or more anxious. When institutions blend subjects into themes for interdisciplinary learning, flip the class for self-learning, and design for competency-based learning, they need a flexible approach to time, timing, and timetables.

Why should schedules be personalised to reflect individual energy levels and circadian rhythms? While traditional timetables value efficiency, elevating student engagement to a primary goal is equally essential. Identify peak learning times or power hours for each student. Cluster those with similar patterns to create hi-flex timetables. Such experimentation may lead to initial chaos. In a connected world of constant learning, rigid instructional hours have become obsolete. Adaptable schedules are key to seizing the learning potential of every moment. They also come with uncertainty, scalability challenges, and difficulties in implementation. Still, they are worth piloting because the idea of habits of mind and habits of body have futuristic implications on how we teach and learn.

**Learning over time**

Philosophers and scientists agree that, at the quantum level, time is not necessarily continuous but granular. This supports breaking down learning into smaller, manageable chunks with opportunities for more reflection. As time is a matter of perspective, not rigid measurement, we should shift from measuring performance at specific moments to appreciating the ongoing journey of learning.

We invest heavily in time – the scarcest resource – to enable learning. Yet, how that time is used often receives less attention. Not all learning moments hold the same value; disengaged time equates to lost time. So, the ideal timetable will be characterised by hybrid models, hi-flex small group approaches, and clusters of circadian rhythms, all supported by continuous reflection and feedback. These new forms of timetables are less about time and more about minds that learn.

*Views expressed are personal.*

The writer is Deputy Secretary, University Grants Commission, and a Learning Designer.

## SCHOLARSHIPS

**Swami Vivekanand Scholarship for Academic Excellence**
An initiative of the Government of Rajasthan.
**Eligibility:** Indian citizens residing in Rajasthan under 35 years pursuing a UG, PG, Ph.D. or postdoctoral programme who meet the specified income criteria.
**Rewards:** Up to ₹100,000 monthly and other benefits
**Application:** Online
**Deadline:** January 15
www.b4s.in/edge/RGAE1

**Dr. A. P. J. Abdul Kalam Young Research Fellowship 2024**
An initiative of Technology, Education, Research and Rehabilitation for the Environment (TERRE) Policy Centre.
**Eligibility:** Indian citizens between 18 and 25 years who are pursuing/have completed a UG, PG or Ph.D. in any field related to environmental research.
**Rewards:** Up to ₹25,000 and a certificate
**Application:** Online
Deadline: February 15
www.b4s.in/edge/APJF1

**Dr Gita Piramal Graduate Scholarship**
An opportunity offered by Somerville College, Oxford University, the U.K.
**Eligibility:** Open to Indian nationals currently residing in the country and have applied for a Master's degree in Sustainability Science and Development.
**Rewards:** Course fees, living and travel expenses
**Application:** Online
**Deadline:** January 29, 2025
www.b4s.in/edge/DGPS1

Courtesy: buddy4study.com

OFF THE EDGE
Nandini Raman

# Keep learning

## Uncertain about your career options? Low on self-confidence? This column may help

**I am doing a B.E degree in Computer Science Engineering specialising in Artificial Intelligence and Machine Learning. I want to improve my coding skills. What programming languages should I learn? Gayathri**

Dear Gayathri,

Utilise platforms like LeetCode, HackerRank, CodeSignal, and CodeChef that offer a range of issues and competitions to help improve your problem-solving skills. Work on personal or open-source projects to apply your knowledge in real-world scenarios such as building chatbots, recommendation systems, or image classifiers. Enroll in online courses in AI, ML, and coding practices. Follow tutorials and channels on YouTube such as Corey Schafer, Sentdex, and 3Blue1Brown. Read books such as *Clean Code* by Robert C. Martin, *Python Machine Learning* by Sebastian Raschka, and *Deep Learning* by Ian Goodfellow. Familiarise yourself with official documentation, as it is crucial for effective coding and troubleshooting. Take part in coding competitions and hackathons. Participate in Kaggle competitions for machine learning projects. Join forums, communities, and local meetups to network. Contribute to open-source projects on GitHub. Learn Python, R, Java, C ++, SQl, JavaScript and familiarise yourself with libraries and frameworks relevant to your specialisation, such as TensorFlow, PyTorch, NumPy, and Pandas.

