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Why is the NEP undergrad course in chaos?

What are the challenges? Why are both students and teachers struggling with the fourth year schedule? Is there extra funding from UGC for the fourth year programme? What about infrastructure? Why are there frequent changes in guidelines? What lies ahead?

Priscilla Jebaraj

The story so far:

India's fledgling four-year undergraduate programme, recommended as part of the National Education Policy (NEP), 2020 has reached a critical point, with the first students who opted for four-year degrees now in their final semester. The roll-out has been chaotic, as students and faculty cope with changing guidelines, uncertainty regarding learning outcomes, and a severe shortage of infrastructure, funding, and faculty.

What is the four year UG programme?

The NEP 2020 proposed a complete overhaul of higher education in India. Among the changes recommended was an expansion of the country's traditional three-year bachelors degree structure into four years, aligned with global standards, with an expanded curriculum intended to focus on flexibility, interdisciplinary learning, exposure to research, and skill development. Students would have multiple entry and exit options. After one year, they could get a certificate; after two years, a diploma; after three years, a Bachelor's degree; and after four years, a Bachelor's degree with honours, or options such as honours with a research or entrepreneurship focus.

'Students do not have sufficient training or access to proper material for their fourth year of research'

The University Grants Commission (UGC) issued its guidelines for this model, as part of its Curriculum and Credit Framework, in December 2022. Earlier that year, however, several universities had already started rolling out four-year programmes from the 2022-23 academic year, as part of the implementation of NEP, including top central universities such as Delhi University, Aligarh Muslim University (AMU), and Ambedkar University. There are thousands of students in these institutions now in their final semester of study. The Karnataka government also announced its own implementation of NEP, and launched four-year programmes across the State, in public and private institutions. A year later, the Union government announced that 105 universities would enrol students into four-year programmes in 2023-24, including 19 central universities, 22 State universities, 18 State private universities, and over 40 deemed-to-be universities.

What have been the challenges?

In Delhi University alone, 23,337 students are now in their fourth year, according to K. Ratnabali, Dean of Academic Affairs. About 13,000 of them have chosen to complete a dissertation or thesis, so that they can earn an honours with research degree. The rest of the students will complete extra coursework in their fourth year, including skill-based programmes, while a few hundred have opted for an entrepreneurship focus, or a translation or other academic projects. "The four-year Undergraduate Programme in its current form represents a mockery," says Maya John, an assistant professor at Jesus and Mary College, who is a member of DU's Academic Council. She says students are struggling with "unreasonable research outcomes" dictated by the university authorities, including the requirement for Scopus-indexed journal publications and presentations in international or national conferences. Dr. Ratnabali says this requirement has now been diluted, with the university willing to accept a paper presentation or submission, without actual publication. Students, however, complain that the constant changes in guidelines from the university, and individual

college departments have often been contradictory and disconcerting.

Students do not have sufficient training or access to proper materials for their fourth year of research, says Madhuri Sharma, who is part of the history faculty at Bharathi College, noting that undergraduates are not allowed research access to the Teen Murti library, the National Archives, or the National Museum, and have only restricted access even to DU's Central Reference Library. Moreover, "teachers are also overloaded, research supervision is not counted as part of their working hours," says Dr. Sharma.

"At AMU, over 90% of students stayed on for the fourth year in many subjects, leading to immense pressure on faculty and infrastructure," says Aftab Alam, a member of the Academic Council at AMU. "For science programmes, we simply do not have the requisite lab facilities to support undergraduate research. Faculty are continuously appealing for infrastructure and additional teachers, but there is no extra funding from UGC."

"The fourth year programme is an additional burden to both the student and the exchequer, simply to ape a western model. There is a commercial impetus from private universities, who simply want to get one more year of fees," says Navneet Sharma, an education professor at the Central University of Himachal Pradesh, who was also a member of the Karnataka State Education Policy task force that recommended a return to the traditional three-year degree programme in the State from 2024-2025 onwards. "Keeping a four-year degree programme would potentially reduce access to undergraduate education for the poor, the socially disadvantaged groups such as Scheduled Castes, Scheduled Tribes, women and students from rural areas," the Karnataka Education department said in its order to abandon the four-year programme.

What changes may help the next batch?

Dr. Alam suggested that UGC take feedback from faculty and students in the trenches of the four-year programme to adapt its guidelines to ground realities. Dr. Ratnabali agrees that more infrastructure, especially laboratories, are needed to make the four-year programme a success, and recommends that colleges apply for a HEFA (Higher Education Financing Agency) loan from the government before the start of the next academic year, and also seek funding from research agencies.



ISTOCKPHOTO

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The Prime Minister's recent remarks on Macaulay and the "mindset of slavery" have revived an old discomfort many of us have carried but rarely articulated. How much harm did Macaulay do? What did he deprive Indians of? And what mindset changes are needed today?

When Macaulay wrote his famous 5,000-word minute in 1835, the goal of the British government was not to create an education system for the Indian public but to carve out a small English-educated class to assist the administration, interact with British officials, and work as intermediaries. A century later, this experiment produced what critics called "Macaulay's children", though in truth, these were Indians who used English to get things done, not people who lost their Indianness to it.

My parents illustrate this well. A century after Macaulay's minute, they returned to work in British India after higher studies abroad. Even so, they kept a deeply Indian home, shaped by their ancestral roots and family temple in Goa. Regardless of which schools we, their children, attended – elite missionary, or government – our sense of identity was anchored at home. Indigenous pathshalas had continued alongside English-medium schools throughout the 19th and early 20th centuries, leaving cultural continuity intact. I too started schooling in a Municipal Marathi School, as my parents valued the mother tongue in early education. Later, I moved to two missionary-run girls' schools, known for instilling discipline, building confidence, and English fluency. Our real learnings came from the Indianness of everyday life, family traditions, stories, festivals, home food, the way one behaved in public. My parents spoke Marathi at home.

The school curricula in the 1950s had serious shortcomings. Almost missing were chapters covering the depth of the Mauryan administration, Chanakya's *Arthashastra*, or the vastness of the Indian state. South Indian history was ignored, leaving us to believe Indian history revolved around Delhi and the Ganges plains. The focus was on nation building and the freedom struggle, sidelining broader civilisational narratives such as Partition and the trauma of displacement.

While we studied textbooks to pass examinations, English books opened our minds to worlds beyond our everyday experience. Without question, knowledge of English propelled India's breakthroughs in atomic energy, space research, and medicine, all driven by first-generation English-educated scientists who were deeply Indian, but globally competent.

In daily life however, it was, and is even today, natural to speak in the local language. In North India, we who joined the civil services, spoke in Hindi to Ministers, secretariat and field staff, and public visitors. In Maharashtra it was Marathi; in Tamil Nadu, Tamil; in West Bengal, Bengali. Not speaking the State's language was unacceptable and carried costs. Many Tamil officers posted in Maharashtra even mastered idiomatic Marathi to overcome the "outsider" bias.

Not inferior

My contemporaries who joined the universities, medical colleges, and scientific institutions carried no sense of inferiority. English made us all legible to the world, not alienated from ourselves. Because we spoke English well, we could easily speak for India at meetings around the world, needing no interpretation. The ease of transacting professional dialogue with proficiency, far from making us feel "colonised", made us shine.

But it was the next generation – like my children – growing up in the 1970s and 1980s, that became consciously anti-colonial in their reading of history. This shift was not accidental. The NCERT textbooks



English is a bridge, not a barrier

Fluency in the language still matters within corporate, professional circles; in the informal sector, it is a practical tool, not a marker of identity

in the 1970s deliberately placed an emphasis on Indian social reformers, constitutionalism, and regional histories, giving children a more rooted and self-aware education. By the 1990s, children learned Sanskrit compulsorily, read Indian history more fully, and grew up bilingual or trilingual. They travelled on public transport, played cricket in the alleys, and absorbed Indian society in all its layers. Macaulay or no Macaulay, Gen Y developed a flexible identity and the ability to communicate with confidence.

Today, English fluency still matters but remains essential mainly within the corporate and professional circles. In the informal sector, which accounts for 90% of India's workforce, English is just a practical tool, not a marker of identity. Even so, everyone recognises that English fluency advances careers, while the lack of it can hinder progress. Earlier, the lack of exposure to spoken English was attributed to unequal opportunities at home and at school. Now, Gemini and Siri fill those gaps, even as Uber drivers in the Hindi belt prefer hearing route directions in English.

Yet nearly 200 years after Macaulay, there is a new kind of eagerness to conflate English usage with colonial loyalty. My contemporaries have begun detaching English conversation – sometimes even



Thomas Babington Macaulay GETTY IMAGES

within their own families – for being "un-Indian". Coming from those whose professional success rests on English, this is galling. The Prime Minister did not call for the abandonment of English; if his words are misread in that direction, India will harm itself.

Two chasms

Ignorance leading to superiority, not inferiority, lives in two chasms which stay unfilled. Generations of Indians have learnt little about caste oppression. Jyotirao Phule and B.R. Ambedkar were never taught in my generation or for decades thereafter – leaving me and my children (now in their fifties) blissfully unaware of the cruelty of caste. This gap was not Macaulay's creation. It was (and is) the result of middle-class indifference to face uncomfortable truths.

The second chasm was created by Macaulay by urging the British to end funding for Sanskrit and Arabic as "bounties to raise up champions of error" – a prejudice that delayed Sanskrit's revival for 150 years, erased state support to Arabic, and eventually pushed Urdu – an Indian language born of a Delhi dialect Khari Boli (wrongly conflated with Islam) – into undeserved decline. The purpose of revisiting Macaulay's legacy should not be to manufacture new resentments. English remains a bridge, not a barrier; and without question we must fill the historical and social gaps that Macaulay never created but that our mindsets have allowed to persist. Only if the Prime Minister's words are read as a call to deepen our knowledge of India and shed unnecessary imitation of foreign lifestyles, the outcome will be constructive. That is the only sensible way to interpret the Prime Minister's call.

(Shailaja Chandra was formerly Secretary, Government of India, and Chief Secretary, Delhi)

How UGC rules prioritise quick justice

The University Grants Commission's (UGC) 2026 regulation on the promotion of equity in higher education has triggered protests by a section of general category students and a *Sadhu sangathan* (organisation of ascetics). The matter finally reached the Supreme Court which has put the implementation on hold for its complete vagueness.

Opposition to the regulation stems from the apprehension that marginalised sections, taking advantage of the vagueness in the new rules, might misuse the regulation to victimise upper castes. This reflects deep distrust and insecurity which is fuelled by fears that measures aimed at providing justice to one section of the population could turn out to be unjust for others.

Caution against speedy justice

This regulation is necessitated by an undeniable reality. Caste, gender and religion-based discrimination in higher educational institutions are neither sporadic nor episodic, and instances of the same have lately been rising. Grievance redress mechanisms have been notoriously slow, often discretionary, and at times only symbolic, leaving students from marginalised communities to suffer the consequences in silence.

Even the most ardent opponents of this new regulation cannot, therefore, deny the necessity of such an intervention. Their consternation arises from the apprehension that the overemphasis on speed to meaningfully deliver justice in institutions shaped by layered hierarchies, informal power, and uneven capacities might be misplaced, as speed and justice share a very complicated relationship. Too slow, and it loses meaning; too fast, it risks losing judgment altogether.

The 2026 regulations insist on swift redress, strict accountability, and institutional consequences for silence or inaction. Complaints



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Students from rural areas and linguistic minorities often struggle to translate everyday discrimination into administratively legible complaints

must be acknowledged immediately, committees convened swiftly, and inquiries concluded within rigid timelines. This design rests on a powerful assumption – that speed and fairness naturally reinforce one another. Yet, justice systems across the world suggest otherwise. When urgency is institutionalised without explicit safeguards, decisiveness begins to substitute for deliberation. Quick timelines and central monitoring without clear procedural standards create fear. Institutions worry about regulatory penalties as well as reputational damage from complaints processed rapidly and unfairly. The new regulation assumes that the time taken in due diligence and completing procedural formalities is akin to institutional inertia. It seeks to ensure rapid enforcement by threatening higher educational institutions with dire consequences. They could be de-recognised and lose the power to award degrees. However, whether this shift commands legitimacy, will depend not on intent alone, but on the architecture of enforcement.

Vague process

The experience of U.S. universities during the 2010s is instructive. Faced with the pressure to act swiftly on campus misconduct, institutions prioritised speed, only to encounter sustained judicial pushback over vague evidentiary standards, unclear rights of response, and reputational harm inflicted before findings were even established. The backlash did not arise because protection was unnecessary, but because the process was thin.

Clearly, justice that moves quickly but unclearly destroys trust. That risk is magnified by how the UGC regulations distribute authority. They do not specify offences or penalties. Investigation is delegated to internal equity committees, and punishment is imposed through existing institutional services or

disciplinary rules. Faced with the threat of de-recognition or funding withdrawal, universities are encouraged to prioritise visible action over careful adjudication, which produces fear. And fear, in regulatory environments, rarely fosters justice.

Rewarding privilege

At this point, legal design collides with social reality. The ability to document harm, articulate it in institutional language, and navigate committees remains unevenly distributed. Students from rural areas, and linguistic minorities often struggle to translate everyday discrimination into administratively legible complaints. Meanwhile, those with greater cultural and institutional exposure, sometimes from dominant sub-castes within protected categories, are better positioned to mobilise the system. The result is a quiet paradox. A regime designed to amplify marginal voices ends up privileging the most institutionally fluent among them. These pressures inevitably spill into classrooms. When academic judgment is subjected to regulatory scrutiny without procedural clarity, risk aversion becomes the most logical course. Faculty respond by diluting feedback, avoiding difficult conversations, and sanitising evaluation. And over time, institutions learn ways to bypass the complexities. Committees multiply, documentation thickens, and compliance becomes performative. Scholars describe this as compliance theatre, a phenomenon where organisations learn to demonstrate reform without addressing underlying hierarchies.

Justice in universities must not be a race to the first response. It should be a long and difficult conversation. One that demands urgency, yes, but also precision, patience, and the humility to revise. Without that balance, equity will quietly and persistently slip out of the room.

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Ponseythilli
Muralidharan

During exam season, certain things repeat themselves in almost every home. A student sitting at the dining table late into the night. A cup of tea gone cold. Notes spread out, not always being read. A parent hovering nearby, unsure whether to speak or stay silent.

From the outside, it looks like stress. From the inside, it feels like learning something that no textbook ever names. During this time, students often answer the same question again and again.

"How are you?"
"I'm fine."

It is said while tying shoelaces in a hurry, while eating without much appetite, or while stepping out of the exam hall and avoiding eye contact. Often, "I'm fine" means I'm managing.

Beyond textbooks

Exams do not only test what students know. They slowly train students to stay with effort. To sit with discomfort without walking away. To return to the same chapter even when confidence dips and motivation feels thin.

Many students remember this phase not because of a particular question, but because of how it felt. The heaviness in the chest before an exam. The strange quiet of



Life lessons from exams

With exam season upon us, an educator reflects on what students actually learn and carry forward from this period of stress

the hall. The moment of doubt halfway through a paper when the mind goes blank and yet the hand keeps moving. That moment matters.

After the exam, the managing does not stop. Outside the hall, conversations begin quickly.

"That question was easy," or "I think the answer is option C."

Some students listen and feel unsettled. Some

quietly walk away. Some put on earphones even if no music is playing. Choosing not to participate in these conversations takes effort. It is not avoidance. It is self-control, and many students practise it daily during exam season.

Two students can score the same marks and yet come away with very different inner experiences. One may have

had reassurance at home, steady encouragement, and the sense that outcomes were not the only thing being watched. Another may have carried unspoken pressure. The fear of letting someone down. The feeling that failure was not an option.

Manage responsibility
What exams reveal quietly is not who is

smarter, but who learns to carry responsibility early. Most students learn this without anyone spelling it out.

They learn how to manage tiredness. How to keep going even when sleep is patchy and days blur into each other. How to hold their nerves when comparison enters the room through rank lists, coaching centre stories, or a relative's ca-

sual comment.

They also learn how to appear fine. Many students become experts at saying "I'm okay" even when they are not. They learn that discipline is admired, but doubt is inconvenient. That calm is appreciated, but questions about fear or fatigue are harder to place. Over time, composure becomes a habit. This is not a weakness. It is an adaptation.

What often makes the difference is whether this effort is seen. When a parent notices persistence instead of only marks, the strain feels meaningful. When effort is invisible, pressure feels heavier than it needs to be.

Most adults can trace something important back to their exam years. The first time they realised they could do something difficult without quivering. The first time, they understood what sustained effort felt like. The first time they learned that clarity does not always come before action, sometimes it comes after. These lessons did not stay in school. They travelled forward.

Many adults forget this. They remember the stress, but not the strength it built. Yet the ability to sit with discomfort, to stay with effort, and to continue without immediate clarity was learned much earlier than they realise. Often, it was first practised during exam season.

Training ground

That is why exam pressure should not be spoken about only as suffering. It is also a training ground. Not because pressure is good in itself, but because learning to hold pressure with dignity builds something lasting.

Support during exam season does not mean removing difficulty. It means making the difficulty feel held. It shows up in small ways. In reducing unnecessary comparisons. In recognising effort even on days when results are unclear. In allowing a student to say, "This is hard", without immediately trying to fix it.

Exams will end. Papers will be corrected. Life will move on. What stays is quieter. The memory of having stood in that heat and endured. The knowledge that, even at a young age, one learned to carry responsibility and finish what was started. Later, when life demands rigour again – as it will – something familiar returns. A sense of alignment.

I have done this before. I have stayed with something difficult before. If I could do it then, I can do it now. That is what exams do not test, but what students carry forward.

The writer is Junior Faculty Organisation - Behaviour and Human Resource at Great Lakes Institute of Management, Chennai.

SCHOLARSHIPS

Vivekananda Gyan Scholarship

A CSR initiative by vivo India.

Eligibility: Women students in the first or second year of a full time, regular STEM UG course at NIRF-ranked colleges and have scored at least 70% in Classes 10 and 12 and in the most recent academic year and have an annual family income not exceeding ₹500,000. Preference will be given to students from government colleges. Students who are receiving other financial aid are not eligible.

Rewards: ₹50,000 a year

Application Online

Deadline: March 3

www.b4s.in/edge/VKISPI

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Provided by the CSIR-Centre for Cellular and Molecular Biology.

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Rewards: Research experience and mentorship.

Application Online

Deadline: March 10

www.b4s.in/edge/OCMBT

Ireland International Education Scholarship

An initiative of the Government of Ireland, in partnership with the Irish HEIs and managed by the Higher Education Authority.

Eligibility: Open to domiciled residents of non-EU/EEA countries who are graduates and hold a conditional or final admission offer to an Irish institution at the time of application.

Rewards: Up to €10,000 for a year.

Application Online

Deadline: March 12

www.b4s.in/edge/ITES2

Courtesy: Buddy4Study.com

EDUCATION/CAREER

Do innovation labs bridge gender gaps in schools?

ANURAG GUPTA

When a government school in Rajasthan set up its first robotics lab, the inaugural batch had 32 students. Only five were girls.

Six months later, during an internal robotics challenge, two of those five girls led their teams. One of them had initially refused to even touch the hardware kit, convinced that "circuits are for boys." What changed was not the infrastructure alone, but the ecosystem around it.

Across India, schools are rapidly investing in robotics labs, AI classrooms, tinkering spaces, and innovation hubs. Under initiatives like the Atal Innovation Mission and its Atal Tinkering Labs, thousands of schools now have access to structured maker spaces. On paper, access to infrastructure has expanded significantly. But the larger question remains: Does infrastructure automatically translate into equal participation?

The participation gap is real

According to the AIE-India Survey on Higher Education (AIEHE), women now account for nearly half of total higher education enrolment in India. However, when we narrow this to engineering and technology streams, female enrolment drops significantly. The gap widens further in advanced fields such as artificial intelligence, robotics, and core electronics.

At the school level, the pattern begins much earlier.

In multiple schools we have observed, enrolment in innovation labs is usually gender-balanced when participation is mandatory. But when projects become competitive, voluntary, or time-intensive, such as robotics competitions or coding clubs, girls' participation often declines. This indicates that infrastructure may open the door, but culture determines who walks in and stays.



Insufficient infrastructure

In a Tier-2 CBSE school in Madhya Pradesh, the robotics lab was well-equipped. Yet, during open lab hours, boys occupied most of the equipment. Girls preferred working on documentation or presentation slides. Teachers later admitted that they unconsciously assigned hardware roles to boys and creative or reporting roles to girls.

When the school consciously rotated responsibilities, mandating that every student handle wiring, coding, assembling, and presenting participation patterns shifted within a term. Girls began experimenting more confidently with tools. One student who had initially chosen "design only" later represented the school at a state-level robotics showcase.

The lesson was clear: access without structured inclusion reproduces existing biases.

Classroom dynamics

Research globally, including studies cited by UNESCO, shows that girls' participation in STEM is strongly influenced by classroom climate, teacher expectations, and representation. When teachers

model equal technical expectations and celebrate problem-solving over speed or aggression, girls' retention increases.

In several schools, we observed that girls responded particularly well to project-based challenges set in real-life contexts, such as designing a smart irrigation model for local farms or building safety alert systems. Contextual relevance appeared to reduce intimidation and increase ownership.

Interestingly, when robotics and AI were introduced through storytelling and problem-solving rather than technical jargon, initial hesitation among girls reduced significantly.

Impact of role models and visibility

In one school in Haryana, participation in the innovation lab rose sharply after a female alumna pursuing engineering returned to mentor students. Her presence shifted perception more than any new equipment did.

Exposure matters. When girls see women coding, building hardware, or leading tech projects, the idea of belonging in that space becomes tangible.

Several schools have also experimented with girls-only introductory workshops, not to segregate permanently, but to create safe entry spaces. Once confidence is built, mixed teams function more equitably.

Data from the ground

Across schools where structured lab integration was implemented, meaning labs were embedded into the curriculum rather than treated as extracurricular add-ons, we observed up to a 20-30% increase in sustained female participation over two academic years.

However, in schools where labs remained optional clubs without mentoring frameworks, gender ratios remained largely unchanged.

This suggests that innovation labs can indeed shift participation patterns, but only when accompanied by:

- Teacher sensitisation
- Rotational task allocation
- Contextual project design
- Visible female role models
- Long-term mentoring rather than one-time exposure

Perhaps the most telling shift is not enrolment, but confidence.

In a Bengali school, a Class 8 student who once hesitated to switch on a soldering iron now leads peer training sessions. Her parents later shared that she now speaks about pursuing engineering, something she had never considered before exposure to hands-on STEM.

Infrastructure, in this sense, acts as a catalyst. But transformation happens when psychological barriers are addressed alongside physical ones.

Innovation labs change participation patterns, but not automatically. Robotics labs and AI classrooms can democratise access. They can disrupt stereotypes. They can give girls a first touchpoint with tools historically perceived as male-dominated. But without conscious design, they risk becoming sophisticated rooms that mirror existing inequities.

The real shift happens when infrastructure is paired with intentional pedagogy.

As India expands its innovation ecosystem under national education reforms, the next phase must move beyond building labs to building inclusive cultures within those labs. Only then will participation patterns not just change temporarily, but evolve sustainably.

Because in the end, machines do not create equity. Minds do.

(The author is the co-founder of a company that sets up Atal Tinkering Labs)

Do you have it in you to become your own boss?

ALI KHWAJA

Many enthusiastic and active young people, including students, aspire to build start-ups, be self-employed, and earn more, rather than be employed on a fixed salary. Some of them even start planning early, take on some commercial projects, and get a feel for earning money while studying. They are highly influenced by media reports that claim there are over 6 lakh start-ups active in the country. Of these, 89 are reported to have become unicorns, i.e. they have attained a value of more than one billion US Dollars.

Initially, only youngsters in metropolitan cities had such dreams, but now it is estimated that almost 50% of the start-ups originate from Tier-II and Tier-III cities. Overall, it is reported that there has been a 300% increase in start-ups in India in the past 5 years. As expected, the vast majority have been in IT services, with healthcare, life sciences, and education also popular. 73,000 start-ups are reported to have at least one woman director.

The companies that are moving towards becoming unicorns are those that pursue rapid growth, disruptive technology, and large amounts of venture capital. They are people who prioritise rapid expansion over profitability.

Earlier trends in entrepreneurship were mostly people who had worked for a number of years, acquired domain specialisation and experience, and then took the plunge to set up their own business. One of the reasons for this was that before the IT boom, enterprises were capital-intensive, requiring buildings, machinery, stocks and labour. Also, bank loans were very conservative and rarely given to inexperienced people.

Today's start-ups do not necessarily go to banks; they approach Venture Capitalists who invest either in interest-based loans or in profit-sharing equity. Also, many IT and service-sector enterprises do not require substantial funds, as they do not need large offices or factories and do not need to carry stock-in-trade. Venture Capitalists are risk takers who put in money if they are convinced that the promoter has ideas that can be cashed in the short run.

Who should choose entrepreneurship?

Taking an early plunge suits those who do not need a regular income to meet basic needs and can withstand losses for some time.

Those who are resilient, adaptable, and can handle ups and downs, unexpected challenges and setbacks have risk-management skills. They need to be visionaries who can visualise things that do not exist. And they should be willing to work long hours, focus on strategy rather than day-to-day operations. They should be people who can not only sell products but also sell themselves.

People-management skills are perhaps the most vital, because all other skills can be obtained by hiring

specialists. A person who can analyse the thinking and attitudes of partners, employees, customers and suppliers will be able to overcome other hurdles.

Despite all the above, success will depend on how feasible the business idea is, what scale it needs to operate at, and how it can beat the competition. Those who understand their competitors' plans and strategies can overtake

them. Lastly, they should know when to take risks and when not to be foolhardy, able to make critical decisions such as closing down, changing the product line, or moving into something new based on market demands.

Before starting a startup, it is definitely advisable to gain practical

work experience in similar organisations. An MBA or PGDEA in entrepreneurship, offered by many reputed B-schools, can also give a boost. Having a partner or two who complements skills is an added advantage. Although entrepreneurship at the degree level is offered by some universities as an elective, it provides only a broad overview and may not equip the student to actually run a business. Nothing can substitute exposure and experience in the corporate world.

The flip side

Let us also look at some realistic data. Despite having the third-largest startup ecosystem in the world, 80-90% of Indian businesses fail within the first five years of operation. The reasons identified by experts include: poor financial management leading to a cash crunch, failure to keep up with technology, and, most importantly, not having the pulse of the people they need to interact with on a regular basis, i.e., their colleagues, employees, financiers, and customers.

Studying case histories of other start-ups, browsing biographies of both successful and unsuccessful businessmen, and learning lessons from even minor threats or setbacks can help prevent failure to a great extent. Even then, an entrepreneur should know when to cut losses and admit defeat, instead of getting deeper and deeper into a financial mess.

An educational-tech company promoted by a charismatic Indian shot to fame a few years back, was valued in the tens of billions of US dollars, and was aiming to become the biggest educational company in the world. It ran into trouble and is now facing lawsuits in the USA. Many skeletons were exposed by former employees who claimed they were coerced into engaging in unethical sales practices. Studying such cases, and not just those who have been consistently successful, teaches you what mistakes not to make.

Among those who spiralled into millions and billions in a short span, many have tumbled, while others sold and got out. On the other hand, there are many others who have taken the slow and steady gait of the Tortoise and are making steady progress. You need to choose between being a hare and a tortoise. (The author is an education and career counsellor)



Too young for a costly race

John J Kennedy
writes about
the dilemma of
spending lakhs
of rupees on the
education of a
three-year-old



School admissions have begun at many institutions, while at some 'progressive' elite schools, the process may already be complete. Amid this frenzy, the sad plight of parents and their little ones deserves attention. Across India's cities and rapidly growing towns, a child's first step into education has become one of the most stressful experiences for parents and families.

Nursery admissions, meant for children barely three years old, now resemble an obstacle race marked by uncertainty, competition, and exorbitantly rising costs. Expectation of a smooth introduction to childhood learning has become an exhausting test of emotional resilience and financial capability. From the

metropolises and the numerous Tier-2 towns, parents describe the process in strikingly similar terms. They say rules appear clear but confusing in practice.

Of course, schools publish admission criteria, make forms available online, and even announce timelines, but the uncertainty and unpredictability of the outcomes make parents anxious. So, many families often apply to multiple schools, track deadlines obsessively, calculate distances and eligibility points, and rely as much on luck as on planning.

It's also true that parents approach nursery admissions with various expectations. Some prioritise safety and care; others, perhaps, values or discipline. Almost everyone seeks early exposure to English, social interaction, or an environment where their child will "fit

in". Schools, on the other hand, operate within a dense web of regulations, court directives, parental demands, and, above all, competitive pressures. Consequently, we have a system that seems transparent, at least on paper, but parents are worried.

Cost of education

Additionally, the rising cost of nursery education is a grave concern. Annual fees run into tens of thousands of rupees. When transport, uniforms, books, activities, and various "optional" charges are added, the total cost over two or three years can stretch into several lakhs. For middle-class families already coping with housing costs, healthcare, and daily living expenses, this is a severe burden.

Of course, school managements justify these fees by pointing to rising operation-

al costs: land prices, infrastructure, safety requirements, teacher salaries, compliance norms, and technology. Valid arguments. Quality education requires trained teachers. Safespaces are mandatory. And these need resources. However, the flip side is that nursery education is viewed by many school managements as very lucrative. Hence, branding, air-conditioned classrooms, glossy campuses, and promises of "international" exposure are aggressively marketed to anxious parents, turning early education into a high-stakes consumer choice.

All this raises uncomfortable questions: does it make sense to spend lakhs of rupees on the education of a three-year-old? At what point does providing a service slip into exploiting parental insecurity? When early schooling begins to resemble a corporate product rather than a developmental space, the line between care and commerce obviously blurs.

Silent propagation of inequality

In this sordid saga, do not overlook how the admissions process quietly reinforces inequality. Parents with digital access and English-language proficiency can navigate easily. But those in the informal sector, migrants, and first-generation learners feel overwhelmed, as they see the entire process as intimidating and exclusionary. No doubt the system rewards cultural and social capital. Knowing how criteria are interpreted, which documents matter, or which schools to prioritise becomes an invisible advantage. Sadly, access to education begins not with learning, but with the ability to manage complexity.

Hence, the emotional toll many parents

experience is considerable. Some parents apply to multiple schools, anticipating rejections. Sadly, for the parents and the child, anxiety sets in even before schooling starts. For both, what should have been an exciting moment becomes, unfortunately, a prolonged period of stress.

Let us not forget that the children at the centre of this process are toddlers. Yet they are taken to multiple school visits, exposed to adult anxiety and, at times, subtle forms of evaluation. Even in the absence of formal testing, the atmosphere of competition seeps in.

Nursery education, we must acknowledge, occupies a particularly sensitive space because it deals with very young children and deeply held parental hopes. Against this backdrop, the larger question therefore becomes unavoidable: is early schooling still a public service shaped by care and development, or has it become a marketplace driven by fear and aspiration?

Ironically, multiple regulations alone have not resolved this tension. Rules are frequently changed, criteria are often revised by governmental agencies, and even the courts intervene at times. However, parental anxiety always remains constant. Why? Perhaps we need to understand that the issue is not just procedural but also conceptual.

If all the stakeholders approach nursery education as a shared, child-centric space and discard the notions of race and competition, there could be some relief for parents. Until that happens, schooling will begin with stress and spending, certainly not learning.

(The author is a former professor and former dean of a university in Bengaluru)



Amid algorithms, people skills remain leaders' strength

ADITYA GUTHEY

Across industries, a visible shift is unfolding in how artificial intelligence is reshaping the workplace. Conversations with engineers, product managers, designers, and executives reveal a striking pattern: anxiety around AI is disproportionately concentrated among individual contributors (ICs), while people managers and senior leaders display far less concern about displacement.

The reason lies in the nature of AI's strengths. Automation excels at execution. Tasks such as writing code, generating documentation, building dashboards, shipping digital features, and even creating structured outputs can increasingly be handled faster, cheaper, and at scale by AI systems.

Organisations that mandate AI adoption often experience dramatic efficiency gains, higher output, and reduced operating costs. In several cases across the technology sector, such gains have

translated into leaner teams, particularly affecting roles centred on task execution rather than strategic oversight.

AI's impact is rarely dramatic at first. It does not disrupt loudly; it embeds itself into workflows through mandated tools and process automation. Over time, improvements in large language models, agentic AI systems, and automation frameworks steadily enhance reliability, quality, and scale.

What may initially raise concerns about code quality or data security is rapidly refined with each iteration. As AI systems evolve to design architectures, configure data pipelines, generate interfaces, and even self-correct through automated testing cycles, the need for purely execution-driven roles is likely to reduce further. This does not signal the end of technical careers; rather, it signals a redefinition of value.

Leadership roles remain comparatively resilient because they are not primarily defined by execution. Leadership is fundamentally about context, judgment,

alignment, and ownership. It requires translating business goals into coordinated action, aligning human capability with machine efficiency, navigating ambiguity, resolving conflict, and making trade-offs that balance short-term outputs with long-term strategy.

As automation increasingly takes charge of the 'how' of execution, the real differentiator for human leadership lies in defining the 'why' and anticipating the 'what next'. Technology can optimise processes and accelerate output, but it cannot replace strategic judgment, contextual awareness, or the ability to align people around a shared purpose.

The professionals who will remain truly indispensable are those who understand the broader business landscape and can interpret market shifts, competitive pressures, and organisational priorities with clarity.

They are able to influence stakeholders through credibility and insight rather than hierarchy alone, and communicate seamlessly across functions to bridge

silos. Most importantly, they focus on delivering measurable business impact rather than merely completing tasks, ensuring that outcomes align with long-term strategy. In environments marked by volatility and rapid change, these leaders guide teams with confidence, adaptability, and foresight, turning uncertainty into opportunity rather than disruption.

At the center of these capabilities lies a critical competency, deep awareness of others, what may be described as 'Them Awareness'. This refers to the ability to understand stakeholders' priorities, motivations, success metrics, and pressures, and to act in alignment with those realities. Leaders who develop this awareness are better positioned to influence decisions, create trust, and drive outcomes that matter to the organisation.

Developing such capability requires deliberate reflection. Professionals must ask: How does my work create tangible business value? What outcomes truly

matter to decision-makers? What competencies does the organisation seek in future leaders? Who must I become to lead effectively in an AI-augmented environment?

The competitive advantage in the AI era will not belong to the fastest task executor. It will belong to those who can integrate technology with human insight, align teams around purpose, and convert capability into strategic value.

In the age of automation, technical proficiency remains important, but distinctly human capabilities are becoming the defining differentiator. As AI continues to scale execution, the future will favour those who master influence, judgment, and leadership grounded in a deep understanding of people.

In an increasingly automated world, being deeply human is not a limitation. It is a strategic advantage.

THE WRITER IS A GLOBAL AI AND COMMUNICATION COACH HELPING LEADERS ALIGN TECHNOLOGY, PEOPLE, AND PURPOSE.

Employability-focused curriculum launched for Bengal universities

Cambridge University Press & Assessment announced a collaboration with the Higher Education Department, Government of West Bengal, to support the launch of a new employability-focused curriculum aimed at strengthening workplace communication and improving job-readiness among university learners across the state.

The curriculum launched recently brought together senior voices from government, higher education and industry to examine how English communication skills are defined, developed, assessed and valued from university through hiring and into early career progression.

Participants included, Prof. Amlan Chakrabarti, COO, International Centre of Excellence for Data Science, AI and Futuristic Technologies, Department of Higher Education, Government of West Bengal; Prof. Suranjan Das, Vice Chancellor, Adamas University; Dr. Himanshu Sharma, Director UWSB and Kamavati University, Ahmedabad; Dr. Andrew Fleming, British Deputy High Commissioner for East and North East India; and Mr Vinay Sharma, Regional Director, Cambridge International Education, South Asia, alongside others.

Commenting on the curriculum launch, Prof. Amlan Chakrabarti said, "Employability today is shaped not only by technical knowledge, but by the ability to communicate ideas clearly and work effectively across disciplines. By embedding structured English communication within the higher education curriculum, this initiative helps align academic learning with industry expectations, while giving students practical skills that will support their transition from university into the workplace."

The programme includes 30 hours of activity-based classroom teaching and workshops, supported by digital course materials with photocopyable resources for teachers, alongside 30 hours of self-paced practice delivered through a learning management system. It focuses on practical English for recruitment and early workplace contexts, covering CV and cover letter preparation, interview and group discussion skills, and professional communication such as emails, meetings and giving and receiving feedback. The course concludes with the Upskill English Test, an approximately 45-minute mobile-based assessment of listening and speaking in workplace contexts, with CEFR-aligned reporting up to B2 to provide clear, measurable outcomes.

The role of online education in bridging the urban-rural talent gap

AMRISH SINHA

Nelson Mandela regarded education as the most powerful weapon we can use to change the world. In this information age, we are a step closer to achieving this vision. With the rise of the internet, online education is the 'great equaliser', which enables democratised access to learning.

An interesting statistic: In 2024, India had 886m active internet users, with 55 per cent of the users residing in rural regions. The deeper penetration of the internet, coupled with increased data affordability, acts as a digital backbone for the proliferation of online education in India.

This breaks conventional geographical, linguistic, and other barriers and makes education a level playing field for learners. Today, the quality of education and access to information are similar in both urban and rural regions. Besides, online education fosters anywhere-anytime learning, provides access to specialised content across streams and academic disciplines, offers resourceful platforms to learners in pursuit of additional knowledge, and even free platforms and tools for hands-on learning.

This is truly a remarkable age, where we are moving from equal to equitable education.

Preparing rural youth to actively participate in the modern workforce

The last few years have seen a dramatic rise in India's tier 3 and 4 regions. Global enterprise mammoths and GOCs (in both tech and BFSI sectors) have been turning to non-metro cities to set up their workspaces and recruit local talent. This arrives as a great opportunity and a mandate to empower rural youth to participate in the modern workforce.

Increasing employability in such regions

involves training interventions as foundational as communication and power skills to as complex as niche training in cutting-edge AI frameworks. This imperative compels the conceptualisation of new-age courses, industry-aligned training initiatives, and open-source platforms for experiential learning modules.

While several government, private, and combined initiatives are arriving to meet the demands, increased internship and job participation opportunities will enable learners to pick up job-specific skills apart from theoretical knowledge.

Online education shattering geographic barriers to foster quality education and career advancement

The contemporary way of learning represents a seismic shift in education, where technology acts as a disruptive agent that eliminates any and all limiting barriers to learning.

High-quality education and content are made available to learners across the socioeconomic and geographical spectrum. Besides, remote learning has also decentralised the specialisation of niche subjects (say astrophysics or rare languages) from universities in metro cities to even the remotest villages.

Teachers also reap benefits as they now have a smart companion to complement their existing teaching methodologies with additional, enriching content.

For working professionals, balancing work and personal aspirations has now become easier than ever, as they can pursue their passion without relocating or spending too much.

With the rise of microcredentials, we are effectively nurturing an ideology of local application, global knowledge.

The role of industry-aligned curriculum to tackle enterprise skill

gaps

India stands at a pivotal moment. While urban India races ahead in digital capability, rural regions still struggle with limited exposure to quality education and employment pathways. NIP 2020, the Skill India Mission, and NSDC have created a strong policy foundation, but real progress lies in converting these frameworks into industry-ready talent across geographies.

Digital adoption

With rural internet users increasing every day, access is no longer the primary constraint. Affordable smartphones and connectivity now enable rural learners to access the same digital learning ecosystems as urban students—making scalable, personalised skilling truly feasible.

Industry alignment: The core of employability

High-growth sectors like IT/ITES, BFSI, EV and Industry 4.0 manufacturing, logistics, and healthcare, face a severe skilled talent shortage. With employers shifting to outcome-based hiring, curricula co-designed with industry leaders are essential. Real-world projects, AI-led assessments, and hybrid apprenticeships ensure graduates are productive from day one.

Micro-credentials: Skills with speed and relevance

As the half-life of technical skills shortens, stackable micro-credentials offer agile, job-aligned upskilling. Modular pathways paired with AI-driven personalisation allow rural learners to build in-demand capabilities without disrupting livelihoods.

Learner-centric design: Inclusion at scale

Soft skills, workplace behaviours, and gender inclusion must sit at the core of every program. Vernacular learning, adaptive pathways, and voice-based interfaces ensure accessibility even in low-bandwidth environments. Hybrid apprenticeships strengthen employability through 'learn while doing' exposure.

The path ahead

Closing India's urban-rural talent gap requires aligning policy intent, industry relevance, and technology-led personalisation. By prioritising modular, inclusive, and market-aligned curriculum design, India can unlock its demographic dividend and emerge as a globally competitive talent hub.

Achieving inclusive economic growth and a balanced talent eco-

system

The concept of economic growth is not about being centred on clusters but on an ecosystem. Real growth is unlocked when it's inclusive. Growth in tier 1 regions is good, but prospering tier 3 & 4 regions is great. And online education is the engine that fuels this ambition.

Be it the affordability it offers to aspirants from rural regions to learn and become entrepreneurs and professionals, the role it plays in gender empowerment by providing safe and accessible education to culturally and geographically limited women, or battle the skill gaps that spring when enterprises setup their offices in these regions, online education is the fulcrum, that strategic enabler of holistic, inclusive economic growth.

Aspects like demand-driven curriculum and skill-first approach truly supercharge

the impact online education offers and the impact it creates in the lives of learners.

Online education is becoming one of India's strongest levers for inclusive economic growth, breaking long-standing barriers of geography, income, and social disadvantage. By lowering the cost of skilling and removing the need to relocate, it gives rural, low-income, and first-generation learners access to the same high-quality programs that urban professionals receive, creating a more level talent playing field.

As employer partnerships and hybrid apprenticeships strengthen, online education becomes a strategic catalyst, expanding the talent pipeline, reducing inequality, and enabling upward mobility at national scale.

THE WRITER IS THE CEO, UNIXIT LEARNING



Can AI assessments enable better learning

**Abhishek Gopalka and
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For India to turn its demographic promise into an economic reality and thrive in an AI world, the Viksit Bharat dream must be rooted in what happens inside classrooms. Yet national assessments show a persistent learning crisis: barely 45% of Grade-5 children can read at a Grade-2 level and only about 31% can perform simple division. These sobering numbers show that a systemic rethink is needed; more of the same won't do. The solution can start from a simple premise: teachers should spend their time and energy on teaching, and the entire ecosystem should enable that. Pairing this philosophy with rigorous, frequent outcome measurement – which in turn informs immediate classroom action – can help teachers teach the right competencies at the right learning levels. This is the essence of the “Assessment-to-Action” approach: Assess comprehensively (all competencies), universally (every child) and accurately, at regular intervals, without increasing teacher burden. Close the loop for the teacher by converting assessment data into personalized, competency-linked, student-specific teaching next steps and nudges. Use the same assessment data as the single source of truth for all other stakeholders – from parents to policy makers.

Let's look at Rajasthan as a case study. The Rajasthan School Education Department has pioneered the Assessment-to-Action system, conducting AI-based assessments of around 40 lakh students in Grades 3 to 8, two to three times a year since 2023. Under this model, teachers take a photo of students' answer sheets on a mobile phone, after

which an AI algorithm – (developed by PlayPower Labs) digitizes and corrects responses with over 96% accuracy. Based on the results, teachers receive personalized recommendations and nudges on which competencies to reteach, which students to focus on, along with competency-linked lesson plans, byte-sized videos, worksheets and more. The end-to-end experience runs on the department-owned Shikshak app.

Early results are compelling. Within two academic years, the number of districts with more than 50% of students behind grade level fell from 18 to five. Teachers report substantial time savings – correction time has dropped from 5–6 minutes per child to under a minute. They also appreciate the specificity and usability of the feedback, and how it enables them make classroom action more intentional.

The state has also implemented AI-enabled Hindi reading assessments for 35 lakh students using a tool developed by Wadhvani AI. These voice-recognition models score fluency across dialects and accents and feed results into targeted reading campaigns such as Prakhari Rajasthan. The state has begun piloting AI-supported scoring of subjective assessments with PlayPower Labs; a study in Jodhpur shows promising results with over 90% accuracy – an important step toward assessing reasoning and written expression at scale. Practical lessons about AI in public education

Several other states – including Gujarat, Assam and Andhra Pradesh – are implementing AI-enabled digitization in different contexts, signaling a nationwide readiness to leverage AI in school education reform. These gains underscore three practical truths about AI in public educa-

tion. First, AI is most valuable when it automates routine, time-consuming tasks such as scoring, digitization and aggregation, so that teachers don't have to. Second, data matters only when something can be done with it. A closed loop that moves from assessment to insight (where to focus) to action (teaching aids) is what makes a useful tool. Third, success depends on state ownership and human-centered design. Tools that reduce teacher workload, align with curricula and are co-designed with educators are the ones that will be adopted and sustained.

Regular, reliable, census-based assessment data enables a system-wide focus on learning outcomes, giving policymakers a clearer view of what works and allowing decisions to be based on classroom needs.

One of the biggest benefits of this granular, census data is its predictive capacity: which students are at risk of dropping out, which interventions are improving outcomes, which schools need more support. These insights can make the social sector more evidence-led, data-driven and accountable.

Rajasthan's story offers a pragmatic blueprint not just for education but for other sectors too – showing how AI can be used to digitize outcomes at scale without increasing the burden on teachers, nurses or farmers. Only when children leave school with conceptual clarity and the habits of reading, reasoning and problem-solving can they become fully contributing citizens. The simple mantra – let teachers teach, let AI assess – may be the most radical and humble step towards a truly Viksit Bharat.

Gopalka is India Leader, Education and Social Impact Practice, BCG & Brajabasi is Principal, BCG

BEYOND VIRAL MEMES

Indian robots are stepping out of labs

From quadrupeds in power plants to snake-arms that can work in small spaces and emerging humanoids, a quiet industrial robotics push is taking shape beyond the headlines



A quadruped robot by xTerra Robotics, which provides solutions for inspection, security and industrial tasks. (Inset) CynLr is a mobile system with three seven-axis arms created by CynLr, which focuses on teaching robots to recognise and handle unfamiliar objects

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For a few days in Feb, a university demonstration at Delhi's AI summit reduced India's robotics conversation to a spectacle. Videos went viral, memes were made, and the debate veered towards whether the country could build serious machines at all. But beyond the noise, engineers in labs, industrial sheds and startup garages are building robots meant not for stage shows but for factory floors, refineries, warehouses and confined industrial spaces.

India's robotics market, valued at about \$1.9 billion in 2023, is projected to touch \$7.4 billion by 2034, growing 16% annually. The ecosystem remains small, compared to the US, Germany, China and Japan. Yet, a handful of firms and organisations are trying something harder than integration: building the underlying machines themselves.

At the Indian Institute of Science (IISc) ecosystem, Prof Shishir Kolathaya, co-founded Strider Robotics with his former student Aditya Rajawat after years of research that began in 2014. The decision to commercialise came only around 2023 and 2024.

Their robot is a four-legged platform designed to climb multiple floors, traverse uneven ter-

rain, read analogue gauges, take thermal images and log sensory data in hazardous or labour-intensive environments. Power plants, coal mines and automotive facilities are among the target sites. "Instead of an engineer walking across floors and manually logging readings, the robot can be pre-programmed to visit locations, capture images, read dial gauges through image recognition and generate reports," Kolathaya explains.

The company claims that roughly 80% of materials are sourced from Indian vendors. "It is about reducing critical dependencies while building value here," he says, adding that the real differentiator lies in control systems and integration.

From R&D To Factory Pilots

Aditya Rajawat, co-founder and chief executive of xTerra Robotics, traces the quadruped journey in India back to around 2020. That was when commercial deployments of four-legged robots began gaining global visibility, and imports from China started entering Indian campuses and labs.

Today, xTerra offers a range of legged robotic platforms focused on mobility autonomy and adaptability for inspection, security and industrial tasks. Their SVAN series includes the SVAN M1, an early quadruped prototype, and the

SVAN M2, India's first commercial four-legged robot designed to traverse complex terrain with advanced sensing and control.

Besides COBOT C1, a robotic manipulator aimed at precision automation, it has developed SCORE, a legged robot with a manipulator arm, enabling it to operate switches and valves, handle objects, and interact safely with its surroundings. This, the company says, can be used for infrastructure inspection, security patrols, under-vehicle checks, campus waste collection and fire-safety audits. Alongside complete robots, xTerra builds supporting hardware.

"When we began as a startup in March 2023, there was effectively no domestic market," Rajawat says. The first order came in Oct the same year from a research organisation that wanted a platform to develop algorithms. xTerra has since sold its first industrial unit to Siemens Energy and is currently engaging with five industrial players. More than 20 enquiries are under discussion, with potential deployments ranging from one or two robots to fleets of 30.

The price range for a programmable industrial quadruped in India is currently between Rs 15 lakh and Rs 25 lakh, depending on sensors and customisation. Simpler remote-controlled versions impor-

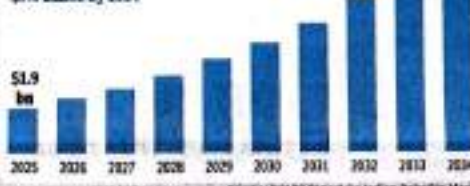


Leading Segments in Indian Robotics

By Product Type	Articulated robots	39% market share
By End-Use Industry	Automotive	36% market share
By Application	Handling	30% market share
By Region	North India	32% market share

India's Robotics Set For Nearly 4-Fold Growth In 9 Yrs (in \$ billion)

The robotics market in India, which was valued at about \$1.9 billion in 2023, is expected to reach \$7.4 billion by 2034



SOURCE: IMARC Report On Indian Robotics Market

A snake-like robot by Armazis Automations has use in confined spaces and is designed to enter ship hulls, aircraft engines, etc

ed from China are, of course, much cheaper — between Rs 3 lakh and Rs 5 lakh. But Rajawat points to a recurring issue: some firms that bought imported robots struggled to deploy them effectively because they lacked the software and system integration needed to make them useful. "Hardware alone is not enough. The stack matters," he says. xTerra builds both hardware actuators and the software stack in-house, sourcing only certain components from vendors.

Humanoids, he adds, remain early-stage globally. While there is interest in retail, logistics and hospitality in India, real commercial deployment is still limited. xTerra is developing a humanoid prototype, but has not yet released it.

Warehouse Scale-Up

If quadrupeds are entering inspection and digital transformation, warehouse automation is already at scale. Adverb, based in Greater Noida, gets around 80% of its revenue from exports across Europe, the Middle East, Southeast Asia and Australia, with the remaining 40% generated in India. Its portfolio centres on autonomous mobile robots (AMRs) such as Dynamo for moving materials and picking multiple cartons as well as robots for rapid parcel sorting.

Beyond traditional warehouse automation, Adverb has expanded into collaborative and assistive robots, such as "robos", for human-robot interaction, assistive quadruped robots for inspection and patrol, and wheeled humanoid robots suited to industrial tasks.

According to Rajesh Kumar, principal scientist for advanced robotics at Adverb, humanoids are the next frontier. Adverb is testing them in live operational environments. "In 12 to 18 months, humanoids will transition from pilot deployments into early commercial adoption," he says, particularly in retail fulfilment centres, healthcare facilities and complex warehouse settings.

Adverb designs its autonomy, perception and fleet management software in-house in India and assembles key structural components locally. However, some high-precision components are still sourced globally.

Handling The Unknown

Bengaluru-based CynLr is tackling a different bottleneck: object intelligence, which is basically teaching robots to recognise and handle unfamiliar objects. Founded in 2019, the company operates design and development centres in Switzerland and Bengaluru.

Its flagship system, Cylo, is a dual-arm, vision-guided robot that can handle unknown objects without training. Instead of rigid, pre-

dict specific lines, CynLr envisions "universal factories" where micro-factories can switch between products without custom machines.

CynFold, a mobile system with three seven-axis arms, and Man-troid, a three-wheeled high-deck-troid, are platform under development, extend this approach. The company argues that India has very few true robotic arm builders and that most firms remain system integrators dependent on imported hardware.

"The ecosystem is still emerging. Talent, funding and supply chains are interdependent," the founders note.

In Confined, Hazardous Spaces

Armazis Automations, founded by IIT Kanpur alumni and based in Bengaluru, is targeting confined industrial environments. Its snake-like, super-flexible, long robotic arms are designed to enter ship hulls, aircraft engines, ducts and tanks. The aim is to replace human entry in dangerous spaces.

"The biggest challenge is deployment complexity," says Vibrant Dora, co-founder and chief executive.

Small But Widening Field

Beyond these firms and organisations, others are experimenting with humanoid and semi-humanoid systems. Muko Robotics' Spaceo line targets navigation and manipulation tasks; Cosine Robots is working on programmable humanoids for developers; Invento Robotics' Mima operates in banks and hospitals; and a cluster of smaller companies are showcasing quadrupeds and wheeled humanoids at industry expos.

Yet there are constraints. Robotics is capital-intensive and margin-sensitive. Hardware innovation demands patience. Unlike in the US, where govt agencies such as DARPA supported firms like Boston Dynamics before corporate backing arrived, India lacks similar long-term support programmes.

Still, there is movement. Academic labs, incubators such as APTARK at IISc, and early industrial adopters are creating test beds. Multinationals with digital teams in India are piloting locally before global rollout. Iro's half-humanoid, Vyomitra, is expected to fly to space sometime in late 2024 or early 2027, depending on progress made in the Gaganyaan programme, and defence PSU HAL is working on a four-legged robot for border security.

The shift, founders say, will come when robots are judged less by spectacle and more by return on investment: reduced downtime in a refinery, safer inspection inside a turbine, faster fulfilment in a warehouse.

When Software Builds Software: What Developers Must Learn Now

Akhil George & Sujit John | TNN

Artificial intelligence has generated both excitement and anxiety among students, fresh graduates and mid-career professionals, particularly in software development. Coding, built on structured logic and repeatable patterns, has proved especially amenable to AI training. As models grow more capable of generating, testing and even debugging code, many are asking a blunt question: what exactly should a software professional now learn to remain relevant?

Vishal Chahal, VP at IBM India Software Labs, argues that the answer is not to compete with machines on speed, nor to abandon programming fundamentals. It is to elevate one's thinking. "AI is redefining software. Coding is only one part of the software life cycle." Design, architecture, deployment, support and continuous improvement remain firmly in human hands. "AI is redefining what you will do in your job (as a software developer)".

AI CAREER EDGE

The productivity gains are real and this has implications. In Chahal's own experience, developers can see "at least a 30 percent uplift in daily coding tasks". Essentially, software can be built "much faster", test cases can be generated more quickly, and iteration cycles have shrunk. This means teams can now experiment more freely because they can fail fast and try again without the same cost in time.

The deeper shift lies in how engineers think. "Instead of spending your time writing code line by line, you should be thinking about systems," he says. "How am I designing this system? What solution am I trying to achieve?" Once that clarity exists, structured prompts can guide AI tools to generate much of the code. For students, the message is not to discard program-



AI is not taking away jobs; it is redefining what you will do in your job. Software development is not just about coding — coding is only one part of the life cycle. The super skill now is how you convert a requirement into a solution and then into a structured prompt. Practise every day, stay updated, and never neglect your fundamentals.

Vishal Chahal | VP, IBM INDIA
SOFTWARE LABS

ming languages either, even if AI can write much of the code.

"We must continue to learn the fundamentals," Chahal says. Understanding how software interacts with hardware, how programming languages translate into machine instructions and how systems behave under load remains essential. AI-generated code still needs to be understood, validated and improved.

However, "coding itself is no longer the super skill," he adds. "The super skill is the ability to take a requirement, turn it into a solution, and then express that solution clearly through structured prompts."

Vague instructions will yield vague results. "If you say 'write a good JavaScript program', that means nothing. You must define what 'good' means — secure, efficient, scalable, compliant. You must specify the constraints."

Chahal cautions strongly against intellectual complacency as well. "If you offload all your thinking to these tools at the start of your career, you will not develop the ability to design complex enterprise systems." Building prototypes with AI is one thing, designing mission-critical digital infrastructure is another. Architectural judgement in this space is built through understanding gained over many years at the workplace.

Security and governance, he argues, are also now becoming foundational skills. With AI generating code and developers pulling from open-source repositories, risks multiply. "You must know how to build secure, governed solutions," he says. Engineers should be able to scan for vulnerabilities, detect data leaks and apply responsible AI principles.

Chahal rejects the idea that entry-level roles are disappearing. "Jobs are not going away. They are transforming," he says. Which is why Chahal and his team at IBM now look out for candidates who are adaptable. "The hunger to learn and the ability to unlearn. That's what we look for," he says. Linear, narrowly defined career paths matter a lot less than evidence of flexibility — shifting domains at work, learning new tools and embracing change. Chahal's advice is to try and highlight these competencies in your resume if you have them.

For both young and mid-career professionals, his other bit of advice is to practice daily. "Spend half an hour or an hour every day using these AI tools." The objective is to be intimately familiar with them — to understand the nuances of these AI models, their limitations, and their rapid evolution. Those who stay close to the change will recognise the shifts between one wave of models and the next and will be able to adapt in a cutthroat jobs marketplace more effectively because of it.

Empower teachers to raise the bar

Their happiness and dignity can ensure sincere hard work in the classroom



KRISHNA KUMAR
FORMER DIRECTOR, NCERT

ONE of the great hopes that the new economic policy had aroused in the mid-1990s was that licence-inspection raj would end. Perhaps it happened in the business world, but in the world of education, both 'licence' and 'inspection' practices got stronger. In school education, the term 'inspector' was generic and the post had several levels.

The great Hindi novelist Premchand served as a 'sub-deputy inspector' in the early 20th century. I feel grateful to him for leaving vivid traces of what it meant for a school to be inspected under British colonial rule. But inspectorial roles and the culture of inspection are hardly vintage: they have survived Independence and the new economic and educational policy discourses. Inspection of a school continues to be an event marked by a display of power by the inspecting authority, and by the parallel display of meekness by the school staff. They have no choice but to exhibit meekness.

The culture of inspection has not changed since colonial days. The headmaster had to ensure that the school building looked clean, with flowerpots lining the corridors. The children were supposed to look smart and the teachers busy. If the roof had holes, they were covered with rags or with whatever was handy. If the floor had pits, the headmaster used a carpet to hide them.

Gandhian educationist Marjorie Sykes, who was originally a British citizen, told me that school inspection in India was exactly the opposite of what happened in England. There, the headmaster drew chalk circles around the holes, thereby ensur-



LEGACY: The culture of inspection has survived the new economic and educational policy discourses. FILE PHOTO

ing that the inspector would notice and arrange repair work. There was no fear, nor a need to hide the reality.

It was assumed that inspection raj would die with the advent of liberalisation and the weakening of the bureaucracy in every field, not just business. But in education, inspection raj spread to higher education. Accreditation and ranking were introduced as new routines, and they necessitated inspection teams to visit universities and colleges.

When the National Assessment and Accreditation Council sends an inspection team, college and university authorities spruce up the campus, prepare impressive data displays and picturesque flex boards to impress the visiting team. Its members also expect other forms of satisfaction — not just clean toilets and freshly planted saplings. If the team gives less than the highest grades, the stated reasons are not the real story: everybody knows that the head of the institution had failed to please the visitors.

A news report in *The Tribune* (February 19) shows us the perils that teachers face during and after a school inspection. Punjab's Education Minister made a surprise inspection of a primary school at Machhiwara in Ludhiana district.

Clearly, the progress of policy has led to systemic decay and teacher alienation.

Subsequently, the teachers concerned were served showcase notices. They must explain why children in their classes could not read Punjabi text and solve simple maths problems given to them during the inspection. We don't know about these randomly chosen children. Were they from Punjabi-speaking families, and how long had they been learning to read Punjabi? What kind of reading material is being used? In what kind of institutions did the teachers receive training? Were the kids feeling nervous when asked by strangers to stand up and read aloud, and to solve maths problems?

Questions of this kind are too far below the powerful gaze of the ministerial inspection team. I have no doubt that its members are not aware of the sorry state in which Punjab's DIETs (district institutes of education and training) have fallen. These institutes were important structures that sustained teaching standards. Several other structures were created under the Sarva Shiksha Abhiyan. They, too, are now in a state of disrepair. Indeed, teacher education as a whole has collapsed, with private institutes that don't even require attendance. Inspection teams are not interested in such details. They want performance — children's performance which serves as proof of the teachers' efficiency.