**What is the scope of the Bachelor of Occupational Therapy course? Which institutes in India or abroad are good for this? Sebastian**

Dear Sebastian,

A Bachelor in Occupational Therapy (BOT) offers various opportunities to help individuals develop, recover, or maintain skills needed for daily life and work. It plays a crucial role in rehabilitation for individuals with physical, mental, or developmental conditions. You could be a clinician in hospitals, rehabilitation centres or private clinics, specialise in Paediatrics, Geriatrics or even get into Research. Some sought-after specialisations are in Hand Therapy, Sensory Integration, Ergonomics and Human Factors, Neurorehabilitation and Workplace Therapy and Rehabilitation.

Institutes to consider include AIIMS, New Delhi; College of Occupational Therapy, Mumbai; Manipal Academy of Higher Education (MAHE), Manipal; Sri Ramachandra Institute of Higher Education and Research, Chennai. University of Sydney and University of Queensland, Australia; King's College London, the U.K., and University of Toronto, Canada.

PG programmes include Master's in Occupational Therapy (MOT) or Master of Science in Occupational Therapy (MSOT) across universities in India and abroad. Specialisations can include paediatric therapy, geriatric therapy, and neurorehabilitation. You could also do a Ph.D. with advanced research opportunities focusing on clinical practices, innovative techniques, and policy development.

**I am doing B. Sc. in Visual Communication but am interested in drawing and painting. But I worry about whether I will survive as an artist. How can I pursue my passion and make a mark amid the doctors, engineers and CAs? Rhythm**

Dear Rhythm,

Visual Communication will give you a strong foundation for a creative career. Work on your art and build a portfolio showcasing your best work in various styles and mediums. Display your work online on platforms such as Behance, ArtStation, and Instagram to reach a wider audience. Keep upgrading your skills and learn new techniques. Gain experience by freelancing and taking commissions for illustrations, paintings and so on. Websites like Fiverr, Upwork, and 99designs can help you find opportunities. Collaborate with other artists, and designers to expand your network and gain experience. Try to exhibit your work and connect with other artists and potential buyers. Take part in competitions and contests for visibility and validation of your work. Network and seek mentors who can provide guidance, feedback, and advice. Integrate your skills and use your knowledge of filmmaking and animation to create unique art projects. Can you combine your passion for art with graphic design, digital media, or even storytelling? Explore career paths like being an illustrator (for books, magazines, advertising, or digital media), concept art, art therapy, entrepreneurship through prints and merchandise. Finally, balance your passion with practical considerations.

**I am pursuing a Master of Fine Arts (Painting) at Delhi University. What are the potential career paths, whether in the government or private sector? Moni**

Dear Moni,

You can be a professional artist and display your work in galleries, art shows, and through solo exhibitions. You can also take on commissions for private clients, businesses, or organisations. You can be a curator, responsible for organising exhibitions, managing collections, and developing educational programmes or be a gallery manager. Another option is to run your own art and design studio and be an entrepreneur with art-related business or an online art shop. You can offer workshops, classes or tutorials to teach art. In the government sector, there are opportunities to work with agencies to manage projects as a public art coordinator or a cultural affairs officer. You can also for government institutions, museums, or historical sites to conserve and restore artworks and cultural artefacts, or become an art educator or researcher.

Other opportunities exist across art therapy, art licensing and merchandising, working with non-profits that support the arts, cultural preservation, or community art projects.

**Disclaimer: This column is merely a guiding voice and provides advice and suggestions on education and careers.**

The writer is a practising counsellor and a trainer. Send your questions to eduplus.thehindu@gmail.com with the subject line Off the Edge

# *Learning with honour*

## Institutions should build academic integrity by nurturing a community where honesty and respect for knowledge are embraced by all

Arunkumar Khannur


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Education and its quality have a major say in building a sustainable and equitable nation. Educational integrity acts as the heart of the quality, trustworthiness, and credibility of academic institutions and involves building an institutional eco-system with the help of principles such as honesty, fairness, and accountability in the pursuit of knowledge and excellence.

At its core, educational integrity deals with ethical and moral behaviour from students, teachers, and administrators by going beyond not being just legally right. Building academic integrity requires a commitment to honesty and a collective understanding of the importance of avoiding cheating, plagiarism, favouritism, and the misrepresentation of academic achievements. Any compromise leads to far-reaching consequences such as discredited qualifications, diminished reputations, and a breakdown in trust between educators and learners. In order to embrace integrity, we need to go beyond individual actions and create an environment where fairness and respect for intellectual property thrive.