One irony in the Machhiwara story is that its primary school is included in the list of 'smart' schools. This title implies that the school is equipped with all the digital gadgetry required for interactive pedagogy. Official faith in digital equipment has rapidly grown over the last decade. The Covid-19 pandemic provided a great boost to this faith. Anything showing that this faith is misplaced is resented — and not because a considerable investment has been made in the smart school project.

Digital equipment gives classrooms a modern look, conveying the feeling that something robustly progressive is happening. This feeling serves a symbolic purpose in government-run schools. The message has two main components: one, that the government is concerned about improving educational standards, and two, that the gap between private and government schools is closing. This messaging imparts an ideological gloss to the use of technology in education. Its real impact on teaching and on teacher-child relationship — both in private and government schools — has received scant attention.

Relentless, technologically assisted testing of children has undermined real teaching. The bureaucracy that governs schools had assumed that regular testing would make teachers more alert and responsible. This was a false assumption, although it looked plausible and political leaders swallowed it as a shortcut to high quality. They still don't see that teachers' happiness and dignity are the best guarantees of sincere hard work in the classroom.

This is hardly a new insight. Four decades ago, the National Teacher Commission, chaired by philosopher DP Chattopadhyaya, had said it all. The report had suggested several strategies for making teachers confident and autonomous. Its recommendations for imparting substance and meaning to teacher training aimed at creating a cadre of reflective teachers, capable of taking decisions for providing the best possible trajectory for every child.

This valuable advice of the Commission is now fully forgotten, although similar recommendations were made in 2008 by the Justice JS Verma Commission. And hardly a few years ago, an alternative to "inspection raj" had emerged in many states, including Punjab, in the shape of sub-district level structures to boost teacher autonomy and capacity. These are in a shambles today. Clearly, the progress of policy has led to systemic decay and teacher alienation.

न्यू करियर टेंड

हाल ही में दिल्ली में आयोजित इंडिया एआइ इम्पैक्ट समिट-2026 की भारत समेत दुनिया भर में चर्चा रही। एआइ के इस्तेमाल को दुनिया भर में बढ़ाने और एआइ से चलने वाली अर्थव्यवस्था तैयार करने के लिए कई देशों ने इस समिट में अपनी प्रतिबद्धता जताई है। इससे आने वाले दिनों में एआइ के क्षेत्र में काफी निवेश की उम्मीद की जा रही है, जिससे रोजगार के काफी अवसर बढ़ेंगे। एआइ स्किलिंग और रीस्किलिंग के साथ कैसे आप भी इस क्षेत्र का हिस्सा बन सकते हैं, इस बारे में बता रहे हैं मनीष त्रिपाठी...



एआइ स्किलिंग के साथ बढ़ें आगे

यदि आप इस साल या अगले साल अपने डिग्री पूरी कर रहे हैं या करियर की शुरुआत कर रहे हैं तो एक प्रेशर के रूप में आपके लिए वर्कप्लेस वैसा नहीं होगा, जैसा आज से दो-तीन साल पहले था। अब कंपनियां यह नहीं पूछेंगी कि 'क्या आप काम कर सकते हैं', बल्कि वे पूछेंगी कि 'क्या आप एआइ के काम को बेहतर बना सकते हैं?' यह सच है कि अब दौर एआइ का है और इससे बढ़ा सच यह है कि एआइ आपको नौकरी नहीं छेदेगा, बल्कि वह व्यक्ति आपको नौकरी ले लेगा, जो एआइ का इस्तेमाल आपसे बेहतर और अधिक मानवीय तरीके से कराने जानता है।

अब वह आपका एजेंट ही तब करेगा कि आप एआइ के लिए मैदान खाली कर देना चाहते हैं या इसी मैदान में एआइ को तेज रफ्तार सवारी के लिए तैयार हैं। एआइ संचालित उद्यमों के वर्तमान युग में आपकी साइट रिस्कर्स ही आपकी असली शक्ति साबित होंगी, जैसे सॉफ्ट कम्युनिकेशन स्किल। इसका लापरवै केवल बोलना नहीं, बल्कि वह सम्मन्ध है कि सामने वाला क्या महसूस कर रहा है। इसलिए अगर आप अभी फर्स्ट इंवर या सेकेंड इंवर के छात्र हैं तो अपने कालेज जीवन का पूरा लाभ उठाएं। टीम लीडरशिप, प्रेजेंटेशन और वाद-विवाद में हिस्सा लें। इसके साथ ही

आपकी जिज्ञासा भी बढ़ी महत्वपूर्ण है। एआइ प्रॉम्प्ट पर काम करने से कृत्रिम बुद्धिमत्ता के दौर में सबसे सफल वही होगा, जो सही सवाल पूछना जानता हो।

निखारे अपनी एआइ स्किल: यदि आप ग्रेजुएट पासआउट होने वाले हैं और प्रेशर के रूप में नौकरी तलाश रहे हैं तो सबसे पहले अपने एआइ स्किल्स को निखारें। आप गूगल एआइ एससियस और एआइ फार एवरोन जैसे ऑनलाइन कोर्स कर सकते हैं। यह मुफ्त है और आपको एजुकेशन स्ट्रीम कोई भी हो, यह आपको बढ़ी सहजता से एआइ का इस्तेमाल सिखाते हैं। यूट्यूब पर भी कई प्रामाणिक चैनल हैं, उन्हें देखकर आप आसानी से एआइ से दोस्ती कर सकते हैं। एक बार इसकी बुनियादी समझ हो जाएगी, मन से एआइ का धम निकल जाएगा तो आपके लिए आगे का रास्ता खुल जाएगा। इसके लिए तीन महीने का वक्त बहुत है। फिर आप करपॉरेट की उस दुनिया में पंज रखने को तैयार होंगे, जहां कदम-कदम पर एआइ है या आने की तैयारी कर रहा है।

ऑनलाइन सीखें नया कौशल: पहले ग्रेजुएट्स शान से कहते थे, 'मुझे एक्सेल आता है' या 'मुझे कोडिंग आती है'। बदलती दुनिया में अब यह काफी नहीं है। डिग्री मिलने का मतलब यह नहीं कि पढ़ाई खत्म हो गई। आगे भी हर छह महीने में कोर्सेज या एडवेंस जैसे प्लेटफॉर्म से

यहां से करें एआइ के कोर्सेज

एआइ से जुड़ी बुनियादी स्किल्स या फिर सर्टिफिकेशन कोर्स करने के लिए आपको किसी बड़ी यूनिवर्सिटी या इंस्टीट्यूट में दाखिला लेने की जरूरत नहीं है। आजकल कई ऐसे ऑनलाइन प्लेटफॉर्म हैं, जो एआइ से संबंधित कोर्सेज करते हैं। आप एआइ, कंप्यूटर डिज़न, लैंग्वेज प्रोसेसिंग, मशीन लर्निंग, डीप लर्निंग तक उठा एनलिटिक्स से जुड़े कोर्सेज के लिए कोर्सेज, यूट्यूम और गूगल जैसे प्लेटफॉर्म की भी मदद ले सकते हैं। यही नहीं, गूगल क्लाउड रिस्कल इन्ट्र प्लेटफॉर्म पर भी एआइ से संबंधित कोर्सेज किए जा सकते हैं। इसके अलावा, ओपन एआइ व माइक्रोसॉफ्ट पर भी कई ऐसे कोर्सेज उपलब्ध हैं, जिनकी कीमत भी ज्यादा नहीं है।

कोई नया एआइ टूल या बैरल सीखें। एआइ ड्रिवेन जब मार्केट में आपको अपने विषय की गहरी जानकारी, लगातार सीखने की आदत और मानवीय स्वभाव को बुनियादी समझ भी जरूरी है। इस बात से फर्क नहीं पड़ता कि आप मास कम्युनिकेशन के छात्र हैं या इंजीनियरिंग के, आपको थोड़ी मार्केटिंग और कुछ मैनेजिग भी आना ही चाहिए। इसके साथ ही अपना सकारात्मक डिजिटल फुटप्रिंट और पर्सनल ब्रांड बनाएं। प्रोफेशनल कम्युनिटी प्लेटफॉर्म पर अपने अनुभव साझा करते रहें। इंटरव्यू के दौरान अपने क्या सीख और किस मुश्किल को मानवीय तरीके से सुलझाया,



फोटो: प्रीतिप

इसकी कहनियां

लिखें। एआइ कंटेंट जेनरेट कर सकता है, लेकिन वह आपके अनुभव या एक की नकल नहीं कर सकता।

सैथी सी बात है कि अब ऐसे लोगों को मांग बढ़ेगी, जो बेहतर ढंग से एआइ से काम निकालवा सकेंगे। ऐसे में इसके लिए आपको अपनी पहचान एआइ फ्रेंडली एंजल की बनानी होगी। बनानी क्या होगी, रेन्यू से लेकर इंटरन्यू तक पूरी-पूरी ब्रैंडिंग करनी होगी। उदाहरणस्वरूप एचआर के सामने अपनी स्किल्स को इस

तरह पेश करें, 'मैं डाटा का इस्तेमाल करके बिजनेस की समस्याओं को सुलझ सकता हूँ।' बाद में कंपनी में भी करियर की इस नई राह पर अपनी पहचान 'टूल' से नहीं, 'प्रोब्लम सॉल्विंग' से बनाएं। कोई भी प्रोजेक्ट करते समय एआइ से सिके जवब न मांगें, बल्कि उससे विकल्प मांगें और खुद तय करें कि सबसे अच्छा कौन सा है। एआइ आपका टूल है, लेकिन दिमाग आपका होना चाहिए। भरोसा रखें, आने वाले दिनों में यह तकनीक से आपकी किस्मत बनाएगा।



RAHUL NIGAM

In AI era, teach science, not tools

ACROSS CAMPUSES today, the message to students is unmistakable: Learn AI or risk being left behind. Yet, the question remains: For how long will today's tools be tomorrow's advantage? The frameworks students master in their first year often look different by the time they graduate. Programming environments evolve, libraries are rewritten, and entire platforms disappear. In a world where AI systems can generate code, design architectures, and optimise complex workflows with minimal oversight, the shelf life of narrowly technical training is shrinking.

Aligning education with emerging technologies is both sensible and necessary. The difficulty begins when responsiveness to

market demand displaces foundational learning. A curriculum shaped primarily by employability can produce graduates whose expertise is bound to current platforms rather than durable intellectual frameworks.

What endures across technological cycles is the ability to reason from fundamentals. Scientific training develops the discipline to identify assumptions, trace causality, test limits, distinguish correlation from mechanism, and ask whether an answer is plausible. As automation expands, the premium shifts from implementation to judgement. And judgement is formed over years of grappling not only with equations but also with the constraints those equations must respect.

Technological success today is often narrated in terms of software breakthroughs and algorithmic advances. Yet, few fields that appear purely computational remain shaped by physical limits. Nations that lead

in AI today built their capabilities on sustained investment in fundamental research long before AI became commercially fashionable. Technological dominance has rarely been the outcome of short-term skill training alone. The current AI surge stands on foundations laid in laboratories that valued curiosity as much as application.

This global pattern also has local implications. For many years, the Indian IT story was built on becoming the world's execution engine. That model created large-scale employment and strengthened the middle class. Yet, it was also heavily dependent on routine and process-driven work, and routine is what AI is beginning to absorb efficiently. If universities continue producing engineers trained mainly to operate existing platforms, they risk tying student futures to a shrinking segment of the value chain. The next phase of growth will not come from

using tools more efficiently but from designing new ones, which would require moving from execution to invention.

The central question around education, then, is which intellectual foundation remains reliable across decades of technological upheaval. Mastery of current tools may open the first door, but mastery of principles determines how many doors remain open thereafter.

The argument is not against modern skills but against reducing education to transient technical proficiency. Technologies will continue to evolve at an accelerating speed. The laws governing energy, matter, stability, and causality will not. An education grounded in those enduring principles prepares students for repeated reinvention in a world where change is the only constant.

The writer is associate professor at BITS Pilani

From Indian rootedness to global Competence

The implementation of NEP-2020 has ushered in a positive transformative shift, positioning the Indian higher education system to align more closely with the evolving demands of the 21st-century economy



**RAMA
SHANKER
DUBEY**

The Indian higher education system is undergoing a massive transformation, shifting from a theoretical, colonial-era mindset and rote-learning model to an India-centric framework that takes pride in nation's rich cultural heritage while embracing experiential learning, skill development, innovation, and entrepreneurship. This shift fosters a more dynamic, self-reliant, and globally competitive academic ecosystem.

The focus of the National Education Policy 2020 (NEP 2020) on the holistic development of students by incorporating Indian values, ethics, duties, and the integration of the Indian Knowledge System (IKS) into curricula, has significantly influenced the development of national consciousness and cultural rootedness among students, thereby strengthening nationalistic feeling and pride in Indian identity.

The great educational institutions of ancient India Taxila, Nalanda, and Vikramshila were founded upon the principle of holistic development of students - the development of mind, body, intellect and soul. Famous Indian educational philosophers such as Swami Vivekananda, Madan Mohan Malaviya, Sri Aurobindo, and Rabindranath Tagore consistently emphasised that the central aim of education should be the holistic development of students.

The IKS is the most ancient and the most richly endowed heritage in the world. It embodies an extraordinary confluence of spirituality, science, art, logic, and a profound philosophy of life. It has always been devoted to the pursuit of truth and the welfare of humanity. The principal pillars of IKS are the Vedas, the Upanishads, and the philosophical systems (Darshanas).

India has offered the world six distinct ways of seeing and understanding reality—these are its six classical schools of philosophy. On the one hand, we rose to the loftiest heights of spiritual realisation; on the other, our revered Rishis and Acharyas laid the foundational principles of mathematics, chemistry, physics, astronomy, medicine, economics, governance, environmental ethics and various domains of knowledge.

It is widely recognised across the globe that the Vedas constitute primary source of both spiritual and worldly knowledge. With the incorporation of the great inventions and intellectual contributions of ancient India into present-day curricula, such as the reference to the discovery of fire by Rishi Atharva in the Rigveda and Yajurveda; the surgical principles of Acharya Sushruta in the Sushruta Samhita (600 BCE); the concepts of atomic theory, gravitation, and motion described by Mahamshi Kanada in the Vaisheshika Darshana



**BY FOSTERING
FLEXIBLE
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AND ENABLING
CROSS-
DISCIPLINARY
MOBILITY, NEP-
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, DIGITAL
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ADVANCED
PROBLEM-
SOLVING SKILLS**

(600 BCE); students are developing greater national pride, courage, self-reliance and confidence in the richness of our national intellectual heritage and respect for India's civilisational legacy. Beyond reinforcing awareness of India's civilisational contributions to global knowledge, the rapid integration of IKS into academic curricula will help preserve and revitalise the country's rich intellectual traditions across diverse fields.

The Implementation of NEP-2020 has significantly reoriented the skill development landscape within Higher Education Institutions (HEIs). The integration of vocational education into mainstream curricula, along with the introduction of skill enhancement courses, experiential learning, internships, apprenticeships, and project-based learning, has strengthened skill competency acquisition, helped bridge industry skill gaps, and enhanced self-reliance, innovation, and employability. The Pradhan Mantri National Apprenticeship Promotion Scheme (PM-NAPS) has been crucial in promoting structured apprenticeship programs, imparting industry-linked practical training to the students.

By promoting entrepreneurial skills among students, NEP-2020 has fostered a strong startup culture within HEIs. Initiatives such as Startup India, the National Innovation and Startup Policy (NISIP) of the Ministry of Education, Government of India, the Atal Innovation Mission (AIM), and various State Startup Policies have collectively accelerated the development of vibrant entrepreneurial ecosystems on campuses. From approximately 400-500 startups in 2016, India has grown to over 2 lakh DPIIT (Department for Promotion of Industry and Internal Trade)-recognised startups as of December 2022, making India the third-largest startup ecosystem in the world.

By fostering flexible curricular structures and enabling cross-disciplinary mobility, NEP-2020 equips students with a wide range of competencies, including critical thinking, effective communication, digital literacy, and advanced problem-

solving skills. The credit accumulation mechanism enabled by the Academic Bank of Credits (ABC) facilitates lifelong learning and continuous skill upgradation, thereby enhancing learner mobility and adaptability. Twenty-first century skills such as digital proficiency, creativity, leadership, and ethical reasoning are essential competencies for effective participation in a knowledge-driven global economy.

To cultivate students with global competencies, it is imperative to produce high-quality graduates specialised in critical fields such as artificial intelligence (AI), machine learning, data analytics, cybersecurity, semiconductors, green energy transitions, etc.

This requires reorienting our curricula to incorporate intensive practical, hands-on training in these areas. India is home to numerous HEIs that consistently produce exceptional talents in AI and computer science and many of such graduates are currently among the leading innovators and technologists in Silicon Valley. Encouragingly, this long-standing trend of outward migration is beginning to reverse and we have to retain this highly skilled talent pool, enabling them to drive innovation and create long-term value within India.

AI innovation labs are being established across major Indian technology hubs, positioning the country to emerge as a global centre of excellence in AI-powered consulting, advanced analytics, cyber defence operations and education. This underscores India's growing strategic role in the global AI ecosystem. AI-led cyber research hubs established in leading Indian tech cities have the potential to play a pivotal role in safeguarding critical digital infrastructure and strengthening national cyber resilience. AI pos-

sesses significant transformative potential in higher education, enhancing the quality of teaching and learning, strengthening research capabilities, improving administrative efficiency, and expanding accessibility.

AI can assist in curriculum design, real-time skills assessment, and the effective management of smart campuses. However, as a matter of caution one has to remember that the Indian vision of education does not rest solely on the transmission of information; rather, it emphasises holistic development, mentorship, empathy, moral guidance, and the cultivation of critical thinking, the qualities that are inherently human.

The implementation of NEP-2020 has ushered in a positive transformative shift, positioning the Indian higher education system to align more closely with the evolving demands of the 21st-century economy. It seeks to nurture students who take pride in Indian heritage while simultaneously developing global competencies and critical twenty-first century skills essential for meaningful employment, entrepreneurial leadership, and the effective resolution of complex global challenges.

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भारतीय शिक्षा का वैश्वीकरण आवश्यक

कें

द्रीय शिक्षा मंत्री धर्मेंद्र प्रधान ने हाल में कहा कि भारतीय उच्च शिक्षा का अंतरराष्ट्रीयकरण देश की प्रगति और सर्वांगीण विकास के लिए एक आवश्यक तत्व है। उनके अनुसार दुनिया भर में भारतीय शिक्षा और शोध की समृद्ध नवोन्मेषी परंपरा तथा इसके गतिशील वर्तमान का अकादमिक वृत्तांत प्रभावी ढंग से पहुंचना चाहिए। यह लक्ष्य तभी संभव होगा, जब शिक्षा और शोध के क्षेत्र में हमारी वैश्विक आवाजाही तथा ज्ञान का आदान-प्रदान बढ़ेगा। वे निरंतर इस पर भी बल देते रहे हैं कि उच्च शिक्षा के इस वैश्विक लक्ष्य को प्राप्त करने के लिए विज्ञान और समाज विज्ञान को परस्पर समन्वय के साथ कार्य करना होगा। जब तक विज्ञान और समाज विज्ञान परस्पर समन्वय के साथ कार्य नहीं करेंगे, तब तक भारतीय शोध का नवोन्मेष अधूरा रहेगा। तकनीकी और सामाजिक विषयों के एकीकृत प्रयास भारत को एक वैश्विक ज्ञान महाशक्ति के रूप में स्थापित कर सकते हैं।

जहां तक समाज विज्ञान के क्षेत्र में भारतीय उच्च शिक्षा के अंतरराष्ट्रीयकरण का प्रश्न है, इस संदर्भ में कुछ महत्वपूर्ण मुद्दों पर विमर्श की तत्काल आवश्यकता है। पहली महत्वपूर्ण बात यह है कि दुनिया के अनेक प्रतिष्ठित विश्वविद्यालयों की रुचि केवल भारत के आइटी क्षेत्र तक सीमित नहीं है, बल्कि वे भारतीय समाज विज्ञान में भी गहरी रुचि ले रहे हैं। उनके लिए भारत सबसे बड़ी जनसंख्या वाला देश और सबसे बड़ा विकासशील बाजार भी है। ऐसे में भारत के वर्तमान इतिहास, सामाजिक संरचना और उभरती आर्थिकी को समझना उनके लिए एक बड़ी बौद्धिक चुनौती और अवसर है। दूसरा बिंदु यह है कि भारत में विदेशी विश्वविद्यालयों के आगमन का मार्ग प्रशस्त हो रहा है। इन संस्थानों में लिबरल स्टडीज, समाज विज्ञान और कौशल विकास के लिए पर्याप्त स्थान होगा। यह भारतीय छात्रों को वैश्विक मानकों के अनुरूप सामाजिक विषयों के अध्ययन का अवसर प्रदान करेगा। तीसरा और सबसे अहम पहलू यह है कि वर्तमान में दुनिया के विभिन्न देशों के बीच केवल आर्थिक विकास की ही प्रतिस्पर्धा नहीं है, बल्कि वैज्ञानिक शोधों के साथ-साथ बाजार, राजनीतिक



ब. जे. नारायण

ज्ञान की गौरवशाली परंपरा को पुनर्जीवित करना ही विकसित भारत की वास्तविक आधारशिला होगी



शोध एवं विकास पर जोर देना आवश्यक • फ़ाइल

आर्थिकी और समाज वैज्ञानिक विमर्शों के बीच एक वैचारिक टकराव भी चल रही है।

प्रत्येक विकसित और विकासशील राष्ट्र चाहता है कि उसकी सफलता और विशिष्टता का नैरेटिव उसके आर्थिक प्रभाव के विस्तार को मजबूती दे। जो वैश्विक कारपोरेट घराने पूरी दुनिया में अपने व्यापार का विस्तार कर रहे हैं, उन्हें भी अपनी रणनीतियों के लिए न केवल वैज्ञानिक, बल्कि समाज वैज्ञानिक वृत्तांत चाहिए। भारत विश्व की तीसरी सबसे बड़ी अर्थव्यवस्था बनने की दिशा बढ़ रहा है, जिसे अब सुदृढ़ अकादमिक और समाज वैज्ञानिक शोधपरक वृत्तांतों के समर्थन की आवश्यकता है, पर विडंबना यह है कि वर्तमान में अधिकांश समाज वैज्ञानिक शोधों में हम अपने समाज, विकास और आर्थिकी के सकारात्मक तत्वों को खोजने के बजाय नकारात्मक विमर्शों में ही उलझे हुए हैं। प्रतिष्ठित समाज वैज्ञानिक संस्थानों और विश्वविद्यालयों को अब इस दिशा में सार्थक एवं सकारात्मक पहल करने की महती आवश्यकता है। इसी दिशा में टाटा इंस्टीट्यूट ऑफ सोशल साइंसेज एक महत्वपूर्ण अकादमिक पहल 'टीएस ग्लोबल' के नाम से शुरू करने जा

रहा है। इस पहल के अंतर्गत दुनिया भर के उन विद्वानों को आमंत्रित किया जाएगा, जो भारत पर शोध कर रहे हैं। साथ ही देश के दिग्गज समाज विज्ञानियों और विकास विशेषज्ञों को एक साझा मंच पर लाकर उन्हें भारतीय समाज एवं विकास के नकारात्मक चित्रण के बजाय सकारात्मक पक्षों पर शोध, समझ और विमर्श के लिए प्रेरित किया जाएगा। इस प्रक्रिया में देश के वैज्ञानिक एवं समाज वैज्ञानिक शोध संस्थानों का एक संयुक्त फोरम विकसित करना भी अनिवार्य है।

भारत में विदेशी विश्वविद्यालयों के परिसरों का खुलना एक सुखद स्थिति है, जो हमारे छात्रों को शिक्षा के विविध विकल्प प्रदान कर रही है, पर हमें इसके साथ ही दुनिया के अन्य हिस्सों-विशेषकर अफ्रीका, एशिया और लैटिन अमेरिका में अपने शिक्षा संस्थान खोलने की प्रक्रिया को भी तीव्र करना होगा। हमें अमेरिका, इंग्लैंड, आस्ट्रेलिया, जर्मनी जैसे देशों में विशिष्ट विषयों पर केंद्रित भारतीय संस्थान भी स्थापित करने होंगे। शिक्षा केवल ज्ञानार्जन नहीं, बल्कि एक विमर्श भी है। इस अर्थ में भारतीय ज्ञान के वैश्वीकरण से भारतीय विमर्श का भी वैश्वीकरण सुनिश्चित हो जाएगा। ज्ञान एक प्रकार की शक्ति है और इसे अर्जित करने के लिए हमें उत्कृष्ट श्रेणी की भारतीय अकादमिक संस्कृति विकसित करनी होगी, ताकि हमारा युवा वर्ग, जो भारत की सबसे बड़ी सामर्थ्य है, वह केवल एक सांख्यिकीय आंकड़ा बनकर न रह जाए, वरन ज्ञान, मेधा और दक्षता से युक्त हो जाए। इसके लिए हमें अपने शिक्षा संस्थानों में उत्कृष्टता को केंद्र में रखना होगा। प्रधानमंत्री मोदी के विकसित भारत विराट लक्ष्य की प्राप्ति के लिए भारतीय शिक्षा और शोध जगत को सर्वोच्च राष्ट्रीय प्रतिबद्धता के साथ कार्य करना होगा। हमें शिक्षा एवं अनुसंधान के क्षेत्र में ऐसे उत्कृष्ट शोधार्थी और शिक्षक तैयार करने होंगे, जो वैश्विक छात्र समुदाय और विद्वानों को अपनी ओर आकर्षित कर सकें। ज्ञान की गौरवशाली परंपरा को पुनर्जीवित करना ही विकसित भारत की वास्तविक आधारशिला होगी।

(लेखक टाटा इंस्टीट्यूट ऑफ सोशल साइंसेज, मुंबई के कुलपति हैं।)

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The universalisation of AI

If India is to emerge as a genuine leader in the age of artificial intelligence, technological ambition must be reinforced by academic integrity, high-quality research, and strong institutional standards



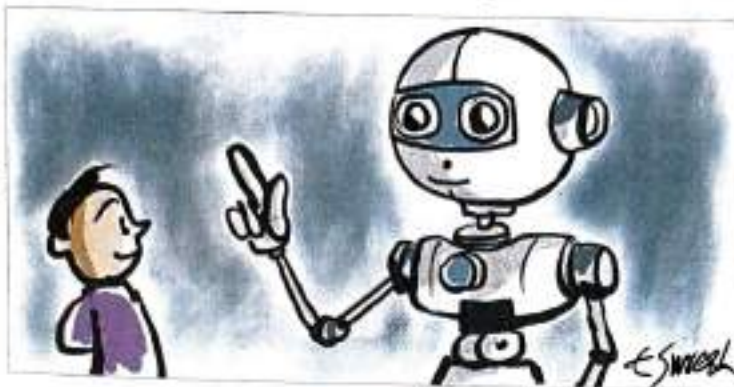
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The India AI Impact Summit, held from February 16-21, 2026, attracted considerable attention not only within the nation but also internationally. It has inspired numerous young people, entrepreneurs, multinationals and, expectedly, the doyens of the world of commerce and business. The event enhanced India's global reputation as a lead nation, not only in accepting and utilising new knowledge, but also in its resolve to play a leadership role in creating new knowledge. It has adequate manpower imbued with scientific temper and dedicated to the 'search for Truth'.

Top experts gathered for the event were busy envisioning the implications of rapidly expanding new horizons after the arrival of AI, and these deserve incisive 360° scrutiny. Clearly, AI and its allotropes would have a comprehensive impact on every aspect of human life. The churning so generated has already begun to pose not only encouraging possibilities ahead but also the issues of considerable concern emerging before the learners, parents, societies and the nations. It has serious implications for international collaboration, which would become more demanding in the years ahead.

On the sidelines, the Summit also witnessed how a 'Robot Dog'—purchased from the market, but displayed and claimed as conceptualised, tested and produced by a private deemed university emerged as an embarrassing aspect in an otherwise inspiring environment. For anyone familiar with quality concerns, it would be agonising to wish it away as one of the glitches that creep into such major international gatherings. It would be imprudent on the part of the higher education system not to treat it as an eye-opener, particularly for all those entrusted with preparing the generations ahead in schools, colleges and universities. Unfortunately, this aspect did not receive the attention it deserved in the media, and learned articulations on it. The Robot Dog has educated us on the decline in the moral and ethical fibre, and also the need to scrutinise the scenario in terms of quality and excellence in education, and particularly higher education.

According to a tentative estimate, India has around 1.1-1.2 billion mobile phones, and almost the same number of literate people, estimating roughly at a literacy rate of 80%. The universalisation of education is yet a distant dream, but the rise of the mobiles from around a mere one million only in 2001-02 to their universalisation indicates the pace of change that is the major characteristic of the 21st century. The mobile phone has successfully integrated itself as a necessary component of every individual's life. Consequently, the fascination now is no longer



THE NEP-2020
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AVAILABILITY OF
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GOVERNMENT
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INSTITUTIONS

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for the mobile phone, but for AI, chatbots, new gadgets, and much more! Just recall how the mere availability of a mobile phone and Wi-Fi transformed the entire learning scenario, the social scenario, and much more! As the mobile phone made its presence felt, children got glued to it! Serious concerns were expressed on various counts by concerned parents on how damaging its impact would be on their studies—and more than that, on their growing up. COVID-19 changed it all just upside-down! Online teaching became a great support to ensure the continuity of the process of education and studies in tough times. Parental attitudes changed drastically! Scolding and frowning over too much time being spent with the mobile phone was replaced by coaxing children to spend more time on mobile studies! One had personally observed how society took it upon itself to come forward and to assist the children who needed the gadget support.

As AI gets 'universalised', the workstation scenario would again change drastically, and sharing will remain necessary even in the emerging context. Institutional collaboration would become much more prominent in the years ahead. In the changed environment, the quality of education, particularly of innovations and research, must attract serious attention.

During the period 2002-25, the IITs collectively applied for 6,558 patents, and got 2,806 approved. During the same period, the deemed to be university that attracted attention because of the Robot Dog applied for 2,233 patents, got only 2 approved! The comparative success rates are 42.8 and 0.8 per cent! This is an eye-opener for the regulatory bodies in higher education. AI is now knocking at the doors of every learning place—every school and university! The elusive—vehemently assured and repeatedly promised—equality of opportunity is not achieved merely by providing access and enrolment! India's initiatives in AI are being globally appreciated; our higher education institutions are moving ahead in the right direction with reasonably acceptable speed. The nation must ensure that the lack of

resources does not impede the pace of change, and the intent of the NEP-2020 is put into practice, forgetting avoidable differences that creep in for non-academic considerations.