**Challenges**

However, embracing educational integrity is not without its challenges. The first is the need to address the problems caused by rapid evolution of technology and the abundance of online resources, which is leading to a blurring of lines between ethical collaboration and plagiarism. Students have difficulty distinguishing between acceptable help and academic dishonesty. Additionally, the anonymity of the Internet has made it easier for them to engage in unethical behaviour without immediate consequences. The intense pressure to perform, driven by family expectations, societal demands, and competitive job markets, also pushes students toward dishonest practices.

Many educational institutions have not yet developed a defined and well-structured policy regarding academic dishonesty, and the enforcement is often inconsistent. Some institutions even overlook violations to protect their reputation. What is necessary is a well-defined and comprehensive framework that has clear governing policies and consequences for violations. This should be developed in collaboration with students, faculty, and administrators. Next, an 'Integrity Task Force', which is responsible for reviewing policies regularly, promoting integrity initiatives, curating content, background verification of qualification of faculty, and ensuring that violations are addressed fairly across all departments, must be established.

**Role of technology**

Technology can also be harnessed to prevent cheating and dishonest practices by installing plagiarism detection software and AI-based monitoring systems, introducing curated content and partners to identify and address unethical behavior. Online learning platforms, too, can help monitor student progress and detect inconsistencies that may indicate dishonest practices.

Creating a culture of integrity also requires promoting honesty, morality, ethics, trust and accountability within the student community. Students need to feel comfortable reporting dishonest behaviour and understand how their actions affect not only their academic careers but also their peers and the institution. One way to foster this culture is by developing peer-led integrity programmes that will allow them to take ownership of promoting academic honesty and hold each other accountable to maintain high ethical standards.

It's also crucial to build an environment where employees feel safe to report any violations of integrity. Faculty and staff often serve as the first line of defence in identifying academic misconduct. They must be trained to recognise and address any dishonest behaviour. Institutions can hold regular workshops to keep them updated on the latest trends and effective strategies to address them.

Enforcing integrity policies consistently is one of the essential components to foster educational integrity. Students need to understand that violations will result in fair and predictable consequences. However, the focus should not be on punishment; instead, restorative practices to help students learn from their mistakes should be implemented.

Fostering educational integrity demands not only robust governing policies but also induction training that cultivates integrity from the beginning. Rather than relying on routine enforcement, institutions should strive to create a community where honesty and respect for knowledge are embraced by students, faculty, and administrators alike.

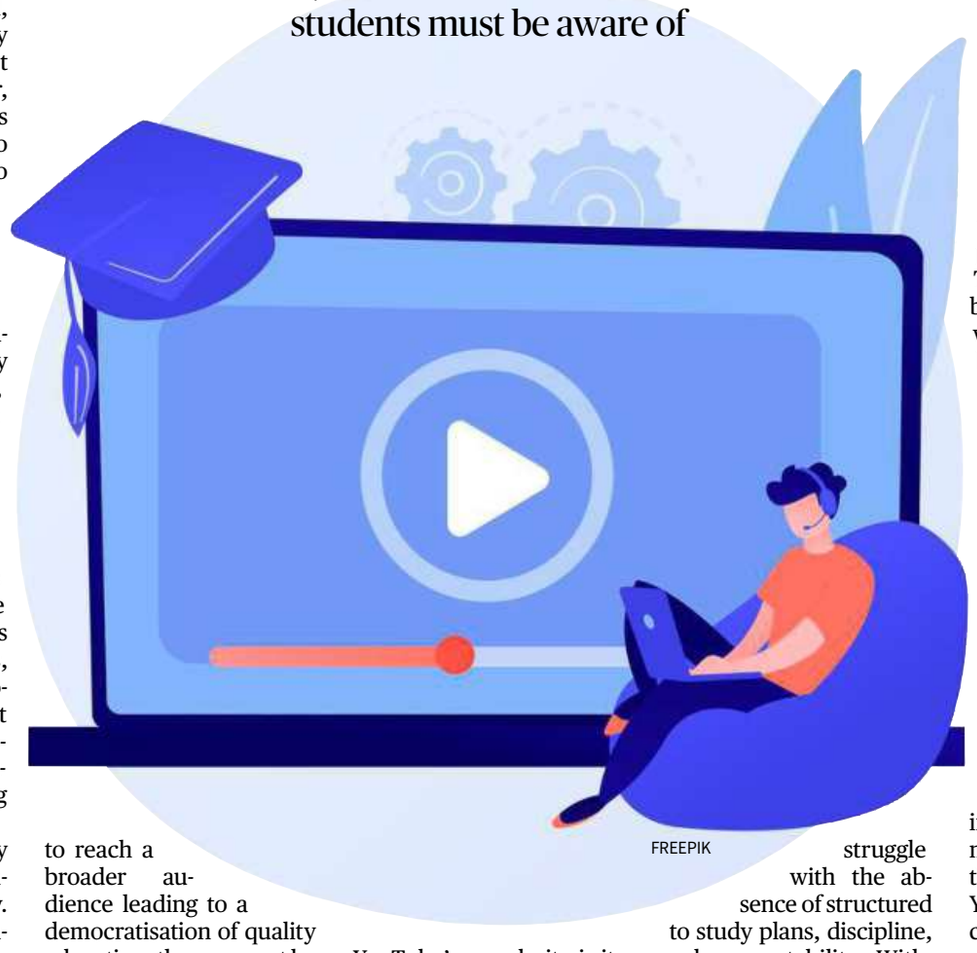
The writer is Chief Strategy Officer and Professor of Practice, CMR University, Bengaluru.