The NEP-2020 assures the availability of motivated, energised and capable faculty. After five years of implementation, the scenario is still deficient in the availability of adequate faculty even in central government-managed institutions. The availability of faculty in state-managed universities is, to say the least, disappointing. In most of the cases, the Vice-Chancellor requires permission from the State government secretariat to make any appointment, even against the posts that are already sanctioned to the university! Most of these universities are starved of resources, both of infrastructure and personnel. Autonomy—exceptions apart—stands reduced to a cypher. About the private 'deemed universities', less said the better. The minority institutions established under the constitutional provisions are practically 'islands in isolation'; they manage things in their own way.

If the universalisation of AI is to be achieved without depriving a sizeable number of young persons in higher education, even the school teachers have to be in a position on a regular basis, and in the right teacher-taught ratio! One of the disturbing aspects that directly and

adversely impacts the quality is the decline in the credibility of the regulatory bodies across the board. Universities are the places where morals, ethics, values, national ethos, respect for diversity and much more are learned, apart from the prescribed syllabi. This just cannot be ignored!

All these aspects are being mentioned as significant tangible pedagogical changes are already taking place at each stage, and at an unprecedented pace. Whatever is accepted in the policy must be put into practice in full and at the earliest. There are issues of equity and inclusion that just cannot be addressed if the gap in the quality of education imparted in institutions of higher education remains too glaringly disturbing! A nation that has created IITs, IIMs, just can't afford universities that may not have even a regularly appointed faculty of a couple of academics!

There are several other implications that could impact the employment scenario, social context, and aspects related to socio-cultural implications. The central government, through its various bodies and institutions, launched several varied encouraging programmes for orienting and re-orienting academics, which have created positive impacts, but institutions need an adequate number of academics also to ensure quality, innovations and excellence. Much more activity in the duration sector needs to become visible in the months and years ahead.

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THE LIVING STREAM

Putting AI in its place

Awe and fear dart through public discussions of AI. Its fast-enveloping presence across various spheres of human activity stalks the 'What next?' in the mind. Whereas the cocky pronouncements about the imminent loss of millions of jobs due to generative AI have gone on to make the future of employment appear difficult.

And then there are the ubiquitous clichés about how every technology has pluses and minuses that ask everyone to sit back and get used to AI. In all of this, AI appears a natural, unstoppable force.

AI technologies are made, sold, and used by humans; therefore, the scope for responsible action clearly exists at every step. What these technologies seek to accomplish, how they become available to their users and what their consequences are for the democratic life of societies, therefore, invite public discussion. Just when colossal profits and international power games appeared to drive AI innovations without any regard for ethics, the recent refusal of Anthropic, the US-based AI developer, to allow the US Defence Department to deploy its AI technology for making autonomous AI-directed weapons that can decide independently of human supervision and for the mass surveillance of its citizens has kept the ethics of AI from getting eclipsed.

The cultural attitude towards AI needs to become less fearful and quiescent, and more demanding of social accountability. The owners and creators of AI technologies do strive to make them more reliable and less and less mistake-prone. But this quest to make the AI technologies more and more reliable has to go along with a parallel exploration of how best to regulate them and bring in policy measures that do not let their consequences be socially destructive.

Consider the prospect of mass job losses that hangs around like a ghost in public discussions on AI. People who have studied this subject point out that massive layoffs will not occur in the near future since the adoption of AI needs time. Plus, the removal of jobs in some areas can come along with a rise in demand for jobs in other, newer areas. Well-organised employer unions can also negotiate with their management to decide on the nature and terms of AI use in their workplace in ways that continue to engage human beings meaningfully in the workplace.



Chandan Gowda

The Vidyashilp Professor looks for new ways of looking

✉ @Chandan_Gowda73

Just as pensions, welfare taxes and other kinds of social safety nets emerged in the 19th century to offer social insurance in the radically new circumstances brought about by industrialisation, new kinds of social insurance will become necessary to imagine to address the institutional changes emerging in the wake of generative AI.

What new responsibilities can the governments take on to address the AI-induced

changes in the labour market? How can businesses profiting from AI help support the new social insurance measures that will become necessary? What new social, economic and political rights can the citizens envision to secure for themselves dignity and well-being in the changed times? Questions like these need to engage the public imagination alongside all else.

The energy-guzzling AI data centres, which are meeting their electricity needs from energy sources like coal, natural gas, wind, solar, hydro-electricity and nuclear energy, have added a new energy dynamic in the present, making the sustainable use of AI a paramount concern.

The impact of AI and the challenges of regulating it responsibly differ significantly in countries like India, where digital technologies are not accessible to all and a large number of workers remain outside the formal economy. These realities demand policy measures grounded in local conditions. Some of the policy shibboleths will need to be rethought. For instance, the pathetic urge among the planners to shift the "surplus population" from rural areas to cities by training rural youth for service occupations in cities will stand out as non-pragmatic. What's the point of training them for jobs that AI will dispense with? Measures to restore and create livelihood options in rural and tribal areas make better policy sense in the age of AI.

What if AI can think on its own? Or interact with each other on their own? Geoffrey Hinton, the Nobel laureate and Godfather of AI, recently urged that AI safety institutes that make AI benevolent and desert from eliminating human beings be built, a goal that he feels can be shared by real countries even as they compete to make their AI smarter than those of others. Let's keep thinking.

From deep science to deep tech

KRISHNA RAGHAV CHATURVEDI,
FAMIDA KHAN AND
KASTURI MANDAL

As countries race to secure technological leadership in a rapidly transforming global economy, two terms dominate policy speeches, funding calls and startup pitches: 'deep science' and 'deep tech'. From India's ₹1 lakh crore RDI fund to DPIIT's deep tech startup recognition, both phrases signal ambition. Yet they are often used interchangeably and rarely defined with precision.

For India, this is not a semantic issue but a strategic one. The country has a strong publicly funded research base, but translation into globally competitive technologies remains limited. Without conceptual clarity, funding priorities blur, incentives misalign, and expectations collide.

'Deep science' refers to fundamental, curiosity-driven research that advances knowledge frontiers in fields such as physics, chemistry, biology, materials science, and mathematics. It is marked by long time horizons, high uncertainty, and no immediate commerciality.

Historically, transformative technologies have sprung from such work. Thermodynamics enabled the steam engine. Semiconductor physics led to modern computing. Molecular biology underpins biotechnology. What is 'deep' today may become standard tomorrow.

Deep science produces potential, not products. Its outcomes are unpredictable and often realised decades later. Applying short-term performance metrics or forcing early commercialisation risks distorting incentives and discouraging risk-taking.

Deep tech represents the commercialisation of scientifically deep breakthroughs into disruptive technologies. It is typically IP-intensive, R&D-heavy, and protected by high technical barriers. Examples include advanced diagnostics, clean energy systems, autonomous platforms, quantum computing, and next-generation manufacturing.

Recently, the INSA Policy Centre (CSTIP), CSIR-NCScPR, and the American Chemical Society brought together scientists, startup founders, policymakers, investors, and international stakeholders for a workshop to address confusion between deep science and deep tech. Clear definitions, participants argued, allow policymakers to fund curiosity-driven research without premature market pressure.

Led by Prof. Ashutosh Sharma (INSA president), Geetha Vani Jayaram (CSIR-NCScPR director), Akhilesh Gupta (senior consultant, INSA), Brajesh Pandey (INSA, ED), and Deeksha Gupta (MCS director), discussions converged on a blunt

assessment: India does not lack scientific capabilities.

It lacks a robust system to convert deep scientific knowledge into scalable, market validated technologies. At the core of this gap lies a need to distinguish clearly between deep science and deep tech.

Participants cautioned against a 'translate or perish' culture. While translation is vital, rushing foundational science can compromise quality and long-term impact.

A key insight from the workshop was asymmetry: deep tech often emerges from deep science but not always.

However, deep science does not originate from deep tech. And not all technology qualifies as deep tech. Incremental improvements, cost optimisations, or simple digitisation, however valuable, are not disruptive in the same sense. Recognising this distinction helps prevent the dilution of the term 'deep' and ensures that truly transformative innovations receive appropriate support.

Even when strong science exists, translation often falters. Many promising ideas stall in the so-called 'valley of death', not because the research is weak but because the ecosystem for lab-to-market transition is underdeveloped. Beyond technology readiness levels (TRLs), participants highlighted three critical dimensions:

- Communication readiness: the ability to explain value to investors, regulators, and customers.

- Manufacturing readiness: scalable production with quality and cost control.

- Market readiness: validated demand, regulatory acceptance, and adoption pathways.

Despite years of dialogue, academia-industry integration remains limited. Public research institutions often operate separately from market realities. Embedded technology transfer officers are scarce, incentives for researchers to commercialise are weak, and IP frameworks can create uncertainty for private partners.

Global innovation leaders have built deliberate systems. In the United States, universities and national laboratories anchor deep tech ecosystems and support spinouts. Europe aligns deep science with societal missions. Australia has streamlined industry collaboration and IP governance. For India, the path forward requires a clear classification framework. Not all science must become deep tech. Nor should every new technology be labelled 'deep'. The real challenge is identifying which scientific advances are ready for translation and building systems that enable that journey.

(Krishna is with the American Chemical Society, Famida works at the INSA, and Kasturi with CSIR-NCScPR)

Akhilesh Ayyer

Rethinking research readiness

Are Indian universities preparing students for the world of academia?



GETTY IMAGES/ISTOCK/AFRITO

Indian students aspiring for academic careers often enter graduate programmes excited about "finally doing real research", only to realise that it demands far more than they expected. Unlike undergraduate coursework, where projects come with predefined topics and structured guidelines, advanced research requires students to frame their own questions, design experiments, analyse unfamiliar datasets, think critically, navigate ethical protocols and communicate findings with clarity.

Difficult transition

This transition is especially difficult in a system where scientific temper, a value rooted in critical inquiry, evidence-based thinking and curiosity-led learning, is not cultivated early or consistently. Many students encounter real research expectations much later than their international peers, which makes the leap into rigorous academic work challenging. This raises a critical question: Are Indian students entering the global academic landscape without adequate preparation?

A 2023 survey found that undergraduate exposure to research remains significantly lower than postgraduate training. Another study among medical undergraduates revealed that only one in four had the opportunity to participate in practical

research. The first meaningful experience with research began only during Master's programmes, slowing skill development and denting confidence.

One reason is the theory-heavy nature of many undergraduate programmes. Students learn scientific concepts but rarely engage in hands-on experimentation, data interpretation, or problem-solving. Practical work deepens understanding and builds abilities such as applying knowledge to real problems and transferring skills across disciplines.

Surveys also show that students value practical research exposure and want more opportunities.

Wide variation

Pockets of excellence are limited. India has more than 43,000 institutes offering undergraduate and postgraduate degrees but only a fraction are research-intensive or offer structured research opportunities for undergraduates. As a result, early research preparedness varies widely across the country. Even where training programmes exist, students

report the need for more comprehensive and up-to-date workshops. Thus, India has a vast pool of talented students but systemic gaps in early research exposure affect their academic progression and global competitiveness.

India has long grappled with brain drain with limited opportunities, outdated infrastructure, and insufficient research funding contributing to this outflow. Countries like China show this trend can be reversed. Through initiatives such as Thousand Talents

Plan (TTP), scientists were provided with generous financial incentives, world-class research facilities, elite school options and a highly supportive environment, significantly boosting the country's technological and research capabilities. India can also create conducive research environments that offer strong funding, modern infrastructure and long-term career incentives to retain and attract talent.

International postgraduate programmes typically assume that undergraduates possess a baseline of

research readiness including experimental design, troubleshooting, academic writing, and familiarity with ethics. This puts many Indian students at a disadvantage, not because of lack of capability but because the education structure historically placed less emphasis on early research training.

However, the landscape is changing. In recent years, institutions and policymakers have shown a clear shift towards strengthening research readiness from early on. Universities are adopting multidisciplinary and project-based curricula and offer undergraduate research internships that allow students to work under experienced scientists and engage with real-world problems. Research-intensive institutions are expanding short-term fellowships to give students hands-on experience.

Policy changes

At the policy level, the government has launched various reforms such as the Anusandhan National Research Foundation (NRF) and National Institutional Ranking Framework (NIRF) to prioritise high-quality research and academia-industry collaboration. The One Nation One Subscription (ONOS) initiative aims to widen access to scientific literature, ensuring students from diverse institutions can learn and explore ideas on par with global peers. There is growing emphasis on AI and digital literacy, recognising that modern re-

search requires familiarity with advanced tools and technologies. These developments show a growing recognition that research readiness and scientific temper should be foundational elements, not skills acquired later.

With the world's largest youth population and a rapidly expanding higher education system, sustained investment and long-term policy focus are essential. Equally critical is ensuring the effectiveness of these investments. For example, while ONOS brings a vast collection of subscription journals under one umbrella, the real impact will depend on how easily researchers can discover, navigate, and use the content. Priority should be given to embedding hands-on project opportunities in undergraduate curricula, upgrading laboratories and equipment, expanding updated training models and ensuring equitable access to global research resources. Equally important is cultivating scientific temper, research ethics and interdisciplinary problem solving capability from the earliest stages of higher education.

Once India commits to these reforms, students will enter postgraduate programmes with greater confidence. More importantly, the nation will equip the next generation of researchers not only to participate in global science but to lead it.

The writer is the CEO of Cactus Communications.

The knowledge economy of the future is powered by nari shakti



DHARMENDRA PRADHAN

INDIA STANDS at a defining moment of her development journey with the narrative shifting decisively — from women's development to women-led development. Women are no longer viewed as beneficiaries of welfare policies but as active leaders, shaping the nation's future.

Nari shakti is fuelling the country's progress, especially in knowledge-driven sectors. As India advances towards realising the vision of a *Viksit Bharat*, one of the most significant shifts underway is the growing presence of women in Science, Technology, Engineering and Mathematics (STEM) — fields that will define the knowledge economy of the future.

The journey of women in science begins in classrooms. Over the past decade, India has achieved gender parity index with gross enrolment reaching 1.0 at the foundational, preparatory, middle and 1.1 at secondary level, indicating that girls' participation now equals and, in some segments, exceeds that of boys. Dropout rates have declined across most school levels, showing improved student retention.

Building on a solid foundation of infrastructure and access, reforms like early introduction of "skilling" and initiatives like Atal Tinkering Labs provide students with practical exposure to emerging skills and technologies, ensuring a stronger foundation for girls to explore STEM from an early age.

India's higher education ecosystem has expanded significantly in both institutional capacity and student participation. AISHE data shows expansion in higher education, with institutions increasing from 51,534 to over 60,000 and enrolment from 1.42 crore to 4.46 crore since 2014-15. Women have been central to this expansion, with female enrolment rising from 1.57 crore to 2.18 crore and Female GER improving from 22.9 to 30.2 marking steady progress.

Women's participation in STEM education in India has grown steadily — with now 43 per cent of total enrolment at the higher education level — one of the highest proportions of women STEM graduates globally. As per the Research and Development Statistics Report 2023, women account for 18.6 per cent of the national

R&D workforce and targeted initiatives are increasingly focused on strengthening the pipeline from education to research careers. An exemplary policy intervention is the introduction of supernumerary seats for women in the IITs and NITs improved their share from less than 10 per cent a decade ago to more than 20 per cent in recent years.

Women's participation in academic research has witnessed an upward trend with enrolment in postgraduate programmes increasing from

19.8 lakh in 2014-15 to 22 lakh in 2022-23, while doctoral enrolment rose from around 47,000 to more than 1.12 lakh, demonstrating a growth of over 135 per cent.

The Prime Minister's Research Fellowship has already supported over 3,500 scholars, including 35 per cent women, and aims to support 10,000 fellowships in the next five years. The Anusandhan National Research Foundation complements these efforts while expanding India's research ecosystem.

Participation trends also reflect that women accounted for over 53 per cent of STEM fellowships under the UGC-NET-Junior Research Fellowship during 2024-25, with 7,293 among 11,727 fellowship recipients pursuing doctoral research.

With emerging sectors such as AI, quantum technology and data science shaping the future of the global economy, the growing presence of women in STEM will play a critical role in India's innovation ecosystem. The trend is already discernible. Within the national R&D ecosystem, 45.87 per cent of women researchers are employed in government institutions, followed by 22.62 per cent in higher education and 26.51 per cent in industry.

The Union Budget 2026 announced provisions to establish safe and affordable hostel facilities for girls across every district to pursue STEM education, supported by other government programmes that encourage girls and women to build careers in science and research. As Prime Minister Narendra Modi aptly said, "Today, the country's thinking is not that women should be empowered through science, but that science should also be empowered with the participation of women."

As India advances towards the goal of *Viksit Bharat* by 2047, women will be at the forefront of this transformation. With their growing participation in diverse fields and expanding opportunities in emerging technologies, India's women are poised to become leaders of the knowledge economy. The *Viksit Bharat* journey will indeed be powered by nari shakti.

The writer is Union minister of education. Views are personal



MANAV: The civilisational blueprint for the age of artificial intelligence



CHAITANYA
K PRASAD

In February 2026, New Delhi did not merely host a technology conference. It staged a civilisational argument. At the India AI Impact Summit, global policymakers, scientists, entrepreneurs, ethicists, and diplomats did not gather to debate artificial intelligence as a tool; they gathered to confront a question that will define the century: What kind of intelligence should shape humanity's future?

What emerged from Bharat Mandapam was not another declaration of innovation supremacy or a race for computational dominance. Instead, the world witnessed the articulation of a philosophical architecture for AI. Prime Minister Narendra Modi's MANAV doctrine, a framework that reframes artificial intelligence not as an industry, but as a moral project.

For over a decade, global AI discourse has been shaped largely by two poles: technological accelerationism and regulatory anxiety. One celebrated scale and speed; the other feared loss of control. The India AI Impact Summit reframed the conversation entirely. It proposed that the real debate is neither speed nor restraint, but purpose.

Observers across continents noted a striking shift. Delegates did not leave speaking about India's infrastructure or markets alone. They left speaking India's language of AI: ethics, inclusion, sovereignty, trust, and public good. In diplomatic corridors afterward, a quiet consensus began to form: India had introduced not a policy stance, but a vocabulary. And vocabulary is power. Whoever defines the terms of a global conversation shapes its trajectory.

The acronym MANAV, Moral systems, Accountable governance, National sovereignty, Accessible AI, Valid systems; may appear administrative at first glance. In reality, it is architectural. It reorganises how nations conceptualise intelligence systems and their place in society.

India's insistence that fairness, transparency, and human oversight be embedded into AI from the classroom upward signals a long-term strategy. Ethical literacy is being cultivated as a civic skill, not a technical afterthought. The Guinness World Record pledge campaign, nearly a quarter, million commitments in 24 hours, demonstrated that responsible AI can become a participatory movement rather than an elite debate.

Where many nations treat regulation as a brake, India treats it as a foundation. The ₹10,300 crore IndiaAI Mission embeds oversight into compute access, model deployment, and public sector usage. This signals to the world that trust is not the enemy of innovation; it is its multiplier.

In the AI age, sovereignty is measured not only in territory but in data, algorithms, and chips. India's push for domestic compute capacity, semiconductor manufacturing, and secure datasets reflects a doctrine of open collaboration with strategic independence, a model increasingly attractive to middle powers wary of technological dependency.



India's Digital Public Infrastructure, shared compute portals, dataset repositories, and supercomputing networks redefine access economics. By lowering barriers for startups, students, and researchers, India positions AI not as a luxury resource but as a public utility. The message resonated strongly across the Global South: technological progress need not deepen inequality. At a time when deepfakes threaten elections and synthetic media blurs truth, India's regulatory definition of AI, generated content and investment in auditing tools signal a decisive stance: legitimacy must be engineered, not assumed. This transforms trust from a philosophical concept into a technical specification. The summit compelled global observers to recognise three realities about India's AI trajectory:

First, India is not attempting to replicate Silicon Valley or Shenzhen. It is building a third model, civilisational AI, where technology development is aligned with democratic norms, pluralism, and public welfare.

Second, scale can be ethical. With one, sixth of humanity, India's ability to implement inclusive digital infrastructure at population scale demonstrates that mass adoption and moral safeguards are not mutually exclusive.

Third, AI leadership is no longer defined solely by patents or compute clusters. It is defined by narrative authority. By presenting a coherent moral framework, India positioned itself as a thought leader in shaping how the world thinks about intelligence itself.

Historically, nations influenced the world through culture, trade, or military power. In the 21st century, influence increasingly flows through technological norms. Just as global

finance once adopted Western regulatory standards and international diplomacy adopted UN vocabulary, AI governance is now entering a phase where conceptual frameworks will standardise globally. The Delhi summit suggested that India's vocabulary may become that standard.

Already, policymakers from multiple regions are studying India's AI governance guidelines, public compute models, and ethical frameworks as templates adaptable to their own contexts. What makes the Indian approach persuasive is not rhetoric but replicability. It is designed for countries that lack billion-dollar labs but possess human capital and ambition.

The genius of the MANAV vision lies in its universality. It is culturally rooted yet globally legible. Its principles, ethics, accountability, sovereignty, accessibility, legitimacy, are values every society recognises, regardless of political system or technological maturity. This universality transforms MANAV from a national doctrine into a potential global charter. Much like the concept of sustainable development moved from environmental discourse into economic policy worldwide, human, centric AI may follow a similar path, originating in India but adopted internationally.

Summits often produce declarations that fade into archives. This one produced alignment. Delegates departed not with communiqués but with frameworks, datasets, partnerships, and shared language. The conversations begun in New Delhi are already extending into bilateral agreements, academic collaborations, and startup ecosystems. In diplomatic terms, the summit functioned

as a signalling event. It told the world that India is not waiting to participate in the AI future, it is helping write its operating principles. If the 2010s were defined by the question "Who builds AI?" the 2030s may be defined by "Whose principles guide AI?"

India's bet is clear: technological leadership will belong not to the fastest innovator, but to the most trusted one. Nations, companies, and citizens will gravitate toward systems they believe are fair, explainable, and accountable. By institutionalising those qualities early, India is positioning itself as the reference model for trustworthy intelligence.

The long-term implication is profound. As global standards bodies, academic institutions, and regulatory alliances begin adopting similar principles, India's framework could quietly become the grammar of global AI governance.

The deepest takeaway from the India AI Impact Summit is philosophical. Artificial intelligence is often discussed as a frontier. India framed it as a mirror. Technology reflects the values of those who build it. If that reflection is distorted, society fractures. If it is balanced, society advances.

Through MANAV, India has proposed that the future of intelligence must remain anchored in humanity. Not human versus machine, but human guiding machine. That is why the summit will likely be remembered not as an event, but as a turning point: the moment the world realised that the next chapter of artificial intelligence might not be written only in code, but in conscience.



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How Cloud, AI, and Data Are Reshaping Mid-Career Roles

RAVI KAKLASARIA

For much of the last decade, conversations around digital transformation focused on students and early-career professionals. Today, that narrative has shifted decisively. Cloud computing, artificial intelligence, and data-driven systems are not only redefining how organisations operate, they are fundamentally reshaping what it means to have a sustainable mid-career role.

Professionals with 8–20 years of experience now find themselves at a critical inflection point. The skills that once ensured stability are being disrupted by automation, AI-assisted workflows, and cloud-native architectures. Yet, this moment is not a threat; it is an opportunity for reinvention.

FROM EXPERIENCE-LED ROLES TO CAPABILITY-LED ROLES

Mid-career professionals traditionally advanced through experience, domain familiarity, and people management. While these strengths still matter, technology has altered the equation. Decision-making is increasingly powered by data, infrastructure has shifted to the cloud, and AI is automating repetitive cognitive tasks.

As a result, roles are moving from experience-led to capability-led. Employers are no longer asking how long someone has worked in a function, but how effectively they can work with modern platforms, cloud environments, data pipelines, AI models, and automated systems.

This shift is particularly visible in IT, engineering, operations, and even business functions like finance, supply chain, and HR, where analytics and AI-driven insights now guide core decisions.

CLOUD AS THE NEW CAREER FOUNDATION
Cloud computing has become the backbone of modern enterprises. Applications, data, security, and AI workloads now run on scalable, distributed cloud platforms. For mid-career professionals, this means that understanding cloud architecture is no longer optional.

Roles that once focused on on-premise systems, manual deployments, or siloed infrastructure are evolving into cloud-native responsibilities covering areas such as hybrid environments, security, cost optimisation, and reliability engineering. Professionals who reskill in cloud technologies are finding that their experience becomes more valuable, not less, when combined with modern infrastructure knowledge.



AI IS REDEFINING "CORE SKILLS"

AI is often misunderstood as a job eliminator. In reality, it is a job reshaper. Mid-career roles are not disappearing; they are being augmented.

AI systems now assist with code generation, testing, forecasting, customer support, and risk analysis. This means professionals must shift from task execution to supervision, validation, and strategic application of AI outputs. Understanding how AI models work, where their limitations lie, and how to interpret their results has become a critical skill across functions.

New hybrid roles are emerging for professionals who combine domain expertise with AI literacy. These individuals act as translators between technology and business, ensuring AI delivers real value rather than theoretical potential.

DATA LITERACY IS THE NEW MANAGEMENT SKILL

Perhaps the most underappreciated shift is the rise of data as a core management competency. Today's mid-career leaders are expected to make decisions backed by data, not intuition alone.

This does not mean everyone must become a data scientist. It does mean that professionals need to understand data quality, analytics dashboards, metrics, and basic statistical

reasoning. Whether managing teams, products, or operations, data fluency has become as important as communication or leadership skills.

Organisations increasingly reward professionals who can ask the right questions of data, identify patterns, and turn insights into action.

THE RISK OF STANDING STILL

The biggest risk for mid-career professionals is not AI; it is inertia. Technology cycles are shortening, and skills that were relevant five years ago may no longer be sufficient today.

Many professionals assume reskilling requires a complete career reset. In reality, the most effective transitions are incremental. Short, focused learning interventions in cloud platforms, AI fundamentals, cybersecurity, or data analytics can significantly extend career relevance.

Enterprises are also recognising that losing experienced talent due to skill obsolescence is costly. As a result, structured upskilling and reskilling programmes are becoming a strategic priority, not a learning perk.

THE ROLE OF CONTINUOUS, INDUSTRY-ALIGNED LEARNING

What distinguishes successful mid-career transitions is access to practical, industry-aligned

learning. Traditional, theory-heavy programmes often fail to address real workplace challenges. In contrast, hands-on labs, simulations, role-based certifications, and scenario-driven training allow professionals to apply new skills immediately.

Continuous learning is no longer a one-time event; it is an ongoing process embedded into careers. Professionals who adopt this mindset are not only safeguarding their roles but positioning themselves for leadership in a technology-driven future.

LOOKING AHEAD

Cloud, AI, and data are not passing trends; they are the operating systems of modern work. For mid-career professionals, the question is no longer whether change is coming, but how proactively they respond to it.

Those who combine their hard-earned experience with new-age technical and analytical skills will find themselves uniquely positioned, capable of guiding organisations through complexity while staying personally relevant.

The future of work will reward adaptability. And for mid-career professionals willing to evolve, the next decade may be their most impactful yet.

THE WRITER IS CO-FOUNDER & CEO AT ECFORCE

STATESMAN

The Rise of Skill-Based Tech Careers: Where Does BCA Fit In?



skills

MURTI KANTA MISHRA

India is witnessing a decisive shift in the way technology careers are built. The traditional obsession with degrees alone is steadily giving way to a skills-first economy, where employability is defined by what a graduate can do, not just what they hold. As artificial intelligence, data science, cloud computing, cybersecurity, and digital product development reshape industries, the focus has moved from rote learning to hands-on competence. In this evolving landscape, an important question emerges: where does the Bachelor of Computer Applications (BCA) fit in India's tech-driven world?

For years, BCA was often viewed as a secondary option to engineering pathways. However, the perception is rapidly changing. Today's technology ecosystem values practical coding ability, problem-solving mindset, adaptability, and continuous learning—all areas where a well-designed BCA programme can offer a strong advantage. Unlike rigid, theory-heavy models, BCA has the potential to become industry-aligned and deeply skill-oriented, making it highly relevant in the current job market.

The modern tech industry no longer hires solely on academic pedigree. Start-ups, global IT firms, and digital-first enterprises are actively seeking graduates who can work with real-world tools, build deployable solutions, and adapt quickly to new technologies. BCA programmes, when equipped with project-based learning, internships, industry certifications, and emerging tech exposure, can create professionals who are job-ready from day one. In fact, many roles in software development, application support, data analytics, UI/UX, and cloud operations are increasingly being filled by BCA graduates who demonstrate strong practical expertise.

A skill-centric BCA curriculum should go beyond classrooms and examinations, immersing students in live projects, coding labs, hackathons, industry collaborations, and problem-solving environments that mirror real workplaces. When students learn by doing—by building apps, managing databases, deploying systems, and working with industry mentors—their confidence and competence grow exponentially.

Another critical advantage of BCA lies in its flexibility and progression pathways. With the right academic ecosystem, BCA graduates can seamlessly transition into advanced studies such as MCA, specialised certifications, or even emerging interdisciplinary domains that combine technology with management, design, healthcare, or agriculture. In a future defined by convergence, this adaptability becomes a powerful career asset.

As India positions itself as a global digital talent hub, we must move away from outdated hierarchies between degrees and focus instead on outcomes, skills, and innovation. BCA, when reimaged through a skill-based lens, is no longer an alternative—it is a strategic choice for students who want early industry exposure, practical expertise, and long-term relevance in technology careers.

The future of tech employment belongs to those who are skilled, curious, and industry-ready. BCA, aligned with the needs of the digital economy, has a vital role to play in shaping this future.

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NCERT moots doubling Class IX subjects

BASANT KUMAR MOHANTY

New Delhi: The NCERT, the apex body for preparation of syllabus and school textbooks, wants Class IX students to study 10 subjects, double of what they do now.

The students of Class IX currently study two languages, mathematics, science and social science.

According to the draft syllabus for Class IX, uploaded by the NCERT on its website, students will now have to study one additional language and four new subjects — individuals in society, vocational education, arts education and physical education and well-being.



All these subjects will remain the same in Class X, except "individuals in society", which will be replaced by environmental education, the NCERT said.

Two school principals **The Telegraph** spoke to feared the changes would add a substantial burden on students. However, one academic welcomed the changes.

The draft syllabus cited the National Curriculum Framework for School Education (NCF-SE) of 2023 that endorsed the new subjects. The NCERT is preparing new textbooks for Class IX to be released by the end of March.

The draft syllabus stated that NCF-SE 2023 required students to learn three languages from classes VI to X. Under the three-language formula, students now study their mother

tongue, English and another Indian language till Class VIII.

The principal of a private school here said the NCERT's draft syllabus could not be directly implemented by schools.

"The syllabus can only be incorporated after the affiliating school board directs the schools to do so. So far, the CBSE has not informed us about it. None of these new subjects is included in the entrance tests for undergraduate admission. It means the students will study it for the sake of passing the tests," she said on the condition of anonymity.

Another principal said the NCERT draft syllabus undermined the purpose of the National Education Policy, which recommended reducing the content load.

"Most schools in the northern states will teach Sanskrit as an additional language, burdening the students," she said.

Ramesh Ghanta, a retired professor at Maulana Azad National Urdu University and former member of the National Council for Teacher Education, welcomed the NCERT's move to include diverse subjects. He said it would provide students with skills and training to help them become responsible citizens.

"The purpose of education is to create responsible citizens. With a fast-changing world, educational inputs and training need to change. Subjects such as vocational education, physical education, art education and environmental education provide necessary life skills for personality development," Ghanta said.

He, however, said the success of the integration of these subjects into the syllabus would depend on the preparedness of teachers. Currently, the government-run schools do not have adequate teachers. Existing teachers are not trained to teach the new subjects.

"The teachers should be provided proper training before the subjects are incorporated," Ghanta said.

STUDY ABROAD

Use of AI for essays and personal statements

UMA ASWANI

For many students aspiring to study abroad, writing a personal statement for college applications has been the most important task for years. This essay is what made them stand out amongst the many applicants. If your essay was not well-written and did not tug at the heartstrings of the admissions officer, you would not be accepted into the university. Strict measures were adopted to check plagiarism. This resulted in students putting in a lot of effort into writing their personal statement. They shared their own stories in the most effective way possible.

Now that AI and ChatGPT are accessible to students, turning in a college essay with a little help from ChatGPT has become common. Although universities are trying to use tools such as Turnitin, GPTZero, Originality.ai, Copyleaks or ZeroGPT to verify the authenticity of students' work, it is not possible to achieve accurate results, as technology is not entirely perfect. There is no foolproof method to ensure authenticity, while we also ensure we do not kill creativity altogether.

Now, many universities on their websites openly state that you can use AI for research, grammar check, brainstorming, structuring, and refining your essay. AI tools like Gram-



marly and Microsoft Copilot are widely accepted by most universities. These schools that allow partial use of AI would want you to acknowledge the AI tools you used and to what extent, as a reference or declaration section at the end of your essay.

To discourage the use of AI in your college applications, some of the top schools and Ivy League schools require you to sign an undertaking and acknowledge the integrity in your application process, wherein you are required to declare that the work is entirely your own and factual. Serious action can be taken against students if their work is found to be AI-generated.

Why not AI?

AI collects information from various sites without the authors' consent and uses art from different platforms without the artists' consent. The ethical compass for this is ambiguous, but if you use such content, you are effectively copying the work of many others and spinning it as your own.

This is why students should refrain from using AI for anything meant to be creative, such as writing their personal statement or Art for their portfolio. Your college essay is referred to as a personal statement because it is meant to be just that. Let it be your unique story, your personal experiences and your passion and reasons for choosing a particular subject and university.

As a student who is planning on joining a prestigious university to gain knowledge and earn a degree, do not resort to AI shortcuts. Writing an essay is not that difficult. Universities accept students from different countries with different levels of English language skills. What they are looking for in your essay is to understand who you are, what makes you exceptional, what drives you to choose their university and the course. To simplify the process of your essay writing, they give you many prompts to choose from or frame their questions in a manner that helps you create a clear statement of purpose.

So, be original. If you are a graduate student, include your short-term and long-term career goals, your research interests, professors whose work you have been inspired by and would like to work with, and projects and publications you have submitted, and internships or work experience that have helped you prepare for the chosen course. These details cannot be written by AI.

Research the university websites and use reasons for choosing their university. You are expected to know what modules are offered and have a thorough understanding of what you will be taught and how you think you will benefit from it. You are also expected to read up about the professors in your chosen department and list a couple of their names whose classes you would like to attend.

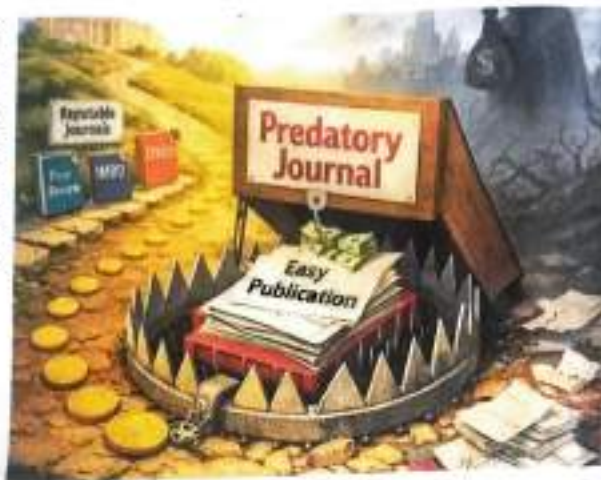
In cases where it is alright and acceptable to use AI tools to research information, do not copy and paste. Rephrase and interpret the information in your own words. Use AI to your advantage without compromising your ethics or creativity.

(The author is a career counsellor based in Bengaluru)

Questions? Suggestions?
Feedback? Write to us at:
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Avoiding the trap of predatory journals

Responsibility of vetting the journals rests on the researcher, while UGC has a reference list, writes Seshadri KS



In academia, publications are the primary currency for advancement. Whether it is a PhD student or a tenured professor, everyone plays the 'publish or perish' game. Publication is the logical culmination of the scientific research method. Publications close the loop from data collection and analysis to public contribution.

To ensure clarity, most journals follow the standardised Introduction, Methods, Results, and Discussion (IMRD) framework. However, many journals that have grown from this paradigm starting out in the 17th century to an estimated 46,000 journals today, thus, presents to publish is exposing a dark side: predatory publishing.

The publishing industry

The academic publishing industry is fiercely competitive, with greater profit margins than major commercial publishing sectors. This industry relies on an elaborate model of ethics and values: editorial boards, competing established reputations, determine the fate of manuscripts, which are then sent to referees for peer review, a rigorous formal quality control.

If the manuscript has no major flaws or concerns and requires no revisions, it is formatted and published. Typically, authors surrender their copyright to the publisher, who then profits by 'pay-walling' the knowledge. Libraries or individuals pay hefty subscription fees, often from the same public funds that supported the research, while editors and reviewers work for free, leaving the publisher to collect the dividends of a system they manage.

The open access model

The irony of pay-walling taxpayer-funded research has long been a point of contention for academics. The open access model of publishing emerged from this anguish. In this relatively recent model, the researchers pay the publisher not to pay-wall the paper.

Here, the rigour of the publishing remains the same, and if a paper is accepted, the authors pay an article processing fee. The decision making and payment pathways are essentially

separate, acting as an ethical wall. Here, the paper is available immediately and widely accessible and has a greater readership. Here is where the predatory publishing practices creep into the system.

What is a predatory journal?

Predatory journals are counterfeit publications designed solely for profit. They capitalise on the author-pays model to generate revenue while disregarding or diluting industry professional standards. These journals often operate as 'clones' of established titles; for instance, the reputed journal *Current Science*, published by the Indian Academy of Sciences, has frequently issued alerts about fake journals mimicking its identity to solicit articles.

Other predatory outlets simply dismantle the ethical wall between paper acceptance and payment. In both cases, the scientific integrity is compromised if the only barrier to entry is a fee, then flawed methods and baseless findings can easily enter the public record.

Fake news of the academic world

The hallmark of the scientific enterprise is reproducibility; science is self-correcting process that thrives on rigorous verification. Predatory journals fail at this foundational premise. By bypassing peer review or by publishing with low rigour, they pollute the global pool of knowledge with spurious findings, funding future researchers to waste public funds sifting through the wheat and chaff. This is the fake news of the academic world.

An example was a paper published during COVID that was later retracted, which claimed that sound waves from beating a thali could kill the COVID-19 virus. Published in a dubious journal that has since ceased operations, such findings do more than add a lie to the author's resume or bump up university rankings; they actively erode public trust in science and pose genuine risks to society.

The trap that attracts desperation

Academia is a high-stakes race where being the first to publish is often the only way to claim novelty. If a researcher delays, they risk being scooped by a peer, rendering years of work seemingly redundant. Coupled with this is the institutional brain-counting of papers to measure progress.

In India, the University Grants Commission (UGC) regulations mandate PhD students to publish in reputable journals to qualify for their degrees. When these graduation deadlines or faculty promotion windows loom, the high-speed guaranteed acceptance of a predatory journal becomes a seductive, if dangerous, shortcut. Whether through genuine oversight or sheer desperation, researchers fall into the trap of prioritising the act of publishing over the integrity of the output.

How to avoid this trap?

Academics are often thought to be the smartest, and falling for such scams can be embarrassing. Fortunately, there are ways to spot such journals. In 2016,

librarian Jeffrey Beall began documenting suspicious publishers and later established criteria to assess a journal's veracity. Key red flags include:

- **Superfast:** Claims of peer review completed in days rather than the standard weeks or months.

- **Hidden fees:** Legitimate Open Access journals are transparent about Article Processing Charges (APCs) from the start and have an option to seek a waiver; predatory ones often spring a fee after acceptance.

- **Identity theft:** Mimicking the titles or websites of reputed journals.

- **Broad scopes:** A journal that claims to cover "Engineering, Medicine, and Poetry" all at once is likely just a fee-collection front.

- **Dubious credentials:** Editorial boards that lack diversity, use fake names, or include experts who never consented to being listed.

- **Fake metrics:** Prominently claiming readership ratings that aren't verified by the Journal Citation Reports (JCR) or focusing only on academic networking sites rather than the Directory of Open Access Journals (DOAJ).

- **Retraction watch:** Publications retracted or journals removed for questionable publishing practices.

Recent estimates indicate that nearly 15% of the papers in predatory journals originate from Indian authors. In 2018, the UGC introduced a list of legitimate journals, but later shifted responsibility for vetting to higher education institutions, while the UGC CARE list remains a vital reference point. This move has placed the burden of due diligence squarely on the individual.

Today, a researcher's reputation is no longer built solely on their ability to discover truths, but also on their ability to discern. The name on the masthead of a predatory journal is not a trophy, but a tombstone. In the digital age, a paper in a predatory journal is a public admission of either laziness or a lack of integrity. (The author is an ecologist and a faculty member at ATREE)

When internship trumps academic excellence

MAHIR LAUL

A hiring manager once shared something with me that perfectly captures the strange reality of graduate hiring today. "We interviewed two candidates last week," he said. "One had perfect grades. The other had spent a summer working in operations at a small logistics firm." The second candidate received the job because they solved problems better than others, but their academic skills were equal to those of the other candidates. The first candidate spoke about a group project at university. The interviewer acquired all the necessary information from the candidate through his distinctiveness.

The internship paradox refers to the hiring reality in which academic excellence alone is no longer enough to secure jobs, yet students often need prior work experience—usually through internships—to get those jobs in the first place. This exists because employers from all industries work to resolve it without drawing public attention.

Academic excellence still matters. Universities remain essential in building foundational knowledge. But increasingly, employers are discovering that the graduates who succeed in the workplace are not always the ones with the highest grades. Most successful employees achieved their goals through work experience that involved actual job tasks. Internships are where that experience usually begins.

The numbers support this shift in thinking. The National Association of Colleges and Employers (NACE) conducted research that found that employers offer



full-time positions to 70% of their interns, making internships the most dependable recruitment method organisations use. Another NACE study shows that graduates who complete paid internships receive an average of 1.61 job offers, compared with 0.94 offers for graduates who completed unpaid internships and just 0.77 offers for those with no internship experience at all.

Internship experience increases the probability that graduates receive numerous job offers by almost double. Employer hiring behaviour reflects the same pattern. When evaluating early-career talent, employers prefer candidates who possess relevant work experience. Employers are not just looking for academic knowledge. They are looking for signals of readiness.

On-ground benefits

One recruiter I spoke with recently described a

pattern she had observed repeatedly. When she asked candidates to describe a difficult challenge they had faced, graduates without internship experience often referred to academic situations, presentations, coursework deadlines, and group assignments. The candidates who had completed internships responded differently. They described their work with actual clients, their experiences handling business operations and unexpected problems, and their routine decision-making under actual work conditions. The speakers delivered their responses in a natural, rather than prepared, manner. As she put it, "Internships give candidates stories. And stories tell you how people actually behave."

The transition from university to the workplace is often underestimated. Universities operate within structured systems. Assignments have clear instructions. Expectations are defined. Problems usually have correct answers. However, the workplace is rarely that predictable.

For many graduates, the first job becomes the first real encounter with that ambiguity. Internships shorten that adjustment period. They expose students to workplace dynamics before they graduate. Even short internships can transform how students think about deadlines, communication, and responsibility.

Internships also help students understand their own career intentions. The connection between theory and practical work becomes clear to students after they spend time in actual organisations.

Employers research candidate development through their position requirements while measuring

success under three different professional traits: communication skills, teamwork abilities, problem-solving capacity, and their ability to adapt to new situations. The development of these skills requires actual experience.

Professionals develop their skills through collaboration with team members, handling unanticipated challenges, and meeting project deadlines. Internships create the environments where those capabilities begin to form.

The traditional internship path is not accessible to all students because some face barriers. Universities and employers are increasingly experimenting with alternative models, including industry projects, short-term placements, and hackathons, as well as collaborative initiatives that help students experience real business challenges. The format may change, but the basic concept remains the same: Employers seek proof that candidates have applied their knowledge in actual work environments.

In many graduate hiring decisions, academic performance functions more as a threshold than a differentiator. Once that threshold is crossed, employers begin looking for signals that knowledge can be translated into action.

Experience provides that signal. Internships reveal that ability earlier than anything else. In a hiring market where employers need to choose candidates without complete information, such early signals become crucial.

The author is the co-founder of an HR consultancy.

Smartphones in classrooms

Is a complete ban the way forward?

Shruti Sonal
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Hamlet's existential dilemma — "To be or not to be?" — is finding an echo in Indian schools: To ban or not to ban smartphones in classrooms.

With Haryana Pradesh chief minister Sukhvinder Singh Sukhu announcing a ban on the use of mobile phones by students in all govt and private schools from March, and his Karnataka counterpart Siddaramaiah in his budget speech on March 6 announcing a ban on social media for under-16 children, concerns over excessive smartphone use and its impact on children's cognitive abilities are back in the spotlight.

These decisions align with a growing global push to curb the use of smartphones in schools amid rising concerns about shrinking attention spans, social media addiction and distraction in classrooms. In the



homework, and foster discussions. The parent community is all on WhatsApp groups too, receiving notices and updates from school. Many students come by other means of transport or go for private coaching afterwards. A phone, therefore, becomes crucial for communication," she adds.

Need For A Holistic Approach

Finding a middle path is the need of the hour, Wattal emphasises, a process that would require dialogue among teachers, parents, and students.

A team of researchers from the University of Birmingham drew a similar conclusion in a Feb 2025 study** of 1,227 students across the UK. Bans in isolation, the study argued, are not enough to tackle the negative impact, and is called for a more holistic approach to lowering phone use among students.

Some schools in India are using lockers or sealed pouches to keep phones away from students during lessons, while others require formal requests to be submitted for exceptional cases. Arora says her school does not allow students to bring mobile phones, except on the specific written request of parents, in case they need to use the phone after school hours.

Students deposit their phones in the morning and take them when they leave. However, allowing students to use smartphones during school hours is unlikely any time soon. "We need to have more talks, discussions, and digital ethics workshops before we allow that. We are doing our bit by inviting specialists to discuss cyber threats, or even the need for digital detox," she adds.

The Delhi high court ruling in March had also pointed out that schools must educate students on responsible online behaviour, digital manners, and the ethical use of smartphones. Students should be counselled that high levels of screen time and social media engagement can lead to anxiety, diminished attention spans, and cyberbullying, the court had added.

However, schools are only a part of the equation, Arora emphasises. "The lessons for responsible use of phones and digital ethics must also be taught at home, with parents shouldering equal responsibility as the teachers."

*Source study Technology in education: https://newsroom.birmingham.ac.uk/governance/technology

**UK study: School bans alone not enough to tackle negative impacts of phone and social media use: https://www.birmingham.ac.uk/news/2025/school-bans-alone-not-enough-to-tackle-negative-impacts-of-phone-and-social-media-use

Special test to assess digital stress for TOI drive

TIMES NEWS NETWORK

The Times of India's 'Let's D-Stress' campaign aims to initiate a nationwide conversation around digital stress, its consequences, and practical ways to address it. The objective of the initiative is to turn awareness of digital behaviour into action, leveraging science and technology to help individuals reclaim attention, productivity and mental well-being in an increasingly distracted digital world.

The initiative was launched in collaboration with Kochi-based Centre of Excellence in Neurodegeneration and Brain Health (CENABH) as knowledge partner along with IIT Delhi and NIMHANS as solutions partners.

CENABH has expanded its focus from laboratory research on neuroscience to large-scale public-centric health initiatives. In Oct 2021, the centre helped develop Kochi into India's first dementia-friendly city. The initiative demonstrated how advanced research can be applied to create healthier and more inclusive communities, highlighting a fundamental shift towards compassionate, community-based care for those living with neurodegenerative conditions. The centre also helped launch the 'Ud-bodh' project, designed by the Centre for Neuroscience at Cochin University of Science and Technology (CUSAT), to create a supportive ecosystem for an ageing population.

Self-Assessment Tool

As part of the TOI campaign, a simplified web-based assessment tool, linked through a QR code, will allow readers to gain an initial understanding of their digital behaviour and focus levels.

The results are intended to promote awareness of everyday technology use and encourage individuals to make gradual, practical adjustments that support improved focus, rest, and overall cognitive wellbeing. The assessment tool is derived from the scientific framework used for the Mentapay app, rooted in neuroscientific research and behavioural insights, and developed along with a technology partner by CENABH in a two-year collaboration.

The scientific framework behind the assessment tool was developed by a multidisciplinary team led by Dr Baby Chakrapani P S, CENABH director and honorary director of the Centre for Neuroscience at CUSAT, and Dr Lima Raj, psychologist and project head for social neuroscience at CENABH.

BAN: THE WORLDVIEW

> **United States:** Regulations ban or limit access to smartphones in school classrooms in over 35 states

> **Sweden:** No access to smartphones for schoolchildren between 7 and 16 years from August

> **Zhengzhou, capital of China's Henan province:** No access to smartphones in primary and secondary schools

> **India:** Karnataka imposes ban on use of smartphones in schools from March

Restrictions On Social Media

> **Australia:** First country to impose a ban on social media for under-16s in Dec 2025

> **Indonesia:** Ban on access to 'high-risk' platforms for under-16s from March 28

> **France, Poland, Spain, Slovenia, UK, Denmark, Malaysia, Norway, Ireland, New Zealand, Czech Republic, Greece:** Mulling bans or restrictions

> **Age verification required:** Brazil, Vietnam

> **In India, Karnataka** is first state to announce a ban on social media for under-16s

Andhra Pradesh: Plans to ban access to social media for under-16s in 90 days. Will consider increasing age limit to under-18s.

Goa: Mulling a ban on social media for under-16s

attention of their children from studies. Many of them have started complaining about eye strain and poor posture," Arora says.

Academic Performance

She linked excessive use of smartphones to a decline in student academic performance. "We also saw a decline in students' academic performance if they were too glued to the screen. An even bigger concern is that of exposure to cyber risks, such as online bullying and access to inappropriate content."

A 2025 Unesco report* showed that mere proximity to a mobile device distracted students and led to a negative impact on learning in 14 countries. It cited research studies to point out that "banning mobile phones from schools improves academic performance, especially for low-performing students."

Finding Workarounds

Ameeta Mullia Wattal,

the age of 16, while Indonesia announced its decision to ban access to "high-risk" platforms for under-16s from March 28.

France's National Assembly has backed similar plans for children under 15. Poland too is planning to introduce a legislation to prohibit children under the age of 15 from accessing social media, with tech firms directly responsible for age verification.

Calls for such measures have been gathering steam in India too, including in the recent Economic Survey. After Karnataka, Andhra Pradesh govt announced its plan to curb access to social media for under-16s within 90 days and will consider extending the ban to under-18s. Goa also has set up a panel to investigate what such a ban might look like and how it can be implemented.

Rules For Smartphone Use

India is yet to formulate a national policy or a specific law on access to social media apps and smartphone use in educational institutions. However, calls for regulation of smartphone use are growing. The matter reached the Delhi high court last year, but it refused to order a complete ban, calling it impractical and undesirable. Instead, the court issued guidelines for regulating and monitoring use of smartphones.

The reasons for concern are obvious, says Jyoti Arora, principal of Delhi-based Mount Abu School, adding that mobile phones can be great tools for learning, communication, and accessing digital resources, but distraction remains a concern. "Almost every day, our office is flooded with several parents complaining about games, social media, and constant notifications diverting the



Scan the QR to take a scientific psychological assessment of your digital habits.

United States, nearly 35 states have enacted laws requiring public schools to restrict or ban the use of mobile phones by students on campus, with exceptions for students with disabilities who have individualised education programmes. Sweden will implement a nationwide mobile phone ban in all schools from Aug to improve security and study conditions for students. The new rule, which will affect children between the ages of seven and 16, will make it compulsory for all schools and after-school clubs to collect students' phones and hold them until the end of the day.

In January 2025, Zhengzhou, capital of Henan province, became the first Chinese city to implement a law, prohibiting the use of mobile phones in primary and secondary schools unless specifically needed for teaching purposes.

Restrictions On Access

Instead of imposing a ban on mobile phones for teens, some countries are opting for restrictions on social media. In Dec, Australia became the first country to ban certain social media platforms for teens under

Abdus Salam and Punjab's shared scientific legacy



ARUN KUMAR GROVER
FORMER VC, PANJAB
UNIVERSITY, CHANDIGARH

IN the birth centenary year of the Nobel Laureate, Prof Har Gobind Khorana (1922-2011), Prof Perviz Hoodbhoy — one of Pakistan's most prominent academics and a UNESCO Kalinga Prize winner — lamented the lukewarm response in his country to commemorating Khorana's achievements. In an article titled 'Khorana is ours too' in the Karachi-based newspaper Dawn, he reflected on the shared intellectual heritage of the subcontinent.

Similarly, there is inadequate enthusiasm in India for commemorating the birth centenary of the 1979 Nobel Laureate in Physics, Prof Abdus Salam (January 1926-November 1996). Salam completed his postgraduate studies a year after Khorana at the same Punjab University in pre-Partition India. It is fitting to say that Abdus Salam, too, is a part of our shared legacy, particularly for the state of Punjab.

At Government College, Lahore, Salam was a student of the legendary mathematician Sarvadaman Chowla. Among his contemporaries in Lahore were two would-be distinguished academics of independent India — mathematician Ram Prakash Bambah (1925-2025) and physicist Yash Pal (1926-2017).

As Vice-Chancellor of Panjab University, Chandigarh, from 1984-91, Bambah had awarded honorary doctoral degrees to both Salam and Yash Pal along with the poetess Amrita Pritam (1919-2005) in March 1987.

It became an occasion to recall the poignant poem penned by her in 1947: 'Ajj aakhon Waris Shah nu, kiston qurban vichon bol' (Today I recall Waris Shah — to speak from your grave. Once a single daughter of Punjab cried and you wrote about her. Today millions of daughters cry out to you!). Waris Shah had immortalised the tragic love story of Heer Ranjha set in Jhang.

Salam and Yash Pal both hailed from Jhang. The latter reportedly remarked that there must be something in the water of Jhang that produced two physicists in the same year.

Punjab University recently commemorated the birth centenary of Professor Bambah by hosting an international conference on mathematics, marking a hundred years of high-quality mathematical research in Punjab.

This tradition can be traced to 1925 when Sarvadaman Chowla — then an undergraduate student at Government College, Lahore — published the first research paper in mathematics from the region. Two decades later, Chowla forwarded for publication a manuscript written by his student Abdus Salam at the same institution.

Salam, a year junior to Bambah, had scored higher marks than him in almost all the university examinations, except the MA final in mathematics, in which Bambah was awarded a perfect score of 600/600 under



ACHIEVEMENT : Salam won the Nobel Prize in Physics in 1979. WIKIMEDIA COMMONS

special circumstances.

Khorana had obtained the Government Overseas Fellowship in 1945. The following year, the scheme was restricted. Salam, however, secured an overseas scholarship from the 'Punjab Peasant Welfare Fund', which had been collected by landlords under the leadership of Khizar Hayat Twana and Sir Chhotu Ram to aid the war efforts of the colonial government. Luckily for Salam, the war ended in August 1945.

Meanwhile, Bambah was appointed by Chowla as his research assistant and Yash Pal completed his MSc after Independence before moving to the Tata Institute of Fundamental Research (TIFR) to pursue his PhD under Homi Bhabha.

In 1948, Bambah joined Salam at Cambridge on another fellowship. After completing their PhDs, Salam and Bambah became Fellows of St John's College, Cambridge, in 1951 and 1952, respectively. Salam maintained close contact with both Bambah and Yash Pal throughout his life.

There is inadequate enthusiasm in India for celebrating the birth centenary this year of the 1979 Nobel Laureate in Physics, Prof Abdus Salam.

SALAM AS A SCIENTIST

■ After completing the Mathematical Tripos at Cambridge, Abdus Salam began doctoral work under Nicholas Kemmer, who had collaborated with Wolfgang Pauli and Werner Heisenberg. Kemmer directed Salam to his senior student Paul Mathews, who introduced him to the difficult problem of "overlapping infinities" in quantum electrodynamics.

■ With little guidance available, Salam consulted Freeman Dyson, who had speculated that the issue might be resolved but had not proved it. Before Mathews returned from a post-viva vacation, Salam demonstrated

that spin-zero meson theories were renormalisable to all orders. When the result reached Dyson, he reportedly remarked that if it were correct, Salam would become very famous.

■ Kemmer later said he felt more like Salam's pupil than his teacher. Salam subsequently developed the electroweak framework that earned him the 1979 Nobel Prize alongside Steven Weinberg and Sheldon Glashow.

■ Salam's V-A Theory showed that electromagnetism and Weak force are actually different aspects of a single unified force at very high energies.

Salam had shifted his academic focus from pure mathematics to theoretical physics during his PhD work. Salam progressed to receive the Nobel Prize in Physics in 1979.

He was invited by Nobel Laureate PMS Blackett in 1957 to occupy the first Chair of Theoretical Physics at Imperial College, London. Interestingly, Blackett had earlier served as advisor to Jawaharlal Nehru, when he was the Vice-Chairman of the Executive Council of the Viceroy in 1946.

Homi Bhabha's first research paper, written in German, had been communicated for publication by the future Nobel Laureate Wolfgang Pauli after Bhabha visited him in Zurich in 1933. Pauli visited Bhabha at TIFR in 1951 and expressed a desire to meet Abdus Salam, who was then a faculty member at Government College, Lahore. Bhabha enabled Salam to meet Pauli.

In 1955, Homi Bhabha presided over the first United Nations Conference on the

Peaceful Uses of Atomic Energy in Geneva, where Salam served as Scientific Secretary. Bhabha also became a founding member of the International Atomic Energy Agency (IAEA) when it was established in Vienna in 1957.

It was during an IAEA conference in Vienna in 1960 that Salam articulated the vision of establishing an International Centre for Physics under the UNESCO framework.

The International Centre for Theoretical Physics (ICTP) was eventually established in 1964. After Bhabha's death in an air crash in January 1968, Salam emerged as a leading scientific spokesperson for the developing countries.

Salam founded the Third World Academy of Sciences (TWAS) in 1983. MGK Menon, Bhabha's successor at TIFR, became an ally of Salam in shaping TWAS programmes, aimed at strengthening science in the developing world.

Abdus Salam was elected Honorary Fellow of TIFR

(1978) as well as that of all three national science academies in India. He was also awarded honorary DSc degrees by several Indian universities, including Guru Nanak Dev University (1981), Aligarh Muslim University (1981), Banarus Hindu University (1981) and Gulbarga University (1993).

During his visit to India in 1981, Salam placed his Nobel Prize medal around the neck of his maths teacher, Anilendra Ganguli, in a gesture of gratitude.

UNESCO Kalinga Prize winner (1963) Jagjit Singh (1912-2002), who had done his MA in mathematics from Lahore, was chosen by Salam to pen his biography, which came out in 1982. Two of Salam's four successors as Director of ICTP are KR Sreenivasan (2003-2008) and Atish Dabholkar (2019-present). The latter delivered an ICTP Special Salam Centennial Anniversary talk on India's National Science Day (February 28, 2026) at TIFR. His talk was aptly titled 'Scientific Temper in the Age of Unreason.'

Experiential learning reshaping villages



N MANIKANDAN

T SENTHIL SIVA
SUBRAMANIAN

India is marching towards becoming the skill and innovation capital of the globe, thereby enabling our nation to achieve self-reliant and inclusive growth. India remembers and realises the powerful and vibrant mantra of Bharat Ratna and former Prime Minister of India, Shri Atal Bihari Vajpayee: "I have a vision of India: an India free of hunger and fear, an India free of illiteracy and want."

The launch of the National Education Policy 2020, Viksit Bharat Shiksha Adhishthan, Recognition for Prior Learning (RPL), and the Skill Mission are slowly, strongly, steadily, and swiftly transforming the youth of India to achieve the highest excellence. The spectrum of students' hackathons is making a paradigm shift among the youth to explore experiential learning and frugal innovations for a variety of problem ideas existing in our nation. Indian education systems integrated with community-based learning such as RuTAG, Unnat Bharat Abhiyan and MY Bharat are addressing several challenges in both rural and urban communities across the nation. These form the epicentres for the growth of local communities across PAN India. The Government of India, especially the Ministry of Education, Ministry of Youth Affairs and Sports, Ministry of Micro, Small and Medium Enterprises, and the Department of Scientific and Industrial Research, has initiated several schemes which meet the objectives of transforming rural and urban areas into a Smart India.