# Beyond the screen

## While YouTube offers access to a variety of material, there are some downsides that students must be aware of

Mohit Tyagi

In the digital age, YouTube has emerged as a powerful platform for learning, especially for students preparing for highly competitive exams. The traditional education model, often reliant on expensive coaching institutes, is being supplemented and, in some cases, replaced by free, high-quality content available online. However, while YouTube provides unprecedented access to education, this shift also brings challenges that students and educators need to address.



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**Flexibility**

With millions of educational videos covering nearly every subject and topic, students can now learn at their own pace, anytime, anywhere.

This flexibility is particularly valuable for those preparing for the JEE and the NEET, two of India's most competitive entrance exams. YouTube offers comprehensive courses, test strategies, and problem-solving sessions that previously required substantial financial investment in coaching institutes.

However, the quality and reliability of the content varies significantly. Unlike regulated institutions, YouTube lacks oversight, which means that students must exercise caution when selecting what they watch. While some platforms provide structured and comprehensive content, others may leave students confused or misinformed due to lack of accuracy or clarity.

While many educators have embraced YouTube to reach a broader audience leading to a democratisation of quality education, they may not be enough for all students, as they lack the in-person feedback and direct mentorship, which traditional coaching centres provide. In live classroom settings, doubts are clarified in real-time, and personalised attention helps students stay on track; something pre-recorded YouTube videos can't fully replicate.

One of the key drivers of YouTube's popularity is its affordability, as it allows students from economically disadvantaged backgrounds access educational resources for free. This has levelled the playing field, especially for those who once lacked access to quality coaching centres. However, affordability alone does not guarantee success. Many students who turn to YouTube struggle with the absence of structured to study plans, discipline, and accountability. Without the external pressure from teachers and classmates, some may find it challenging to stay motivated and consistent.

Moreover, access to online education is still dependent on factors like internet connectivity and a suitable device; privileges that not every student can afford, particularly in remote areas.

**Lack of interaction**

YouTube offers personalisation through its algorithms, recommending videos based on user behaviour. Students can control the pace of their learning, revisit difficult topics or skip ahead as needed. Some educators engage with students via live sessions or in the comments, simulating a classroom-like interaction. However, this level of interaction is often insufficient when it comes to deeper, more personalised doubt-solving. Also, YouTube interactions are usually delayed, and responses may be limited. This can be a major drawback, especially for those who rely on personal feedback to improve their understanding of complex subjects.

While YouTube has democratised education, it is important to consider its potential downsides. The abundance of free content can be overwhelming for students who don't know where to start or how to curate their learning materials. The platform's open nature means that not all content is accurate or up-to-date, potentially leading to confusion or even misinformation. Moreover, the self-paced nature of YouTube can lead to procrastination and lack of discipline, as it requires significant self-motivation. Students who struggle with time management may fall behind without realising it.

Therefore a balanced approach that combines YouTube's convenience with more structured, personalised learning may offer the best path forward.

The writer is the founder of Competishun

POSTCARD FROM ... MONASH

# Learning to lead

## A blend of rigorous learning, leadership experiences ... at Monash

Vedant Gadhavi (second from left) at his college in Australia.

- **Name: Vedant Gadhavi**
- **Course: Bachelor of Biomedical Science (Scholars Programme)**
- **University: Monash University, Melbourne, Australia**

I completed school in 2020 amid the challenges of the COVID-19 pandemic and secured a conditional offer from Monash. My acceptance came with a study grant, thanks to my academic achievements. I was also awarded the Sir John Monash Scholarship for Excellence, one of only 10 students to receive this annual scholarship. This opened doors to opportunities in the Scholars Programme of the Faculty of Medicine, Nursing, and Health Sciences.

**Expanding horizons**

Throughout my academic journey, I have been encouraged to embrace roles that have helped me connect with the broader international student body. In 2022, I became a Monash international student ambassador and was elected treasurer of the Monash University International Student Services (MUISS) at the Clayton campus. This led to my current position as President of MUISS. In this capacity, I expanded support for incoming international students by initiating a range of welfare and engagement programmes, such as the weekly welfare lunches that provide complimentary meals to 150-200 international students each fortnight. This platform has allowed me to advocate for international students. I also raise issues at the Vice-Chancellor's Students President's Advisor Forum (VSPAF).

In addition to these leadership responsibilities, I have also pursued professional development through programmes such as the Monash Innovation Guarantee (MIG) and a summer internship with IMRA Surgical. MIG allows students to embed industry experience, innovation and entrepreneurship skills into the degree. The skills I have learnt include stakeholder management, how to be an adaptive leader, speakership, and teamwork. My work with IMRA, focused on the fidelity of synthetic human organs, afforded me invaluable research experience in enhancing surgical simulations. I further augmented my skill-set by participating in the Fastrack Entrepreneurship Programme, where I collaborated with professionals from UC Berkeley, Amazon Web Services, and other industry leaders on a project addressing medical adherence.

A recent highlight was meeting Dharmendra Pradhan, Minister of Education, Government of India, and Jason Clare, Australia's Federal Minister for Education, at the official launch of the Monash India Plan. The event also offered an opportunity to connect with Professor Sharon Pickering, the university's Vice-Chancellor and President, and Professor Craig Jeffrey, Deputy Vice-Chancellor (International) and Senior Vice President.

I am committed to continuing my work in student support and engagement, while gaining hands-on experience within the healthcare industry. Eventually, I aim to specialise further through a Master's degree, driven by my dedication to improving health outcomes through innovation and research.

The writer will finish his course in December 2024.

# *For the community*

## For those interested in Public Health, a variety of opportunities are available across sectors

Rebecca Ivers

Public health is now a crucial topic, and there is a growing need for experts qualified to handle complicated health issues due to the increasing complexity of global health concerns. The study and practice of disease prevention and population-level well-being promotion is public health. In contrast to the individual patient care that characterises clinical professions, public health emphasises illness prevention and good health behaviours to improve the collective health of entire communities.

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The recent pandemic served as a global reminder of the importance of public health systems. However, the field's relevance extends far beyond pandemics. Emerging threats such as climate change, rising rates of non-communicable diseases like diabetes, global unrest, and the persistent inequalities in healthcare access demand innovative solutions. Public health professionals play an essential role in combating these threats by devising strategies to protect and promote the health of populations worldwide.

**Variety of roles**

Public health careers are varied and offer opportunities across sectors. Professionals may work in disease prevention, health promotion, disaster management, or policy advocacy. Some notable career roles include:

- **Health promotion officers:** Design programmes to encourage healthy behaviours, such as physical activity or healthy eating, targeting specific groups like school children or elderly populations.
- **Environmental health officers:** Work in local governments or councils to ensure environmental standards are met, monitor pollution levels, and manage health risks related to environmental factors.
- **Public health educators and researchers:** Conduct studies to inform and educate the public on health risks and prevention strategies. Researchers often contribute to ground-breaking work in understanding health trends and risk factors in populations.
- **Vaccination coordinators:** Manage vaccination campaigns, ensuring that immunisation programs reach all sectors of the population, reducing the risk of preventable diseases.
- **Policy officers:** Shape health policies at the local, national, or international level, working to ensure equitable access to healthcare and advocating for laws that improve public health outcomes.
- **Disaster response coordinators:** Work with international aid organisations to respond to emergencies such as natural disasters, disease outbreaks, or refugee crises and help manage and coordinate large-scale relief efforts.

Public health experts can also work in urban planning to improve living conditions, support initiatives to avoid injuries, or spearhead campaigns to address food shortages. Numerous specialisations are available within the wide field of public health, such as biostatistics, epidemiology, health economics, and health law and ethics.