The best and classical examples of community-based learning and innovation are the initiatives by the Office of the Principal Scientific Officer, Government of India, Ministry of Education, and Ministry of Youth Affairs and Sports such as RuTAG (Rural Technology Action Group), Unnat Bharat Abhiyan and MY Bharat (Mera Yuva Bharat).

India acknowledges the vision and vibrant mantra of the Hon'ble Prime Minister of India, Shri Narendra Modi - "Gram Swaraj" and "Aatmanirbhar Village", thereby empowering rural villages to function as hubs and centres leading to making villages strong and self-reliant.

RuTAG realises this vision by strengthening rural communities through science and technology intervention systems. It connects academic institutions, Self-Help Groups, Non-Government Organisations (NGOs), the Government of India,

local societies, innovators, analytical people, start-ups, incubators, and accelerators on a single platform. It has primary thematic areas such as bridging emerging technology gaps, thereby developing prototype, sustainable and scalable solutions; implementing technologies to address various issues in rural societies; and capacity building to meet national and regional priorities. The key areas of national and regional importance under this programme are agriculture, handicrafts and pottery, animal husbandry, post-harvest management, clean energy, and water purification.

The RuTAG centres are spread across PAN India such as IIT Guwahati, SKUAST-Kashmir, IIT Delhi, IIT Bombay, IIT Roorkee, ICAR-NAARM Hyderabad, and IIT Madras, which work closely in partnership with local communities, government, and industries. It also facilitates and promotes rural entrepreneurship across different segments.

Unnat Bharat Abhiyan (UBA), an initiative of the Ministry of Education, Government of India in collaboration with the Indian Institute of Technology (IIT) Delhi, aims to transform rural villages into technologically advanced and developed regions. It helps academic institutions connect with local district administrations and gram panchayats, enabling students and faculty members to undertake grassroots field research while empowering marginal farmers, artisans and Women Self-Help Groups.

UBA realises Mahatma Gandhi's vision of self-sufficient "village republics" by utilising public infrastructure and locally available resources and promoting sustainable, eco-friendly digital technologies for rural communities.

The programme also enables higher educational institutions to adopt nearby village clusters and implement sustainable and advanced technologies addressing local needs. Its key focus areas include sustainable agriculture, water resource management, renewable energy, weather monitoring, healthcare, sanitation and digital infrastructure, while also supporting the livelihood and upliftment of rural artisans.

UBA holistically enhances the growth of rural villages and communities through an in-depth knowledge base and harnessing the potential of digital transformation technologies like the Internet of Things (IoT) and Unmanned Aerial Vehicles for the benefit of communities and societies. UBA forms an icon of India by providing simple, easy-to-use and advanced technologies for the growth of villages and creating enormous employment opportunities for the youth of India. It also encourages and motivates academic institutions to participate in Gram Sabha programmes conducted by the local administration.

The Dayalbagh Educational Institute (Deemed University), Dayalbagh, Agra has designed and developed a MOOC online course on "Community Engagement and Social Responsibility", which is recognised by Unnat Bharat Abhiyan and available on the SWAYAM / NPTEL platform for young

minds and learners. The course enables youth and learners across different streams to fetch two credits, which consist of one credit for theory and one credit for fieldwork. The theory covers ethics and best practices of community engagement. It is mandatory for learners to perform fieldwork for 30 hours either in rural or urban areas by connecting with gram panchayats and Non-Government Organisations (NGOs) respectively to earn one credit. Students can connect with NSS and NCC of their respective institutions, thereby performing community-based fieldwork and providing hand-holding support for illiterates, orphanages, elderly citizens, and Self-Help Groups, among others. UBA also addresses issues of environment and climate resilience through technology-driven systems.

The implementation of UBA by higher educational institutions is a mandatory requirement and mandate of the All India Council for Technical Education (AICTE), Ministry of Education, Government of India, for extension approval of all undergraduate programmes.

Mera Yuva Bharat is an academic experiential learning platform that empowers youth through practical framework models. It gives enriching real-world experience by engaging them with local communities through district administrations across PAN India. It not only connects the dots between theoretical knowledge and practical execution but also gives enormous importance to an in-depth understanding and knowledge of society and community. This helps young students develop curiosity-based learning and problem-solving skills. Additionally, it provides hands-on exposure for learners. It develops holistic personality enhancement, thereby leading to thoughtful leaders of the nation. The programme is eligible for undergraduate students across different streams like engineering, science and technology, education, arts, commerce, social science, and many more. The activities have academic credits added to the Academic Bank of Credits, thereby earning academic scores for their regular graduation programme. It leverages the skills of youth to build a vibrant India leading to achieving the Amrit Kaal and Viksit Bharat@2047.

The Government of India initiatives such as RuTAG, Unnat Bharat Abhiyan and MY Bharat are the need of the hour for the youth and make them socially responsible to drive and transform rural and local communities through various impactful activities, thereby transforming India into a New Vibrant Bharat.

Additionally, India has emerged as a universally responsible nation to guide global communities as a Vishwa Guru, Vishwa Sewak, Vishwa Suraksha, Vishwa Rakshak and Vishwa Mitra.

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Stubborn gap

SHEETAL PRASAD

India faces a striking paradox: despite being the world's fastest-growing major economy, a large share of its women remain outside the workforce. The country continues to rank near the bottom of the Global Gender Gap Index. What makes this gap even more ironic is that women's educational attainment has steadily improved, reflected in rising Gross Enrolment Ratios and the Gender Parity Index. But economic progress has not translated into economic opportunity for women.

Since 2008, services have powered much of the Indian economy. In cities, these service-sector jobs have been more welcoming to women, offering better pay and some degree of social security. Yet these opportunities remain limited. These sectors remain elitist, with narrow entry points that exclude a large majority of women due to skill mismatches. Other sectors continue to be poorly paid or unsafe, discouraging women from joining. Added to this is the heavy load of unpaid household and care work, career breaks forced by motherhood, and social norms that keep women stuck at the bottom of the job ladder.

Another paradox marks rural India: rising incomes and economic growth often push women back into domestic spaces in the name of honour and social status.

In contrast, Bangladesh has consistently outperformed India on women's economic participation. Much of this success comes from its ready-made garments industry, which opened the doors of factories to women across towns and villages. Importantly, men were willing to share workspaces with women across both rural and urban areas, making female employment socially acceptable on a large scale. Another key factor has been the easy access to microcredit for women. Small loans helped women start businesses and take up home-based work, allowing them to earn without directly challenging restrictive social norms.

This contrast between India and Bangladesh fits a

well-known pattern called the U-shaped curve of women's work. In the early stages of economic growth, women's participation rises as more jobs become available. Bangladesh is still in this phase. India, however, appears stuck in the middle stage. Here, rising incomes lead to fewer women working. Moving out of this phase requires more than job creation — it demands sustained efforts to keep women in the workforce and to challenge the norms that push them out.

Even Bangladesh's progress has its limits. Women there are concentrated in a few industries and are often stuck in lower-level roles, with limited job security and wage equality. Their presence is visible, but their upward mobility remains restricted.

For India, the most important lesson lies in addressing its 'missing middle'. Nearly 38% of Indian women have completed secondary education, yet remain outside the labour force because their skills do not match available jobs. With the right support and industry connections, their entry into low-skilled sectors, as seen in Bangladesh, could slowly change how society views women's work.

India's next step must be to make manufacturing more open and accessible to women. Alongside this, the care economy presents a powerful opportunity. This sector offers a double benefit: women are likely to make up much of the workforce, while working women also stand to gain from these services as they struggle to balance paid work with unpaid care responsibilities.

The government has a role to play. Bridging the gap between education and employment through skill training and vocational programmes is essential.

Meaningful change will come only when women are present across all sectors of the economy in critical numbers and roles that offer dignity and growth. As women's presence in the workforce becomes routine rather than exceptional, social attitudes will begin to change. This gradual transformation is central to the idea of a social democracy and welfare State that India seeks to uphold.

Reforming choice-based education

Choice' and 'flexibility' have become the new buzzwords in educational reforms and policy documents. Across the country, educators are focusing – more than ever before – on catering to the individual needs and aspirations of students. The traditional one-size-fits-all model is giving way to an approach that values the diversity of student aptitudes and interests.

The new paradigm encourages multiple pathways, allowing students to pursue combinations of courses and careers that align with their passions and potential. A science major can now minor in music, for instance – a shift symbolic of the move from teacher-centric to learner-centric education. The focus has expanded beyond disciplinary boundaries, embracing multi-disciplinary and even transdisciplinary approaches. The rationale is clear: learning confined to a single discipline risks isolating students from related fields, while cross-disciplinary study offers a larger and fuller perspective of the world.

However, when such ideals are imposed upon a rigid academic framework like ours, the choice offered is Hobson's choice – choice in name only. Teacher workload, conventional pedagogy, poor student to teacher ratios, and outdated evaluation systems conspire to reduce flexibility to a mere paper promise.

The illusion of choice

The introduction of the Choice-Based Credit and Semester System (CBCSS) in Kerala in 2009 was heralded as a landmark reform meant to offer students more freedom. In theory, credits were to reflect weekly teaching hours. In practice, the system accommodated anomalies: a four-credit course could run for five hours a week, while a two-credit course might require just four hours. Such inconsistencies were quietly ignored to maintain the illusion of



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Teacher workload, conventional pedagogy, poor student to teacher ratios, and outdated evaluation systems conspire to reduce flexibility to a mere paper promise

freedom. Moreover, the so-called buffet of choices were hardly choices in the real sense. Beyond a set of compulsory core courses, students were offered a limited selection of 'electives', often chosen by the departments themselves. The much-advertised "open course" – a two-credit paper in the fifth semester offered to students of other departments – was the only semblance of choice. Thus, despite the rhetoric, genuine academic freedom remained a distant dream.

The same rhetoric of flexibility once again took centre stage, with the launch of the Four-Year Undergraduate Programme (FYUGP) in Kerala in 2024, as mandated by the National Education Policy, 2020. The new structure allowed students to switch majors and minors, theoretically enhancing autonomy. Yet, unlike earlier curriculum changes, this reform demanded deep structural changes, making it highly challenging. The traditional idea of teachers delivering lectures in fixed classrooms gave way to students moving across departments in search of suitable courses and teachers.

It goes without saying that structural changes pose insurmountable challenges. A case in point was a clause in the university regulations of Kerala prohibiting students from choosing minors from allied disciplines. While it was intended to promote interdisciplinary learning, it inadvertently hindered specialisation.

Disciplines like Commerce and Functional English, which had previously allowed aligned minors, found this rule counterproductive – a restriction masquerading as choice.

Need for systemic changes

For any reform to succeed, systemic changes are essential. During the author's tenure as Chairperson of the Board of Studies in English at the University of Calicut in 2017, two key innovations were introduced.

The first was a skill-oriented question paper for the course on Communication Skills. The traditional format, filled with essay questions on theories and models, failed to test actual communication ability. It was replaced with a purely activity-based paper designed to assess real skills. Yet even this change ran into bureaucratic hurdles: permission for an accompanying answer booklet was denied on "confidentiality" grounds, forcing evaluators to flip endlessly between question papers (which carried more than twice the number of questions of its earlier counterpart) and answer sheets.

The second innovation was a course titled 'Introducing Literature' – a hands-on, concept-driven paper designed to teach how to read literature rather than merely what to read. Instead of memorising texts and answering questions on the basis of prescribed texts, students were taught literary concepts and were required to interpret unseen passages from linguistic, aesthetic and political angles. Ironically, this radical step met more resistance from teachers than students, as it demanded a shift from conventional methods to concept-based teaching, teaching us the valuable lesson that teacher preparedness and training should have been ensured prior to rolling out the reforms.

Facing ground realities

Today, the FYUGP aspires to make undergraduate education more skill-based, research-oriented, and autonomous, with a modest 10% autonomy given to teachers for framing syllabi wherein each teacher can pitch in their innovative ideas. Yet, at the ground level, classrooms and methodology remain largely unchanged. One can only reap the results if adequate teacher training is provided, if class sizes are smaller, and if research were to be integrated into teaching workloads.

The National Book Trust's India@75 series brings forgotten figures into the limelight

From woman scientist Anna Mani to unsung freedom fighters, the books are works of scholarship and storytelling intended to inspire the younger generation and reflect on momentous journeys

Soma Basu

One of the walls of the Kerala State Science and Technology Museum Innovation Hub in Thiruvananthapuram has photographs of famous scientists, including Charles Darwin, Isaac Newton, Albert Einstein, C.V. Raman, S. Chandrasekhar, Homi Bhabha, and Stephen Hawking. In the long wall of honour, meant to inspire children, Marie Curie is the only woman scientist who finds space.

The Matilda effect and its impact on women in science are neither new nor unknown. A decade ago, neuroscientist and writer-researcher Asha Gopinathan coordinated the Cafe Scientifique, a series of science workshops in the same city, in which a young audience fell silent when asked to name a woman in science.

However, when a lone voice uttered Marie Curie, Gopinathan felt the need to study and unravel the life of two trailblazing scientists from Kerala: Janaki Ammal, a botanist who pioneered plant breeding, and Anna Mani, a physicist who made India self-reliant in meteorology, solar radiation, and wind energy.

Two women scientists

It was not that people had forgotten the two women scientists; they simply did not know about them. This was Gopinathan's attempt to document the struggles and achievements of women scientists who have been overlooked and denied public recognition.

Her first book, *Anna Mani: The Uncut*

Diamond, was released at the New Delhi Book Fair earlier this year, marking a turning point in changing public perception about women in science. The book brings to light the genius, dedication, and perseverance of Anna Mani. It establishes her as the weather woman of India, who designed and standardised more than 100 weather instruments.

Aimed at young adults, the book, Gopinathan hopes, will help people understand, remember, and respect Anna Mani's achievements in the context of her family background, the times she grew up, and the wider world in which she was an important player.

Published by the National Book Trust (NBT) under its series India@75, the book is a powerful reminder that behind every achievement, there is a passionate individual who struggles, dreams big, and overcomes adversity, and yet may fail to exist in public memory.

'Act of recovery'

Gopinathan calls her book "an act of recovery" and shines a light on Anna Mani's brilliant contribution to measuring weather and atmospheric ozone, as well as to renewable energy and spectroscopy. She writes how Anna Mani described herself as "the right person in the wrong place". The words bear the weight of gender bias and barriers that women scientists of her generation faced.

The author wonders why people like Anna Mani do not feature in school textbooks or why their photographs are not seen in museums along with those of

famous male scientists. The silence speaks loudly and therefore, the book matters. Both Gopinathan and the NBT deserve applause for documenting and preserving an iconic scientist's contributions. The hard work that has gone into researching archival details shows on every page.

From the pages of history

Biographies help to understand the nuanced history of different eras and the socio-economic and cultural contexts during specific periods in history. On the occasion of Azadi Ka Amrit Mahotsav in 2023, the NBT launched its India@75 series categorised into four sections: people, places, events, and themes.

Under the People series, the organisation has so far published 60 titles so far. These are divided into people-achievers (such as Anna Mani; hockey player Dhyan Chand; liberal thinker, author, and diplomat Minoo Masani; journalist Motilal Ghose, who advocated for the rights of Indian farmers, and Karnataka's folk heroine Rani Chennamma) and books on both well-known and lesser-known freedom fighters from the pages of history.

Innovatively introducing the series as 'Book Box' and standardising the format, cover design, and layout, the NBT plans to publish biographies of 75 freedom fighters by the end of the year.

Other categories in the pipeline include major events of national significance, such as the 1971 war, the 1983 Cricket World Cup, and the White and the Green Revolution in India.

The books written by NBT's pool of authors, researchers, and scholars are published in English and 22 regional languages, making it a rich repository of knowledge and diverse cultural perspectives.

Some of the interesting titles include *The Saga of Kudopali: The Unsung Story of 1857*, *Kargil Heroes: Ten Exclusive Inspiring Stories and Unsung Anglo-Manipur War Heroes at Kalapani*. These books are as diverse and varied as the ordinary men and women who did much to build the fabric of Indian society. By highlighting their motivations, sacrifices, and vast contributions, the NBT places them centre stage.

With the objective of reflecting on the momentous journeys of pre-and-post independent India, the books are all works of scholarship and storytelling intended to inspire the younger generation. They also come at a time when the NCERT syllabus in school textbooks is being altered, leading to controversies.

By telling the stories of India's soldiers, poets, activists, freedom fighters, and other notable personalities, and by bringing to the fore the making of our cities and movements that helped shape India into a modern nation, the NBT's efforts appear to be a step in the right direction.

Often, the most influential people are those less heard of. Their lives are the true lessons in resilience and adaptability, and reading about them makes one realise that fame and impact are two different things.

Why Learning Cannot End

WG CDR SIDDHARTH KHARBANDA

The most dangerous moment for any profession arrives when it begins to believe it has learned enough. Knowledge does not stand still, and institutions that stop learning soon discover that the world has quietly

moved ahead without them.

Education therefore cannot remain confined to the early years of life. It must become a discipline that accompanies individuals throughout their professional journeys. Long after classrooms fall silent and degrees are framed on walls, the habit of learning continues to shape

Opinion

how people think, judge, and lead.

Learning, in this sense, is not merely the accumulation of information. It is the cultivation of judgement.

This idea has long informed global thinking about progress. When the Universal Declaration of Human Rights recognised education as a fundamental right in 1948, it affirmed that knowledge lies at the centre of human dignity and social advancement. India's constitutional framework reflects the same conviction. By placing education in the Concurrent List through the 42nd Amendment, the country recognised that the development of knowledge is both a national responsibility and a shared public commitment.

Education, however, is more than a matter of policy. It is a public good sustained by a broad social compact. Governments create frameworks and standards, institutions impart knowledge, and teachers nurture intellectual curiosity. Yet the true vitality of education lies in the willingness of individuals to continue learning beyond formal schooling. In a century defined by rapid technological change and geopolitical uncertainty, that willingness has become indispensable.

The international community recognised this reality decades ago. The landmark 1996 UNESCO report *Learning: The Treasure Within*, prepared by the Delors Commission, highlighted the growing importance of lifelong learning in an increasingly complex world. It emphasised that knowledge societies would demand continuous intellectual development, not merely periodic education. The report also underlined the role of learning in reducing inequality, promoting social cohesion, and strengthening democratic societies.

These insights are even more relevant today.

Few professions illustrate this more clearly than the military.

The character of warfare has changed profoundly in recent decades.

The battlefield is no longer confined to land, sea, or air. It now extends into cyberspace, information networks, and complex technological domains. Artificial intelligence, autonomous systems, and advanced communications are steadily transforming how conflicts unfold and how national security itself is understood.

In such circumstances, professional competence cannot rely solely on drills, doctrine, or accumulated experience. It requires a deeper intellectual foundation.

India's intellectual heritage offers another dimension to this pursuit. Classical works such as Kautilya's Arthashastra and Thiruvalluvar's Thirukkural contain enduring reflections on statecraft, ethics, and the conduct of war.

Professional Military Education provides that foundation.

At its best, Professional Military Education does more than transmit specialised knowledge. Its purpose is to cultivate judgement. Training prepares soldiers for tasks that can be anticipated. Education prepares leaders for situations that cannot. It encourages analytical thinking, strategic awareness, and the ability to make decisions when clarity is often elusive.

Military institutions around the

world have increasingly recognised this necessity. In the United States, the Goldwater-Nichols Act of 1986 strengthened Joint Professional Military Education and encouraged greater integration across the services. The reform reflected a growing understanding that modern warfare demands leaders who can think beyond narrow operational boundaries and grasp the wider strategic environment.

India's evolving educational landscape reflects a similar commitment to lifelong learning. The National Education Policy of 2020 emphasises flexibility, multidisciplinary engagement, and continuous access to knowledge. Mechanisms such as the Academic Bank of Credits recognise that learning unfolds across different stages of life, allowing individuals to pause and resume their educational journeys while continuing to build knowledge.

At the same time, India has steadily expanded its ecosystem of learning. The number of higher educational institutions has grown significantly in the past decade, while digital initiatives have transformed access to knowledge. Platforms such as SWAYAM, DIKSHA, and SWAYAM Prabha are widening educational reach across the country. Knowledge today travels far beyond classrooms, reaching anyone willing to pursue it.

The emphasis on skills and vocational education has also gathered momentum. National initiatives aimed at skill development seek to align education with emerging economic realities and technological change. Such efforts reinforce a larger shift in thinking: education is no longer viewed as a one-time attainment but as a lifelong process of intellectual and professional renewal.

For the armed forces, these developments carry particular significance. Military leadership today demands far more than operational proficiency. It requires strategic imagination, cultural awareness, and the intellectual flexibility to interpret an international environment that grows more complex each year. Professional

Military Education therefore seeks to develop not only capable officers but reflective leaders.

India's intellectual heritage offers another dimension to this pursuit. Classical works such as Kautilya's Arthashastra and Thiruvalluvar's Thirukkural contain enduring reflections on statecraft, ethics, and the conduct of war. Engaging with these traditions alongside contemporary strategic studies enriches the intellectual foundations of military education and connects present challenges with long traditions of thought.

The philosophy of lifelong learning is also shaping governance beyond the military sphere. Initiatives such as Mission Karmayogi seek to promote continuous learning among civil servants, recognising that effective administration requires constant renewal of knowledge and skills in a rapidly evolving policy environment.

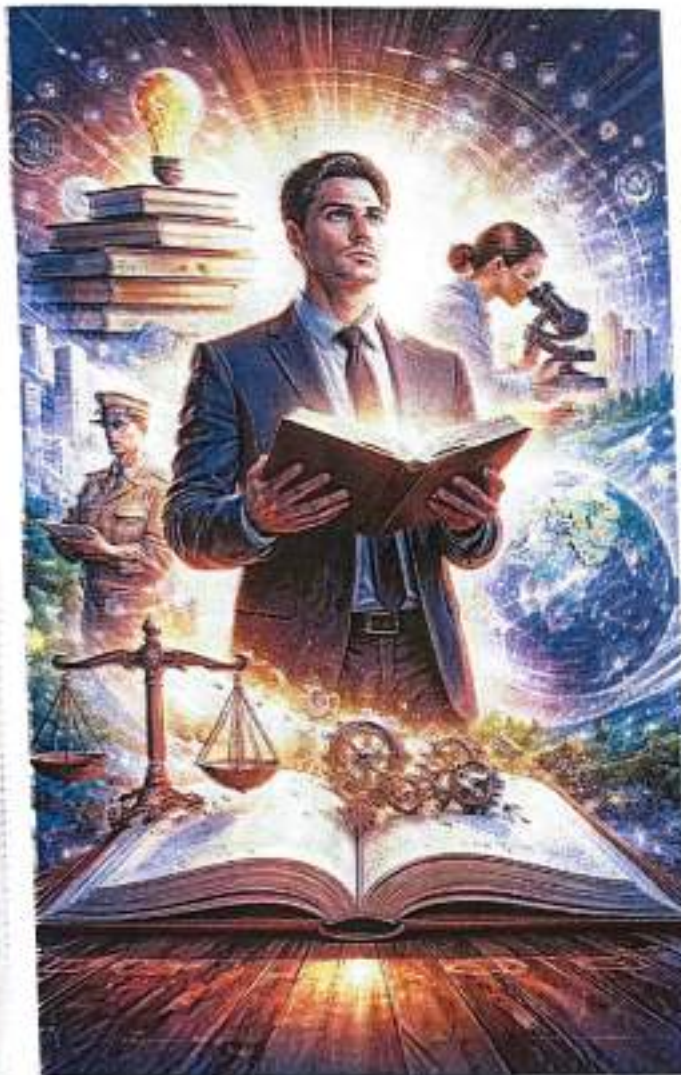
Taken together, these developments point to a broader shift in how education is understood. Learning is no longer confined to youth. It has become a continuing professional discipline that accompanies individuals throughout their lives.

The strength of any institution ultimately lies in the quality of its thinking.

For military organisations, the lesson is especially clear. Experience builds confidence. Training builds competence. Education builds judgement.

Professional Military Education therefore sustains a tradition that remains both ancient and contemporary: the ideal of the scholar-warrior. It recognises that courage on the battlefield must be matched by clarity of thought beyond it.

Perhaps that returns us to the central truth with which this reflection began. The moment a profession believes it has learned enough is the moment it begins to fall behind. In a world defined by rapid change and persistent uncertainty, the capacity to keep learning may well prove to be the most decisive advantage of all.



Cambridge panel seeks tighter regulations on AI toys

G.S. MUDUR

New Delhi: A University of Cambridge-led expert panel has called for tighter regulations and safety standards for toys powered by generative artificial intelligence (GenAI) that can talk to children, warning that they may mislead emotions even while it acknowledged their perceived loneliness.

The recommendations come from what researchers have described as the first structured scientific observations of young children interacting with GenAI toys that can hold human-like conversations, exposing how they might influence development in the critical years up to age five.

Some toymakers over the past three years have begun embedding GenAI, which can generate human-like text and conversation, in interactive toys that can engage with children and respond to questions.

The researchers who surveyed early years child development practitioners noted perceptions that GenAI toys could support certain aspects of development such as language and communication skills. But they also found that GenAI toys struggle with social and pretend play, mis-understand children and react inappropriately to emotions.

"We noticed lots of miscommunication between children and the AI toy observed," Emily Goodacre, a research associate at the University of

Cambridge faculty of education, who led the research, told **The Telegraph**.

The researchers found that the GenAI toy sometimes ignored children's interruptions, mistook parents' voices for the child, and failed to respond to apparently important statements about feelings. Several children became visibly frustrated when it seemed not to be listening.

In one instance, when a three-year-old told the toy "I'm sad", it misheard and replied: "Don't worry. I'm a happy little bot. Let's keep the fun going. What shall we talk about next?" The researchers say such a response could have been interpreted by a child that the sadness was unimportant.

"When we looked at the

toy's transcript afterwards, we noticed that the toy had not heard the child. Instead, it had heard the parent's response to the child asking "You're sad?" and had responded to the parent's voice," Goodacre said. "In this case, the miscommunication meant that the child's feelings were dismissed."

She said toy developers must improve social and emotional responses to prevent such miscommunication.

Goodacre and her colleague Jenny Gibson, professor of development psychology at Cambridge, said there is little scientific evidence on GenAI toys for children under five years, even though they are commercially marketed.

"There was little or no evidence regarding possible im-

pacts of these toys on young children beyond considerations of AI literacy," they wrote in their report released on Friday. "Additionally, a technology's design may not align with its application, possibly leading to unintended outcomes even when toys are designed with educational benefits in mind."

The researchers have recommended regulations to ensure psychological safety by limiting toys' ability to affirm friendship and other sensitive relational areas with young children and to ensure labelling standards to clearly communicate toy features to consumers.

"The regulation of AI toys could take different forms — we would welcome societal discussions about what they

might look like," Goodacre said. "This could mean requirements for toy companies about the way they develop, test, and advertise their toys. For example, we recommend that there should be regulations around toys affirming friendship to young children. Product labels should clearly communicate both toy features and toy policies, which will help parents make decisions about which AI toy to buy, if any."

The panel's guidelines for parents — Ask these questions:

■ Is the toy suitable for my child's age and developmental stage? Look out for information about the recommended age range from the toy developer and independent reviews.

■ Does the toy support activities we value as a family? For example, having fun, learning new words, chatting, learning about feelings, rhymes and singing, or telling stories.

■ What personal information will the toy collect? Consider what information the toy will need to work. For example, a chatbot toy will need to record audio. Check the toy's privacy policy to find out what happens to the data it collects, such as how long any recordings of your child's speech will be kept.