**Education**

For those interested in this field, an undergraduate or a postgraduate degree in the domain is often the first step. These programmes provide foundational knowledge in areas such as epidemiology, health promotion, and public health policy. Students develop an understanding of how health systems function and gain practical skills to analyse health data and implement public health programmes.

In addition, many programmes offer specialisations, allowing students to focus on areas such as Epidemiology, Health Economics, Environmental Health, and Global Health. Beyond general qualifications, professionals may opt for further specialisation in health leadership and management, which opens doors to more senior roles within the healthcare system.

Public health professionals are employed across a range of sectors. Common employers include government agencies such as health departments, local councils, universities, hospitals, insurance companies, and non-governmental organisations (NGOs). Opportunities also exist within international organisations like the World Health Organisation (WHO) or institutions focused on improving healthcare access and outcomes in low- and middle-income countries.

The public health sector's growing importance, combined with the wide variety of roles available, makes it an appealing to those passionate about improving community health and tackling global challenges.

The writer is Head of the School of Population Health at the University of New South Wales (UNSW), Australia.

# For a smarter tomorrow

## How AI-driven EdTech solutions can transform India's education landscape

Jeff Duchmann

When the pandemic was at its peak, the adoption of ed-tech exploded across India, as schools and colleges shut down and learning disruptions required a quick fix. As the world returned to normalcy, a worrying decline in the industry became stark; an overcrowded market with over 4,500 start-ups, a cold funding winter and increased customer acquisition costs. Giants in the industry shut down, while others resorted to mass layoffs.

**Benefits**

These trends are a stark reminder of why ed-tech in India needs to reinvent itself and focus on challenges that truly matter to the country's education system. The time is right for sustainable, customer-centric businesses to make a difference but the question is how?

**Personalised learning:** Rural India is home to most of the country's population and it faces numerous impediments to quality education. Coupled with the lack of adequate teaching resources, the infrastructural gaps hamper educational progress. India is a country with more mobile users than desktops and laptops, making digital learning a constant challenge. AI-powered learning platforms can address these challenges in many ways. From co-teaching aids for teachers to personalised study guides, AI can provide tailored attention to students.

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Personalisation can be scaled, as AI understands intent and guides students on what courses they must take and in what order. It determines areas of study most suited to individuals based on their interests and areas that require improvement.

**AI as teachers' assistant:** For schools, institutions and universities that are always struggling with funding to support administrative and assistant tasks, AI-powered platforms can help conduct assessments, craft lesson plans, take over mundane tasks and allow teachers more time to focus on student needs. Another aspect is using online lessons with engaging gaming elements, to drive enhanced retention and motivation.

Many ed-tech companies are including regional languages in AI-driven platforms, making learning more accessible. This is necessary to democratisse access to quality education.

**Challenges**

A vast majority of Indians began using the Internet through smartphones rather than traditional devices like desktop computers and laptops. With affordable Internet and lower smartphone prices in the country, India added hundreds of millions of new Internet users in just the last five years. However, the digital divide between the urban and rural areas still exists. The challenge, therefore, likes in curating high-quality, personalised education experiences on a mobile phone at scale while optimising consistent experiences across different devices and operating systems.

The sheer complexity of various learning requirements and different types of learners and learning styles is also a challenge. Ed-tech platform providers end up with hundreds or thousands of custom courses that they will have to manage instead of a single source of content or assessments. Personalisation requires optimised AI engines that can support thousands of courses that are customised to a certain degree. This challenge can be overcome with generative AI, which can understand textbooks, narrative content and assessments to create on-the-fly personalised experiences for a student or teacher without modifying the platform.

Amid the funding winter, the ed-tech sector in India must reinvent itself. Concerted effort in aligning its AI-enablement goals with the country's developmental ambitions are necessary to solve pressing concerns in India's education system and to allow the sector to stay in step with the vision of creating a technologically-capable workforce in the country.

The writer is VP of EdTech, Creative Synergies Group.

ON THE SHELF

- **The Hidden Life of Trees**

Are trees social beings? For forester Peter Wohlleben, the forest is a social network. Trees live like human families: tree parents live together with their children, support them as they grow, share nutrients with those who are sick and struggling, and even warn each other of impending dangers.

This illustrated narrative peppered with scientific facts tells the story of the world's most famous forester. Take a guided tour through the extraordinary life of the forest, where you'll meet trees that communicate through their root systems and protect each other from dange.

A portal to an astonishing yet fragile world, and a call to protect it for future generations.

**Author:** Peter Wohlleben
**Publisher:** Penguin
**Price:** ₹1499