■ Will my child be protected from inappropriate content? Look for information about child guardrails on the product website, packaging, and in independent reviews.

telegraph

सरकार के हाथ मजबूत करे निजी क्षेत्र

ज हाँ एक तरफ कई देशों में वृद्ध आबादी बढ़ती जा रही है और जापान तथा इटली जैसे देश घटती जन्म दर से जूझ रहे हैं, वहीं दक्षिण और दक्षिण-पूर्व एशिया में कामकाजी उम्र के लोगों की जनसंख्या बरकरार है। आज भारत में दो-तिहाई लोग 35 साल से कम उम्र के हैं। देश की सबसे बड़ी ताकत देश के युवा हैं। युवा संभावनाशील शक्ति बिहार, उत्तर प्रदेश, झारखंड और राजस्थान जैसे राज्यों में यह स्पष्ट रूप से दिखाई देती है। जरूरत है इस ऊर्जा को सही दिशा देकर एक मजबूत आर्थिक ताकत में रूपांतरित किया जाए। वित्त वर्ष 2026-27 के लिए गत दिनों संसद में पेश केंद्रीय बजट में युवाओं को सिर्फ 'भविष्य' नहीं कहा गया, बल्कि उन्हें वर्तमान में 'भविष्य का निर्माणकर्ता' माना गया है। इन भविष्य के निर्माताओं को सफल बनाने के लिए जरूरी है कि उनके लिए अवसरों की ऐसी सीढ़ी तैयार की जाए, जिससे वे अपनी रुचियों और कौशल का सही उपयोग कर नई ऊंचाइयां छू सकें। युवा जनसांख्यिकी के लिए पढ़ाई और रोजगार का ऐसा परिवेश तैयार करना होगा, जो उन्हीं की तरह विविध, बहुआयामी और गतिशील हो।

जमीनी वास्तविकताओं और अंतर क्षेत्रीय जटिलताओं को समझते हुए सरकार ने बजट में प्रतिभाओं में निवेश को प्रार्थमिकता दी है। पिछले कुछ वर्षों में ऐसी योजनाएं शुरू की गईं, जिन्होंने चुनिंदा क्षेत्रों में प्रशिक्षण को उद्योग के साथ जोड़ा और इस साझेदारी से कौशल अंतर को पाटने की कोशिश की। बजट इन योजनाओं को और विस्तार तो देता ही है, साथ ही नए अवसरों की घोषणा भी करता है। भारत की विशिष्टताओं को ध्यान में रख कर देखें तो बजट युवा-केंद्रित प्रार्थमिकताओं को उकेरता है। भारत की डिजिटल क्षमता उसकी पहली बड़ी ताकत है। भारत तेजी से मोबाइल-आधारित क्लिप्टर इकोनमी बन रहा है। आज युवा सिर्फ कंटेंट देखना नहीं चाहते, वे कंटेंट बनाना भी चाहते हैं। डिजिटल क्षेत्र में प्रभाव बढ़ाने के लिए हमें डिजिटल माडल्स को सीखने पर जोर देना होगा। रचनात्मक क्षेत्रों में विकास को ध्यान में रख कर बजट में 15,000 स्कूलों और 500 कालेजों में एनीमेशन, विजुअल



प्रवर्ध राज सिन्हा



युवा प्रतिभाओं में निवेश से ही बनेगी बात • फाइल

इफेक्ट्स, गेमिंग और कामिक्स के लिए कंटेंट क्लिप्टर लैब बनाने का प्रस्ताव है। इन लैब्स के जरिये युवा तकनीक का बेहतर इस्तेमाल करना सीखेंगे जिससे उनकी रचनात्मक आकांक्षाओं को सही औपचारिक स्वरूप मिलेगा और वे अंतरराष्ट्रीय स्तर पर प्रतिस्पर्धा करने लायक कौशल विकसित कर पाएंगे।

दूसरा अहम स्तंभ है उद्यमिता। भारत का स्टार्टअप इकोसिस्टम तेजी से छोटे शहरों और सुदूर क्षेत्रों तक विस्तार पा रहा है। कौशल विकास और उद्यमिता मंत्रालय के आवंटन में 62 प्रतिशत से अधिक की बढ़ोतरी इसका प्रमाण है कि सरकार भविष्य के लिए सही कौशल से लैस सक्रिय कार्यबल बनाने को लेकर गंभीर है। बजट में टियर-2 और टियर-3 शहरों में इकोनमिक रीजन विकसित करने की बात कही गई है। उद्यमिता और आर्थिक विकास को साथ जोड़ते हुए बात ऐसे शहरों की हो रही है, जहां रोजगार के विकल्पों के साथ-साथ बेहतर जीवन की आशा भी है। घर के पास अच्छे अवसर मिलने से बड़े शहरों की तरफ युवाओं का पलायन कम होगा और देश में संतुलित विकास हो सकेगा।

युवाओं को ऐसे अवसर मुहैया कराने होंगे, जिससे वे अपनी रुचियों और कौशल का सही उपयोग कर सकें

तीसरा और अत्यंत महत्वपूर्ण स्तंभ है हमारे उच्च शिक्षा संस्थान, जो देश के लिए एक सशक्त भविष्य की नींव रख सकते हैं और जिनकी भूमिका आने वाले दिनों में और भी महत्वपूर्ण हो जाएगी। एजुकेशन टू एम्प्लायमेंट एंड एंटरप्राइज नामक एक स्थायी समिति बनाने का जो प्रस्ताव रखा गया है, उसका उद्देश्य है उच्च शिक्षा को रोजगार से जोड़ना, जिससे केवल डिग्री प्राप्त नहीं होगी, बल्कि काम करने का कौशल भी विकसित होगा। साथ ही पांच यूनिवर्सिटी टाउनशिप बनाने की योजना भी रखी गई है। ये टाउनशिप्स संपूर्ण शिक्षा का केंद्र होंगी, जिनमें विश्वविद्यालय, कालेज, शोध संस्थान और कौशल केंद्र, सबके लिए जगह होगी। इन टाउनशिप्स का निर्माण औद्योगिक इलाकों के पास होगा। इससे पढ़ाई के उपरांत युवाओं को रोजगार भी निकट के इलाके में मिल सकेगा। महानगरों में हम इस तरह के प्रयोगों की सफलता पहले देख चुके हैं। अब हमें उन नए क्षेत्रों पर भी ध्यान देना है, जहां भारत विशेष क्षमता रखता है। इनमें चिकित्सा पर्यटन, आतिथ्य, खेल विज्ञान, सेमीकंडक्टर, फार्मा और डिजाइन जैसे रचनात्मक उद्योग शामिल हैं। अगर शिक्षा, कौशल और उद्योग के बीच बेहतर तालमेल बनाया जाए तो इन क्षेत्रों में तेजी से प्रगति की जा सकती है।

इस वर्ष का बजट क्षमता निर्माण, नई पहलों और बड़े पैमाने पर प्रतिभा विकास पर जोर देता है। इन पहलुओं को केंद्र में रख कर भारत जहां एक ओर वैश्विक स्तर पर प्रतिस्पर्धी बन सकता है, वहीं देश में समावेशी भागीदारी को बढ़ावा भी दे सकता है। युवा केंद्रित प्रगति के लिए कौशल, रोजगार और उच्च शिक्षा, सभी अत्यधिक महत्वपूर्ण हैं और इस बात को केंद्रीय बजट ने स्वीकारा है। सरकार ने अपना दायित्व स्पष्ट कर दिया है। इसे साकार करने के लिए निजी संस्थाओं को भी कंधे से कंधा मिला कर काम करना होगा। शिक्षा और कौशल में प्रगति को अगर हम यून हो अपनी योजनाओं के केंद्र में रखेंगे तो संभव है वर्ष 2026 भारत के भविष्य का निर्णायक वर्ष हो।

(लेखक अशोक यूनिवर्सिटी के चैयरपर्सन एव बोर्ड आफ ट्रस्टी हैं)

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Krishna Shastri
Devulapalli

Off the beaten track

My continuing struggles with literature festivals

Exactly a year ago, I wrote a piece here called "The best literature festival I didn't go to". From the title, it could have been a piece about any lit fest in India. Because, as my writing over a decade and a half will testify, I'm no fan of lit fests. Indeed, I have worked tirelessly for as long to have lit fest curators give me top billing, in indelible ink, on their

But fate, as they say, is like a two-wheeler helmed by a Chemurivari coming the wrong way down a one-way street. Just when I thought I'd safely crossed over to the other end — got myself a lifetime reprieve from lit fests, that is — with a last-minute averted I didn't see coming, Rahul Jain, intrepid curator of the Dibrugarh University International Festival of Literature (DUIFL) hit me with a most gracious (if baffling) invite for their 2025 edition. Who invites a guy who didn't turn up the last time? And invites his writer wife as well this time? Either a sucker for punishment or someone who knew something I didn't.

Throwing caution to the winds (and quietly doubting my medication), I decided it had to be the latter, and we made our way to Dibrugarh.

This time, they had me on two panels, on screenwriting, and on cities and writers. At the outset, I confessed to the audience at both panels — like I had in my acceptance letter to the organisers — that I was an impostor. In the first case because I hadn't sold a single screenplay despite having written a few. (And had no one to blame for this but myself for backing out at the last minute, refusing to sign agreements with unfair terms for writers.) And on the second panel because Chennai figured as the default location of all my books not because I loved it, was proud of it, and it coursed through my veins but because, being a coward, I hadn't ventured to live anywhere else all my life, making it the only place I knew. Needless to say, I got the laughs I was looking for. Whether the audience was laughing at me or with me is up for debate.

Anyway, this piece isn't a chronicle of my struggles on stage, remembering why I was there or making sure there was a lot within charging distance, but about how I returned to Chennai without regrets and, dare I say, a fuzzy feeling.

Did it have to do with my interactions, both on-stage and off, with Shamana Ray Choudhury, Abdullah Khoo, Mai Khaleel, Murteen Shroff, Koral Dasgupta, Ghazala Wajah, Tashi Chopel, Mihir Chatterjee and the Jahnu Barua, among others? Partly. Look them up, readers.

Did it have to do with the rousing speech by Talat Ahmed, former Indian ambassador to Saudi Arabia, who spoke passionately about India, her past and future, of how recent global events could impact it? Most definitely. As missiles are lighting up the skies not too far away from us, and snuffing out innocent lives, I can't help but think how timely his speech was.

Or was it because, unlike the average lit fest, where you see the same old faded faces at every venue desperately plugging their latest book, and the Bollywood types who've been coaxed to attend with hefty fees, DUIFL's focus was on — most tellingly — in retrospect — the Middle East and North Africa (MENA), featuring over 150 writers from 25 countries? I'm sure that had something to do with it as well.

Or maybe it had to do with who the audience consisted of. Instead of the only slightly less-needy-than-the-writer, self-promoting Bookstagrammers who infuse festivals merely to be seen, the auditoriums were filled with students. Students from not just the university, but from the acres surrounding it, not just urban, but rural, with several hundred acres surrounding it, not just urban, but rural, with several hundred being brought in every day, housed, and allowed to partake of the vibrant festival atmosphere. From Curator Jain, part of FOCAL (Foundation for Culture, Arts and Literature), the NGO that collaborates with Dibrugarh University, we learnt that the decision to hold the literature festival at Dibrugarh, rather than Guwahati, at a public university with a stellar record that serves the area around it, including neighbouring states, was deliberate. It was to allow students who would not normally have a chance to attend a literature festival to actively participate in it, and, in several cases, most joyfully, year after year. To make the participation genuinely meaningful, the students were informed well ahead of time of the festival's theme each year, as well as the writers who would be there, so they had a chance to do their research, read up on the writers, and identify their own interests.

Of it all, what touched me most, though, was the time we spent with Tanaz, Debopriya, Kangkane, Shahmad and Priya, the students who were given the task of being our "handlers". The warmth and affection they showered on us from the moment we arrived to the moment we left, the eagerness with which they took us from venue to venue, the openness with which they shared their lives with us those four days, this we can never forget.

CHITRA VIRARAGHAVAN



A beautifully lit bookshop at the festival

Krishna Shastri Devulapalli is a novelist, columnist, playwright and screenwriter

Women as leaders

True equality in leadership is tested not by presence alone, but by the ease with which authority is accepted

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While representation of women in leadership has improved, the lived experience within workplaces continues to reveal structural and behavioural challenges that are less visible, yet consequential.

Leadership is not merely about decision-making; it is about the acceptance of those decisions. For many women in leadership roles, authority is not automatically presumed; it is, at times, informally examined. Instructions may be complied with, but with delay, verification or parallel consultation. Decisions may receive formal assent, yet be revisited through other channels. These responses are rarely explicit, but sufficiently patterned to shape the leadership experience. Decisions conveyed by women leaders may, for instance, be informally reconfirmed through parallel hierarchies even after agreement has been recorded.

This introduces an additional cognitive burden. Leadership, then, involves not only deciding, but anticipating how decisions will be perceived and acted upon. Managing perception becomes a sustained, though often unacknowledged, professional responsibility.

Workplaces function not only through formal hierarchies but through informal networks where trust is built and influence exercised. Limited access to such spaces can produce professional isolation that is structural rather than incidental. Over time, this distance may shape communication patterns, confidence and the manner in which authority is asserted.

In such contexts, behavioural adaptation is unsurprising. What is perceived as rigidity may reflect an effort at clarity. At the same time, qualities such as empathy, consultation and collaborative decision-making – widely recognised as strengths – may be misread as weakness or indecision when exercised by women leaders. This divergence between intent and perception necessitates continual calibration.

Scrutiny, adaptation

The consequences become more pronounced when outcomes fall short. Scrutiny may then extend

beyond the decision to the individual, shifting from contextual evaluation to personal assessment. There is also a tendency to generalise such instances, allowing isolated lapses to shape broader perceptions of women in leadership. Comparable situations elsewhere are more often treated as situational. A decision that fails to yield expected results may invite disproportionate questioning of judgment or leadership style, rather than a careful examination of constraints.

Professional trajectories are likewise influenced by the weight assigned to personal circumstances. Family responsibilities are often treated not merely as temporary realities, but as indicators of long-term availability and commitment. Though seldom articulated, such assumptions shape expectations and opportunity. Routine professional demands – travel, extended hours and role mobility – may be evaluated through the lens of presumed personal obligations.

For many women, professional success remains intertwined with contribution within the family. This creates a dual expectation – of institutional performance alongside sustained personal engagement. These parallel demands influence choices and priorities in ways not always visible within formal appraisal systems.

It is equally important to acknowledge that behaviours such as overcompensation, withdrawal, comparison, heightened self-focus or the need for validation is not gender-specific. They are human responses to sustained scrutiny. Yet when interpreted through a gendered frame, they acquire representative meaning. Self-awareness, therefore, becomes not merely desirable but necessary.

Peer dynamics add another layer. In environments where opportunities appear limited, comparison may displace

collaboration. As systems grow more inclusive and institutional maturity expands opportunity, perceived scarcity diminishes, allowing collective advancement to replace competitive defensiveness.

Addressing these challenges requires both structural evolution and behavioural clarity.

At the individual level, leadership benefits from equilibrium. Professional presentation should align with role, context and responsibility, reinforcing credibility without becoming its substitute. Conscious choices in attire and public conduct should reflect this coherence, with due regard to occasion and the public nature of one's office. The objective is not restriction, but the projection of credibility and purpose rather than personal display. Discretion in both physical and digital spaces helps ensure that public perception remains aligned with professional responsibility and institutional credibility. The distinction between assertiveness and aggression warrants attention. Assertiveness clarifies; aggression escalates and invites resistance. Effective leadership lies in firmness without antagonism, anchored in clarity of purpose. Not every expectation requires internalisation, nor does every external standard merit adoption.

Professional independence rests on substantive engagement – reading, preparation, organisation, and continuous learning. Coordination may be distributed, but judgment cannot be outsourced; it must remain anchored with the leader. Peer relationships grounded in mutual respect strengthen institutions as much as individuals.

Leadership does not demand perpetual over-performance. Sustainable authority rests on consistency rather than exhaustion. Space for reflection is integral to this process. Reflection is not retreat; it is renewal. At a systemic level, inclusion must move beyond symbolism. Equal opportunity must be accompanied by equal acceptance – of authority, of diverse leadership styles, and of fallibility. Where credibility must be repeatedly established and authority continuously defended, leadership becomes structurally constrained.

Managing perception becomes a sustained, though often unacknowledged, professional responsibility for women



Salil Sahadevan

In the mid-19th century, an Austrian monk bred generations of pea plants in his monastery garden with meticulous care. He mapped their traits, recorded the results, and published them in an unknown journal. He went back to his regular teaching, and his work went unnoticed.

Decades later, biologists revisited his paper and notes in the margins and found that his experiments revealed the basis of heredity. Once a forgotten footnote, the garden experiment became the seed of modern genetics, and Gregor Mendel its father.

Forgotten in the margins

A century later, British chemist Rosalind Franklin captured an X-ray image that revealed the double helix structure of DNA. Known as Photo 51, it was within the footnote of her lab logs and might have remained unseen until Watson and Crick allegedly used it to claim the breakthrough leading to the Nobel Prize, leaving Franklin in the margins for years.

Sometimes, we look too late into the margins of knowledge. In the 14th century, Kerala mathematician Sangamagrama Madhava charted the infinite series for sine, cosine, and approximated pi, long before Newton or Leibniz.

His work remained obscure until Charles M. Whish, an East India Company official, highlighted the Kerala School. Later,

historian George Gheverghese Joseph furthered this recognition. Recently, Malayalam professor Litty Chacko uncovered unpublished fragments of the works of Madhava after two decades of sifting through thousands of palm-leaf manuscripts.

When I asked how, she replied, "From the margins, always from the margins."

The main narratives miss what matters most. The surprise is in the margins and footnotes, where few look. This is more so, as we tend to shrink every communication into shorts, snippets and capsules.

Age of compression

We live in the age of compression bias, where news is reduced to push alerts

and books condensed into summaries. See the same logic in our conversations when we say "cut to the chase" or "give me the gist". It is convenient and efficient, but comes at a cost.

The margins, where novelty often begins, are erased in summarisation, causing what does not fit to disappear. By ignoring the peripheries, we risk recy-

cling old ideas.

Why do these margins matter? They hold the pieces of knowledge that do not have a home as yet in the mainstream story. They hold contradictions, odd questions, and failed attempts as raw materials for new knowledge, making margins and footnotes intellectual commons free from the pressures of popularity and marketability.



Following a footnote

Breakthrough learning often hides in footnotes and margins. How can we train ourselves to value these overlooked learning spaces?

Keeping them alive

So how do we keep the margins alive? Make spaces for incidental learning. You follow one idea and a note at the bottom opens a new door.

The thrill of chasing a reference chain teaches a kind of thinking that uses the courage to wander. Serendipity thrives in those knowledge wanderings. If we do not do this, there is a personal loss. Students raised only on summaries and MCQs become efficient consumers but shallow explorers.

In classrooms, it starts with design. Assign work that requires citations. Pick a Wikipedia page on a topic and follow a few linked pages in sequence, noting how each click bends the conversation in unexpected ways, turning a single fact into a series of discoveries.

From a passage with rich footnotes, try tracing references back to their source to find surprising insights that did not make it into the main text.

Do this with an AI-based citation network, even if that may lead nowhere. Explore connections in ancient texts and palm-leaves using Machine Learning and create spaces for open-ended research where the outcome is unknown.

Note: Exciting rabbit holes often begin at the edges of the page, where the next chapter starts.

Views expressed in this article are personal

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GETTY IMAGES/ISTOCK/PHOTO

BEFORE TERM BEGINS, PARENTS REMINDED OF VALUE OF PLAY

Focus on joyful learning: Principals' pitch

JHINUK MAZUMDAR

Calcutta: Several school principals have highlighted the necessity for children to interact with one another and participate in unstructured play, rather than being in the presence of adults at all times.

Most schools are set to commence the new academic session in April, with orientation meetings scheduled for March. A few institutions have started these meetings for parents of children about to enter schools.

"Children must spend time with kids of their age and not stay only with their grandparents, parents, or domestic help all the time. We are telling parents they should have some time with their friends," said Seema Sapru, principal, The Heritage School.

The school has conducted orientation sessions, a school official said.

Children pick up social skills and develop language more quickly when they communicate with and are in the company of peers, said Suman Sood, director, BDM Junior School.

"They wait for their turn, can resolve conflicts on their own, and understand each other better. When it comes to adults, it's didactic or too indulgent," said Sood, national core committee member of two organisations — Early Childhood Association (ECA) and Association of Primary Education and Research (Aper) — that focus on early childhood development.

Children residing in high-rise buildings seldom have the opportunity to interact with peers



of their own age.

"There is truth in the saying that it takes a village to raise a child. But the challenge in today's age is where is the village or the people? People don't even know their neighbours too well," said Sood.

What parents end up doing is to enrol children in various activities, and they are running from one class to another with no free time of their own. Even if they are playing, that is supervised or with a goal in sight.

"We advocate unstructured play time because that allows children to make connections with one another," said Sapru.

With little children, they might have to be accompanied by adults, but they must be at a distance from the children at play. "An adult might be supervising whether the child is safe or not, but definitely not interfere while they are playing amongst themselves," said a kindergarten teacher.

Parents comparing their children with other kids is another challenge that schools need to address and remind parents about.

The tendency to compare is not limited to children in higher classes only. "Every child is different, but parents fail to realise that. The comparison starts as early as kindergarten when they say why is he crying when their friend is not?" said Gargi Banerjee, principal, Sri Sri Academy.

Teachers said there are certain rules that parents need to set in a family.

"We tell parents not to celebrate children's birthdays in a pub. There has to be a difference between what parents can do and what children can," said Sapru.

Children think it's right for them to do what their parents do, which is not how it should be, said Sapru.

For children in preschools, routines should be introduced but in a "playful" way and not imposed on a child, said Sood.

"It can be playful parenting where a child can be woken up with a nursery rhyme and made to follow the routine in a fun way. In that case, the routine does not become a burden, and yet the learning becomes a joyful experience for them," said Sood.

CLASS ACT

Efforts are on to embed artificial intelligence in educational systems. But for best results, active participation of educators is a must, says **Natasha Singer**

Aldvantage Schools

In early November, Microsoft said it would supply artificial intelligence tools and training to more than 2,00,000 students and educators in the United Arab Emirates.

Days later, a financial services company in Kazakhstan announced an agreement with OpenAI to provide ChatGPT Edu, a service for schools and universities, for 1,65,000 educators in Kazakhstan. Last month, xAI, Elon Musk's artificial intelligence company, announced an even bigger project with El Salvador — developing an AI tutoring system, using the company's Grok chatbot, for more than 1 million students in thousands of schools there.

Fuelled partly by American tech companies, governments around the globe are racing to deploy generative AI systems and training in schools and universities. Some US tech leaders say AI chatbots can be a boon for learning. The tools, they argue, can save teachers time, customise student learning and help prepare young people for an "AI-driven" economy. But the rapid spread of the new AI products could also pose risks to young people's development and well-being.

A recent study from Microsoft and Carnegie Mellon University in the US found that popular AI chatbots may diminish critical thinking. AI bots can produce authoritative-sounding errors and misinformation, and some teachers are grappling with widespread AI-assisted cheating by students.

For years Silicon Valley has pushed tech tools like laptops and learning apps into classrooms, with promises of improving education access and revolutionising learning. Still, a global effort to expand school computer access — a programme known as One Laptop per Child — did not improve students' cognitive skills or academic outcomes, according to studies by professors and economists of hundreds of schools in



BY THE DAILY JAMES

Peru. Now, as some tech boosters make similar education access and fairness arguments for AI, children's agencies like Unicef are urging caution and calling for more guidance for schools.

Steven Vosloo, a digital policy specialist at Unicef, wrote in a recent post, "Unguided use of AI systems may actively de-skill students and teachers."

Education systems across the globe are increasingly working with tech companies on AI tools and training programmes. In the US, where states and school districts typically decide what to teach, some prominent school systems recently introduced popular chatbots for teaching and learning.

Outside the US, Microsoft in June announced a partnership with the ministry of education in Thailand to provide free online AI skills lessons for hundreds of thousands of students. Several months later, Microsoft said it would also provide AI training for 1,50,000 teachers in Thailand. OpenAI

has pledged to make ChatGPT available to teachers in government schools across India.

The Baltic nation of Estonia is trying a different approach, with a broad new national AI education initiative called AI Leap. The programme was prompted partly by a recent poll showing that more than 90 per cent of the nation's high schoolers were already using popular chatbots like ChatGPT for schoolwork, leading to worries that some students were beginning to delegate school assignments to AI.

Estonia then pressed US tech giants to adapt their AI to local educational needs and priorities. Researchers at the University of Tartu in Estonia worked with OpenAI to modify the company's Estonian-language service for schools so it would respond to students' queries with questions rather than produce direct answers.

Introduced this school year, the AI Leap programme aims to teach educa-

tors and students about the uses, limits, biases and risks of AI tools. In its pilot phase, teachers in Estonia received training on OpenAI's ChatGPT and Google's Gemini chatbots.

"It's critical AI literacy," said Ivo Visak, the chief executive of the AI Leap Foundation, an Estonian nonprofit that is helping to manage the national education programme. "It's having a very clear understanding that these tools can be useful — but at the same time these tools can do a lot of harm."

Estonia also recently held a national training day for students in some high schools. Some of those students are now using the bots for tasks like generating questions to help them prepare for school tests, Visak said. "If these companies would put their effort not only in pushing AI products, but also doing the products together with the educational systems, then some of these products could be useful," he added.

This school year, Iceland started its own national AI pilot in schools. Now several hundred teachers across the country are experimenting with Google's Gemini chatbot or Anthropic's Claude for tasks like lesson planning, as they aim to find helpful uses and to pinpoint drawbacks.

Researchers at the University of Iceland will then study how educators used the chatbots. Tinna Arnardóttir and Þrúna Gylfadóttir, two teachers participating in the pilot at a high school outside Reykjavík, say the AI tools have helped them create engaging lessons more quickly. That has made the Icelandic teachers all the more determined, they said, to help students learn to critically assess and use chatbots.

"They are trusting AI blindly," Arnardóttir said. "They are maybe losing motivation to do the hard work of learning, but we have to teach them how to learn with AI."



SHARED PATHS FORWARD

From literature and learning to trade and technology, Ireland and India have built ties beyond geography

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On the western edge of Europe sits Ireland, a small nation whose global footprint is remarkable given its size. Across continents, its ties with India have strengthened steadily over the past few decades, shaped by history, culture, trade, and education. While geographically distant, the two countries share a growing relationship that blends economic collaboration with people-to-people connections, highlighting how nations of vastly different scales can build meaningful partnerships.

HISTORICAL AND CULTURAL LINKS

Ireland and India may seem an unlikely pair at first glance, separated by thousands of miles and oceans. Yet the two nations share certain historical parallels. Cultural exchange has been a cornerstone of the relationship. Irish literature, with its rich storytelling tradition, has resonated with Indian audiences. The works of literary giants continue to inspire Indian readers and writers alike. Irish authors are increasingly present at major Indian literary festivals, fostering dialogue between two rich literary traditions.

Music, dance, and theatre further strengthen cultural ties. Irish traditional music

and dance, with instruments like the fiddle and bodhrán and performances like step dancing, have been featured in festivals and workshops across India. Even celebrations such as Saint Patrick's Day have found audiences in India. Major cities host cultural events, including music sessions, Irish dance performances, and exhibitions that highlight Ireland's vibrant heritage. Through these activities, Irish culture has extended its reach, creating informal networks of appreciation and connection.

EDUCATION AND PEOPLE-TO-PEOPLE TIES

Education has emerged as one of the most visible and influential pillars of Ireland-India relations. Irish universities attract thousands of Indian students each year, drawn by high-quality programs in technology, business, medicine, and the sciences. Beyond academics, these students immerse themselves in Irish society, gaining exposure to the country's culture, arts, and traditions.

TRADE AND ECONOMIC ENGAGEMENT

By December 2025, Irish exports to India reached EUR 48.8 million, while imports from India rose steeply to EUR 114 million, reflecting the growing depth of bilateral trade. Ireland's export-driven economy continues to benefit from collaboration with Indian companies in sectors such as IT, healthcare and fintech, while shared initiatives in research and development, innovation and technology transfer have further strengthened economic ties. Though small in population, Ireland's highly globalised economy enables it to engage meaningfully with a rapidly expanding market like India.

SCIENCE, INNOVATION, AND SUSTAINABLE DEVELOPMENT

Irish institutions collaborate with Indian counterparts on renewable energy, climate adaptation, and medical research. For instance, partnerships in biotechnology, pharmaceuticals, and environmental technologies have enabled knowledge sharing that benefits both nations. Development and humanitarian cooperation also form part of Ireland's engagement with India. Also, Ireland has partnered on initiatives addressing education, health, and social innovation.

So, across continents and oceans, the story of Ireland and India demonstrates the power of shared heritage, human exchange, and creative collaboration. From classrooms to literary festivals and collaborative research labs, the two countries continue to forge a relationship that balances tradition with modernity, proving that bilateral relations are as much about people and culture as they are about policies or trade agreements.

Learning beyond borders

As global education trends shift, Ireland is witnessing record international enrolment, with Indian students emerging as a key driver of this growing interest

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For many young people, studying abroad is not just about earning a degree; it is about discovering new perspectives, experiencing different cultures and preparing for a global career. Among destinations gaining traction among international students, Ireland has steadily emerged as a preferred choice.

With a strong academic reputation, welcoming culture and a thriving economy, the country offers a learning environment that extends beyond the classroom. In recent years, Ireland has become an increasingly popular destination for Indian students. More than 13,000 Indian students are currently pursuing higher education there, drawn by globally recognised universities, English-taught programmes and industry-focused courses that typically last between one and two years.

A DESTINATION FOR LEARNING AND GROWTH

Ireland's appeal extends beyond academics. The country attracts nearly nine million visitors every year, drawn by scenic landscapes, historic cities and vibrant cultural life. Friendly communities and a rich literary tradition further enrich the experience. Often referred to as the land of saints and scholars, Ireland has produced more Nobel Prize winners in literature than any other country. For many students and visitors alike, these qualities make Ireland a place where learning and culture naturally come together.

Ireland has also built a strong reputation as a centre for higher education and research.



PIC: ISTOCK

A WORLD OF OPPORTUNITIES

- Over 13,000 Indian students are currently pursuing higher education in Ireland
- Courses typically 1–2 years, making degrees faster to complete
- Thousands of academic programmes across diverse disciplines
- Globally recognised universities with strong industry links

Internationally respected universities offer diverse programmes across fields such as engineering, business, law, medicine, humanities and liberal arts.

Interest in Irish universities has grown steadily. The number of international students increased by 45 per cent between 2013 and 2017. More recently, Indian students have been a major driver of this growth. Enrolment from India rose by nearly 30 per cent during the 2024–25 academic year, while overall interest among Indian applicants increased by around 38 per cent.

ACADEMIC OPPORTUNITIES AND GLOBAL EXPOSURE

Certain disciplines are particularly popular among Indian students. Courses in information and communication technology,

business, data analytics and law attract strong enrolment because of their relevance in the global job market. Affordability is another factor contributing to Ireland's appeal. Tuition fees typically range from about EUR 9,500 to EUR 35,000 per year, depending on the institution and programme. Students generally budget between EUR 1,100 and EUR 1,800 per month for accommodation, food and transport.

A SUPPORTIVE ENVIRONMENT FOR STUDENTS

English language proficiency is an important requirement for admission. Applications can be submitted online and should ideally be completed well in advance.

Ireland's student visa system is widely considered efficient, with approval rates typically ranging between 95 and 97 per cent for well-prepared applications. During their studies, international students can work up to 20 hours per week, helping them gain professional exposure while supporting living expenses. After completing their course, graduates can apply for a post-study work permit allowing them to remain in Ireland for up to two years while seeking full-time employment.

So, with globally recognised universities, strong industry presence and a welcoming environment, the country continues to attract students from around the world.



**DR T
SENTHIL SIVA
SUBRAMANIAN**

India's Research Readiness to Market

India's 21st century especially the present decade is marked as historic achievement in transforming laboratory innovations, translational-Responsible Research to market ready customized products. The milestones achieved in the past decade have created steppingstones for our nation to climb the ladder from service-based industry to technological market ready products. The ideology and icon behind this success is our unique educational policy, strong research, credit and skilling framework, digital public infrastructure, investments and funding from Government of India like Nidhi Prayas, SIDBI, Public Private Partnership (PPP) like Texas Instruments, technological tools and techniques like Cadence, Synopsis, Xilinx in semiconductor, ParamKudra super computers [low cost CPU core per unit, GPU card per unit], large data base especially the genome in biotechnology are prominent examples created by Government of India in collaboration with academia, industry and startups. India's homegrown recent breakthrough design of 2nm Chips which shows the strength of local to global design, talent, and research ecosystems of our nation.

Indian institutions, industries, and training partners like C-DAC, NIELIT are equipping students to reskill and upskill their knowledge and create brainchild products which is need of the hour for our national economic growth. The Government of India initiatives like Production Linked Initiative and Design Linked Initiative acts as a catalyst to be blueprint for design and production of products in India that cater locally and globally.

India has successful and notable examples, case studies of transforming academic research to startups leading to manufacturing of swadeshi products in our homeland enabling to achieve the vision of Prime Minister of India Narendra Modi: Innovate, Patent, Produce and Prosper Research Innovation systems: A Snapshot Indian institutions are successfully adapting the best practices of National Educational Policy 2020, National Credit Frameworks (NCRF) and National Skill Qualification Framework (NSQF) to train the students on cutting edge technologies such as Unmanned Aerial Vehicle, Block Chain (Smart contract) and Artificial Intelligence for precision farming, 3D additive manufacturing for leather, designing chips for automotive and healthcare applications.

Additionally, the educational and research practices are pushing our nation's industrialisation and globalisation through the research and innovations funds and schemes such as Anusandhan National Research Foundation, Initiative of Department of Science & Technology, Government of India, BIRAC (Biotechnology Industry Research Assistance Council), Visvesvaraya PhD Scheme for Electronics

& IT' which promotes research and development in Electronic Design and Manufacturing (ESDM), Prime Minister's fellowships for Doctoral Research, Academy of Scientific and Innovative Research (ACSIIR) has given unique identity for the students and faculty members to carrying out research in various real-time projects and translating into product developments from the laboratory thereby facilitating the concept of Lab to Market.

The present spectrum of research ecosystems paves the way for academic institutions to function as pivoting tools to develop 'swadeshi' and 'vocal for local' products for our nation leading to build a product nation.

Research into Product Readiness Level (PRL): Lab to Market

Indian institutions are working on emerging real-time problem statements especially through doctoral research thereby making a change in thinking from turning their laboratory research-Research Readiness Level (RRL) to develop market ready products. The academic institutions are adapting the best practices of investing research funds through Investment Readiness Levels (IRL) leading to achieve distinct levels of matrices such as Technology Readiness Level (TRL), Manufacturing Readiness Level (MRL), Market Readiness Level (MRL) and finally end-to-end Product Readiness Level (PRL) meeting the Customer Readiness Level (CRL).

Additionally, many institutions are creating startup ecosystems in their workspace for the undergraduate, post-graduate, doctoral, and post-doctoral research students enabling students to create an opportunity for their research

and product ideas converted to Startup Readiness Level (SRL) and Industry Readiness Level (IRL).

Case Studies-SRL-IRL: Impactful Research Initiative to Market Ready Products

1. Nanosafe Solutions, headquartered at New Delhi is an outcome of Doctoral Research (PhD), founded by Dr. Anasuya Roy and Prof. Mangala Joshi. This startup is the first IIT Delhi-incubated startup in the healthcare applications that stood unique in developing customized antimicrobial and anti-viral-healing products, such as self-reliant active advanced copper technology and self-sanitizing masks. This translational research boosts the Make in India, Vocal for Local and National Manufacturing vision of our nation.

2. Prenish Private Limited a flagship Indian deep-tech startup, incubated at IIT Delhi, which function as a spin-off from the Cold Atom Quantum Technologies (CAQT). It is a prominent case study of transforming academic research into commercial technology under the initiative of the National Quantum Mission (NQM).

3. ePlane an incubated startup founded by faculty of IIT Madras Prof. Satya Chakravarthy stands unique in offering India's first Air Ambulance and App based Services, is a prominent example of creating a paradigm shift of academic research to profitable swadeshi technologies in India.

4. Another best example is the Chip to Startup (C2S) supported by MeltYand the flagship initiative of All India Council for Technical Education (AICTE)-idea Labs creates unique opportunities for the students to develop solu-

tions for real-time problems such as intelligent traffic management and pacemakers for healthcare applications.

5. Defence Research and Development Organisation (DRDO) supported (DIA-CoE) — DRDO Industry Academia Centres of excellence established across PAN India is paving the way for student and faculty members to develop products such as Armour grade ceramic materials for body armour applications, intelligent smart soldiers using advanced plasmonic chips for defence applications.

6. The Boeing Inc., USA supported Intelligent condition monitoring of Air compressors and motors developed by Indian Institute of Technology, IIT Kanpur is a classical example of Global innovations and partnership of industries with India in developing customised solutions for aerospace industries.

Indian research framework is also steadily focusing their responsible research values to meet the primary objectives of Quality Readiness Level (QRL).

The academic institutions are slowly, steadily, and rapidly adopting the policy framework of University Grants Commission (UGC) and All India Council for Technical Education (AICTE) promoted research-based internships in institutions, startup, MSMEs and large enterprises which facilitate the students to work on market ready solutions.

Also enhancing the publication and citation index and various elements of intellectual property rights (IPR) such as Indian Copyrights, design registration, trademarks, and utility patents as well.

The global industry giants like

Samsung and India's NASSCOM, INUP [I2P] are also creating in-house Cohort training programs for students to enhance their experiential firsthand learning, knowledge, and innovation base.

In addition to this, the research at the institutions is moving towards technology transfer and commercialisation to MSMEs and Startups as well.

This could be possible through National Research and Development Organisation (NRDC), Innovation Technology Transfer Office (I-TTO) supported by BIRAC, technology licensing organisation like Foundation for Technology Transfer (FITT), IIT Delhi and other organisation established across PAN India. These initiatives directly or indirectly give a great push for the Global Innovation Index ranking and Ease of Doing business as well.

Way forward for Next Generation India: AI Readiness Level [AIL]

India's present decade sees an era of Artificial Intelligence diffusion across each corner of our nation especially the recent application Sarla bin facilitating the dairy farmer, especially the Women. India has successfully organised the pioneering India Global AI Impact summit which attracted global industry giants, startups, and academia to stand on one platform.

The outcomes of Global AI Impact summit will confidently enhance the research and product development at the laboratory in India to Artificial Intelligence Readiness Level [AIL] leading to achieve the Next Generation India.

Head Institute Industry Interface Program Hindustan College of Science and Technology, Mathura

Can AI reach rural India's classrooms?

AKSHATA AND R. SREEJITH VARMA

Artificial intelligence (AI) has emerged as a pivotal force in reconfiguring India's educational landscape, enhancing pedagogy, boosting classroom effectiveness, and contributing to national development. The International Monetary Fund's recent upward revision of India's gross domestic product (GDP) growth projections to 7.3 per cent for 2026 and 4.6 per cent for 2027 partly attributes this momentum to AI-driven investments.

Notably, India accounted for 16 per cent of global generative AI application downloads in 2025, evincing its crucial role in the digital economy. AI's integration into teaching-learning processes has already proven to be a game changer in the Indian educational sector although equitable access for rural learners confronting the systemic barriers remains a challenge that needs to be urgently addressed.

AI facilitates a transition from traditional, unidirectional instruction to dynamic, data-informed personalisation. Automated systems for grading, attendance tracking, and curriculum adaptation are increasingly liberating educators for facilitative roles, and fostering deeper cognitive engagement. Adaptive platforms, powered by machine-learning algorithms, deliver multilingual content and instantaneous feedback, aligned with India's linguistic heterogeneity. A 2025 study featuring 30 Indian Higher Educational Institutions found that over 50 per cent of them used generative AI to develop study

materials, while over 60 per cent allowed student use of AI tools.

India's National Education Policy (NEP) 2020 provides the doctrinal foundation for mainstreaming AI. The All-India Council for Technical Education (AICTE) designated 2025 as the 'Year of AI', targeting 14,000 technical institutions and equipping 40 million students with AI competencies through dedicated laboratories and certificate programmes. Complementarily, the Central Board of Secondary Education (CBSE) is set to implement an AI curriculum from class III commencing in 2026-27, spanning 18,000 schools, emphasising computational thinking, ethical considerations, and practical applications.

The University of Madras has pioneered AI in distance education, offering personalised schedules, 24/7 virtual tutors, predictive analytics to identify at-risk students, and virtual labs. In January 2026, its Samsung Innovation Campus trained 5,000 Tamil Nadu youth in AI, IoT, and coding as a part of a national goal for 20,000 skilled students.

For rural students hindered by infrastructural and socioeconomic constraints such as poor transport, family responsibilities, and difficult living conditions, several AI-based platforms now offer asynchronous learning alternatives. Government education platforms like DIKSHA and SWAYAM enable offline, self-regulated learning through pre-downloaded modules, while phoneme-based tools such as Google Bolo support literacy development without requiring continuous connectivity. Initiatives like these make it possible for students to

continue their education without the demands of physical attendance, thereby mitigating exclusionary dynamics.

The deployment of predictive analytics by the Andhra Pradesh government in collaboration with Microsoft to reduce student attrition by 20-30 per cent through targeted familial interventions, the development of Iris, 'India's first AI teacher robot' in a Kerala school, and the rollout of PARKAH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development), the conversational AI chatbot platform for assessment practice in all schools in Goa, and the AI-integrated smart classrooms in schools in West Bengal are just a few other subnational educational initiatives that leverage the quantum leaps in AI.

Reports of an AI-enabled Anganwadi centre in Nagpur bring to focus the transformative capacity of AI in pre-primary education sectors. India's EdTech market reports a growth rate (CAGR) of 28.7 per cent during 2025-2033. Indian users downloaded 0.6 billion generative AI apps in 2025, a 204 per cent increase from the previous year, driving productivity and human capital formation.

Despite progress, India's digital disparity remains a significant hurdle as only 83.3 per cent rural households have Internet access, compared with 91.6 per cent in urban areas. This digital divide in turn creates an 'intelligence divide', further destabilising the standardisation efforts by governments and education boards. Research has noted how algorithmic biases, stemming from historical



and societal biases, in educational technologies accentuate concerns about fairness and inclusivity. For instance, algorithmic bias has shown to diminish diversity in college admissions processes, highlighting the need for more refined models. AI-learning platforms must account for diverse cultural perspectives to prevent student alienation and loss of trust. Other challenges such as limited teacher training and privacy concerns underscore the high stakes of AI-driven educational practices.

According to the 2025 National Sample Survey, only 3.2 per cent of rural households in India are connected via optical fibre cable. Equitable AI deployment necessitates sustained investment in rural broadband, subsidised hardware, and continuous professional development. Urgent policy measures include algorithmic audits to ensure impartiality and sovereign data

governance frameworks. Impartiality in AI systems is essential to safeguard fairness and inclusivity in India's educational transformation.

Without deliberate checks, algorithms risk amplifying existing biases whether linguistic, regional, or socioeconomic, thereby excluding vulnerable learners. By embedding thorough regular audits, transparent data practices, and ethical oversight, AI tools can deliver equitable opportunities, foster trust among both learners and educators, and prevent the emergence of 'intelligence divide.' By expanding flexible, attendance-free learning options, India can use AI to reach all 260 million students including those in rural areas and ensure that the benefits of technology-driven education are shared widely.

(The writers are, respectively, a PhD research scholar and an assistant professor at the Department of English, Vellore Institute of Technology.)

बिना अतिवाद स्त्री मुद्दों पर लिखती है ममता

ममता कालिया एकात्मिक आत्म-मंथन और सामूहिक दायित्व बोध को अपने कलात्मक विवेक से चिह्नित और निरंतरता से रेखांकित करने वाली रचनाकार हैं। बहुमुखी लेखिका, जिन्होंने पिछले पांच दशकों से अधिक समय तक अपनी लेखनी से हिंदी कहानी, उपन्यास, कविता, नाटक, संस्मरण और निबंध जैसी



शोभा अक्षर

विधाओं को समृद्ध किया। उनके लेखन में जिन शहरों का जिक्र आता है, उनमें इलाहाबाद (अब प्रयागराज) सबसे प्रमुख है। इस शहर का अनुभव और इससे जुड़ी उनकी निहायत व्यक्तिगत जिदगी को 'जीते जी इलाहाबाद' में देखा जा सकता है। आरंभ में उन्होंने अंग्रेजी में कविताएं लिखीं, लेकिन प्रयागराज आकर रवीन्द्र कालिया और अन्य हिंदी साहित्यकारों - महादेवी वर्मा, अमृत राय, अमरकांत, इलाचंद्र जोशी आदि के संपर्क में आने के बाद वह पूरी तरह हिंदी साहित्य में समाहित हो गईं।

रचनाओं में महिला मन

ममता कालिया की रचनाएं मुख्य रूप से मध्यवर्गीय भारतीय परिवारों, विशेषकर स्त्रियों के संघर्ष, संबंधों की जटिलताओं, प्रेम, वैवाहिक जीवन, कामकाजी महिलाओं की चुनौतियों और सामाजिक यथार्थ पर केंद्रित हैं। वह स्त्रीवादी दृष्टिकोण से लिखती हैं, लेकिन बिना अतिवाद के। स्त्री के संघर्ष को पुरुष



साहित्य अकादमी सम्मान पर विशेष

के संघर्ष से अलग या कमतर नहीं मानती, बल्कि समाजशास्त्रीय रूप से अधिक विकट बताती हैं। उन्होंने 200 से अधिक कहानियां लिखीं - 11 उपन्यास, कई कविता-संग्रह, नाटक और संस्मरण दिए। वह अपने पहले ही उपन्यास 'बेघर' में घर-परिवार की असुरक्षा और स्त्री की पहचान की खोज करती नजर आती हैं। 'नरक दर नरक' में वैवाहिक संबंधों की जटिलताओं और मानसिक यातनाओं का चित्रण करती हैं। लड़कियां, एक पत्नी के नोदस, दुःखम् सुखम्, दौड़ - और उनकी अन्य तमाम रचनाओं में एक गृहिणी के अंतर्मन के गहन आत्मचिंतन को पढ़ा जा सकता है।

वह लिखती हैं, 'मध्यवर्गीय जीवन के अपने

ताने-बाने हैं। वहां प्रेम के रंग काल्पनिक रंगों से बेहद भिन्न हैं।' उनकी कहानियां रोजमर्रा के जीवन से निकलती हैं - कामकाजी स्त्री की दोहरी जिम्मेदारी, वैवाहिक संबंधों में असंतुलन, समाज का पाखंड। उनकी कविताएं घरेलू जीवन की कड़वी सच्चाई और स्त्री के मासूम विद्रोह को व्यक्त करती हैं। उनका प्रसिद्ध संग्रह 'खांटी घरेलू औरत' है।

सच कहने की हिम्मत

ममता कालिया हिंदी साहित्य की वह आवाज हैं, जो घर की चारदीवारी से निकलकर समाज की सच्चाई दिखाती हैं। उनकी लेखनी आज भी प्रासंगिक है, क्योंकि वह जीवन के दुख-सुख, प्रेम-संघर्ष को बिना लाग-लपेट के प्रस्तुत करती हैं। उनके 'मौन न रहने को' मैं निराला की उन पंक्तियों की तरह देखती और समझती हूँ, '...गर्जन से भर दो वन, तरु-तरु पादप-पादप-तन।' उनकी रचनाओं की भंगिमाओं को पढ़ते हुए प्रकाश-रेखाओं को छूकर महसूस करने जैसा एहसास लिया जा सकता है।

मुझे याद है, उनको पढ़ते हुए ही मैं कई ऐसे कवियों की उन पंक्तियों तक पहुंची, जिसका रास्ता हिंदी साहित्य में ममता कालिया के साथ ही तय किया जा सकता है। यह दौर तमाम सामाजिक-सांस्कृतिक मिलाप का सबसे सक्रिय समय है। ममता कालिया की रचनाओं की उपस्थिति और उनकी सक्रियता इस मिलाप को स्पष्टता प्रदान करती है।

Why the affiliation system is outdated

An often less discussed feature of the National Education Policy (NEP), 2020 is the new regulatory system envisaged for affiliating colleges. The objective of the new system is to foster empowerment and autonomy by gradually phasing out the affiliation system over a period of 15 years through a process of graded autonomy.

The NEP suggests that each existing university should play the role of a mentor for its affiliated colleges, and enable them to develop their own capabilities and achieve minimum benchmarks in academic and curricular matters, teaching and assessment, governance reforms, financial robustness, and administrative efficiency in order to become self-reliant. All affiliated colleges will have to attain the minimum required standards to secure accreditation benchmarks and acquire the status of an autonomous degree-granting institution. Needless to say, it is a big reform for which nation-wide efforts and governmental support is a *sine qua non*.

Untethering colleges

The college-university affiliation system has long served as the foundational structure for higher education and is so deeply entrenched in the Indian higher education system that disassociating colleges with the university sounds unrealistic. Universities conduct affiliation for colleges in accordance with the University Grants Commission (UGC) guidelines to maintain academic standards, ensure uniform curriculum and examinations, and regulate infrastructure and faculty quality. Moreover, college affiliation in India is not a one-time process. The affiliation is usually granted initially for one year and renewed annually or periodically.

However, while the conventional university affiliation model once provided centralised control and administrative



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The university affiliation system is now riddled with systemic inefficiencies, archaic academic rigidity, and administrative challenges that impede the progress of colleges

stability, it now seems to hinder the growth, autonomy, and quality of colleges. The university affiliation system is now riddled with systemic inefficiencies, archaic academic rigidity, and administrative challenges that impede the progress of colleges.

Multiple challenges

One of the most significant problems with the affiliation system is the overwhelming burden it places on universities. Most universities in India are affiliated with hundreds of colleges, and entrusted to manage examinations, evaluate answer scripts, design curriculum, monitor college compliance, and oversee academic and extracurricular activities for an overwhelming number of students. The attention of resource strained universities, especially State universities, gets diverted from their core functions, such as research, innovation, faculty development, and collaboration, due to heavy administrative workloads. As a result, universities are compelled to act merely as bureaucratic bodies instead of pushing the boundaries of knowledge both for students and faculty.

The lack of autonomy for affiliated colleges poses another challenge. Under the present university affiliation system, it is mandatory for all colleges to follow the regulations, syllabi, examination patterns, and administrative instructions issued by the affiliating university. This dependency prevents colleges from designing their own courses that align with their local or industrial needs, and emerging market trends. This rigidity imposes uniformity at the cost of creativity, denying colleges the freedom to differentiate themselves through specialised courses, modern pedagogical practices, or interdisciplinary initiatives. As a result, the potential for innovation is stifled.

Then there is the slow pace at which curriculum reforms take

place under the university affiliation model. Since universities oversee a large number of colleges, revising curricula requires extensive consultations, committee meetings with the board of studies and department councils, and administrative approvals from academic councils. This process often takes a very long time, causing course content to become outdated by the time reforms are implemented. The educational needs of students in disciplines such as engineering and technology change very rapidly, but the affiliation system is simply not agile enough to respond with the required speed.

Moreover, the affiliation model, despite its best intentions to standardise education, has led to quite the opposite. While all colleges may follow the same curriculum, the actual delivery of education varies drastically due to the huge gaps in infrastructure. Many colleges operate with inadequate laboratories, insufficient library facilities, outdated equipment, and a shortage of qualified teachers. Such disparities weaken the credibility of standardised learning outcomes, as students from different colleges under the same university may graduate with vastly different levels of skill and competence.

An alternate model

While the university affiliation system once played a vital role in expanding higher education, its limitations now hinder progressive educational aspirations.

Instead of affiliations, colleges may be encouraged to participate in the National Institutional Ranking Framework/National Board of Accreditation exercise which is grounded in established quality criteria. The future of higher education in India hinges on empowering institutions with autonomy, flexibility, and the capacity to innovate freely – conditions the affiliation system can no longer adequately provide.



AKSHAY SAXENA

Missing piece in JEE preparation: A culture of care

OVER THE past weeks, the newspapers celebrated the success of top-rankers of the JEE (Main). They will go on, deservedly, to India's top colleges and alter the trajectory of their families. Hidden within this success is a massive cost — to the self-worth, learning behaviours and life outcomes of the over 1 million students who did not clear the test.

The majority of these students spent lakhs of rupees over multiple years on coaching classes. Along the way, they learnt that

their success depended almost entirely on their intelligence and hard work. Even those that did clear the exam enter college with the same damaging belief — that their ability is fixed and these outcomes define their worth.

The prevailing dogma is that the path to success is to submit to a high-pressure preparation programme. Research suggests this couldn't be farther from the truth. A paper by Carol Dweck, Greg Walton and Geoffrey Cohen argues that academic tenacity rests on psychological pillars — beliefs about whether intelligence can grow, a sense of purpose, social belonging, and self-regulation. These are shaped by environments where high standards are paired with an

achievable path, scaffolding, and care.

Most classrooms, especially coaching classes, emphasise exactly the opposite. Consider just one component: Growth mindset. The typical JEE candidate spends two years being categorised — batch A, B, C or D — absorbing the message: Your "rank" is your identity. Growth mindset thrives when teachers set high but achievable standards,

Too many students live inside 'IIT or bust' cultures — years of high stakes, high spend, and low psychological safety

and when students can see a credible path from where they are to where they need to be. Instead, too many students live inside "IIT or bust" cultures — years of high stakes, high spend, and low psychological safety.

Students need scaffolding through mentorship that helps them interpret setbacks productively. Yet, most receive the opposite: Reprimands, shaming and punishment tasks. Adolescents seek and need a sense of belonging. When you're moved to a "lower" batch for one bad test and assigned a new rank each week, this becomes incredibly hard. If this is all true, why are coaching classes so successful? Are they? The success rates of coaching institutes are the same as

the national averages. What leads to this perception is the full-page ads of JEE top rankers. None of what I have written applies to toppers who receive constant support.

Creating a culture of care is not the same as setting low standards. It is also not telling everyone (falsely) that they can succeed. It is one of excellence by supporting young people in making (sometimes slow) thoughtful progress. We need to start holding institutions accountable not just for the rank they helped students secure but also for the process they followed to get them there.

The writer is co-founder and co-CEO of Avanti Fellows

Appraisal Season: What Influences Promotion Decisions

By Roopa Kudva

Every year around appraisal season, conference rooms across organisations fill with spreadsheets, rating grids, and compensation bands. Names are discussed, scores are compared, arguments are made. Promotion decisions are rarely as straightforward as they appear. The process is more human, and more imperfect, than most people imagine.

Performance matters, but it is only one variable among several. Budgets constrain choices. Role availability limits options. Team balance, succession plans, and business cycles all influence outcomes. Two strong candidates may be competing for one opening. A business unit may have limited headcount expansion despite strong results. A leader may be weighing immediate delivery needs against long-term leadership depth. In such situations, a capable professional

may be asked to wait not because they lack ability but because the organisation has limited room to move.

This leads to an uncomfortable but important truth: a promotion decision is often shaped as much by organisational context as by individual merit. That does not mean the system is always fair or free of bias. Human judgment is imperfect, and organisational politics are real. But it does mean that outcomes are frequently influenced by structural constraints and timing, not solely by personal capability.

Why it feels so personal

Yet appraisal season feels exceptionally personal. It is when otherwise rational professionals begin to behave slightly differently. They check their email more often. They replay conversations from six months ago. They search for clues in tone, in body language, in offhand remarks.

Promotion season has a way of stirring up old self-doubt. We look sideways at peers who joined with us, measuring



trajectories. We remember who received stretch assignments and who was visible in the right forums.

Alongside comparison comes something quieter: self-doubt. Even seasoned leaders can feel an unexpected tightening in the chest while waiting for that appraisal conversation. Accomplished adults suddenly feel twenty-five again, waiting outside a door, hoping someone inside says, "You are good enough."

For many of us, these re-

actions are not new. They are echoes of earlier experiences. Report cards, rankings, and approval earned and withheld. We learn to link external evaluation with personal worth. Appraisal season simply brings that link back into focus.

When a promotion comes through, it often feels like validation: proof that we are valued, recognised and progressing. When it does not, the story can quickly turn inward. Perhaps I am behind.

Perhaps I have been overlooked. Perhaps I am not as capable as I believed. We allow a moment in time to become a verdict on identity.

A moment in a long career

Promotion meetings assess readiness for a specific role at a specific moment within a particular organisational context. They measure performance

against defined expectations. They do not measure character, resilience, judgment under pressure or the capacity to grow — the qualities that actually determine where a career eventually ends up.

Ambition is important. Titles, compensation, and expanded responsibility matter because they reflect trust and open doors. But careers span

four decades or more. Over that time there will be periods of acceleration and periods of pause, rules that stretch and rules that stabilise. An appraisal cycle captures only a small fragment of that arc.

After the decision

Promotion season will pass. Ratings will be finalised. Some professionals will

celebrate; others will recalibrate plans. If you were promoted, decide what you will build with it. If not, assess what you need to change or whether the organisation constraints are temporary.

Organisations decide promotions. The meaning you attach to that decision is yours.

(Roopa Kudva led Crisis and Q&A)

Time to junk the UPSC route

DR. RAMANAND

The recent declaration of the UPSC Civil Services Examination (CSE) 2025 final results on 6 March has once again triggered a nationwide media frenzy over the "toppers' journeys". Social media erupts with motivational taglines, videos, and memes celebrating their success and struggles.

Families and communities distribute sweets, treating the achievement as a collective social triumph rather than a personal one. Toppers' stories are portrayed with the grandeur of Olympic medal wins or major sporting accomplishments yet these successes, if truly achievements in a broader sense, remain deeply personal and have limited tangible social impact.

Without delving into precise numbers, the 2025 results selected 948 candidates from a pool of roughly 10 lakh applicants. In a previous article in the Indian Express, I had examined how the civil services have become synonymous with prestige in India, often overshadowing other vital professions. Building on that critique, the 2025 results provide a fresh lens to examine the over-glorification of both the exam and the services it feeds into.

This is not to diminish the hard work of the selected candidates. Rather, it challenges the dominant societal narrative: UPSC toppers

are frequently portrayed as demigods. Media profiles dissect their "strategies" from daily routines to book lists as if cracking the exam unlocks the secrets of life itself.

This narrative ignores the significant role of randomness and privilege embedded in the process. Many toppers, such as those with medical or engineering backgrounds emerge from stable, privileged educational ecosystems. The exam inherently favours candidates with access to quality coaching, strong English proficiency, and the financial and temporal resources for multiple attempts. For average aspirants from rural areas or economically weaker sections, the odds remain heavily stacked against them.

The 2025 results tell the same familiar story, yet the relentless emphasis on "inspirational" narratives glosses over these systemic barriers. We celebrate the rare exceptions while millions of aspirants burn out in isolation, grappling with severe mental health crises. Reports from coaching hubs like Delhi's Mukherjee Nagar consistently highlight alarming rates of depression and suicide. Yet the glorification machine rolls on unabated.

The examination structure itself perpetuates a built-in hierarchical system that undervalues true talent, efficiency, and domain expertise. A candidate who scores a mere fraction of a mark higher than others is elevated to a position of

superiority that lasts for decades. This hierarchy often overrides humanity, knowledge, and practical skills: a person with minimal understanding of a domain can issue commands to those with far superior expertise.

Even more troubling is the service allocation process, which largely disregards competency and relies instead on accidental performance in a single exam cycle. This not only harms the lives of those who will be governed but also discourages genuine future governance talent. The 2025 batch will enter a system where debates on lateral entry and reforms continue, yet core issues such as accountability, innovation, and performance remain unaddressed. Over-glorification breeds unrealistic expectations: new recruits anticipate a hero's welcomes, only to confront the daily grind of paperwork, political pressures, and frequent transfers. This mismatch fosters cynicism and inefficiency.

The economic costs are equally stark. Lakhs of young people devote their prime years to UPSC preparation, forgoing skill development in high-growth fields such as AI, sustainability, or entrepreneurship. India's demographic dividend risks becoming a liability when talent is funneled into a single, hyper-competitive exam that selects barely 0.1 per cent of applicants. The 2025 results underscore this skew: many toppers hail from IITs or NLUs,



diverting valuable technical and intellectual capital from innovation and the private sector into administration. Imagine the potential impact if that talent were channeled elsewhere.

This year also saw several individuals falsely claiming to have cleared the exam and around 6-7 candidates publicly celebrating successes they never achieved. These incidents highlight the immense public pressure and allure of UPSC glorification.

A major structural flaw attracting widespread attention is the role of the District Magistrate, who consolidates enormous power with minimal accountability. A generalist with limited domain expertise or practical experience commands entire departments at the district level, often leading to inefficiencies

and poor decision-making. This over-accumulation of power invites misuse, as accountability mechanisms remain weak.

Ultimately, we must confront and reform this colonial era system, which has failed to adapt to contemporary realities. It neither produces true domain experts nor effectively trains a modern workforce.

One of the boldest moves this government has taken was Lateral Entry but due to systematic resistance of the bureaucracy and opposition of certain political groups, it could not translate into reality as it should have. The over emphasis on conservative bureaucracy often stops the growth of other systems. We need a more robust module which can take the place of the UPSC.

(The writer is director of the Center of Policy Research and Governance.)

Jobless graduates

Employment must keep pace with education

EDUCATION alone is no longer a guarantee of employment — that's the stark truth revealed by the 'State of Working India 2026' report. Nearly 40 per cent of young graduates remain unemployed, and only about 7 per cent secure stable salaried jobs within a year. These numbers point to a mismatch between job creation and access to higher education. Each year, roughly 5 million graduates enter the workforce, but barely half of them find employment — and fewer still get secure, well-paying jobs, says the report prepared by Azim Premji University.

This disconnect risks turning India's demographic dividend into a demographic liability. With the working-age population set to peak before 2030, the window to harness this youthful energy is rapidly narrowing. If adequate, gainful employment opportunities are not generated, the country could face rising frustration among the educated youth, alongside stagnant incomes and slowing economic mobility. It's not only about quantity but also quality. Many graduates emerge from institutions that struggle with faculty shortage, outdated curricula and weak industry linkages. At the same time, sectors capable of absorbing skilled labour — such as manufacturing and high-value services — have not expanded sufficiently. The result is a bottleneck where degrees outpace demand.

Encouragingly, there are signs of progress. Occupational barriers linked to caste and gender are gradually weakening. However, these gains will matter little without parallel growth in job generation. India must shift its focus from enrolment to employability. This means investing in vocational training, strengthening industry-academia partnerships and prioritising labour-intensive sectors. Economic policy must be aligned with the realities of a rapidly expanding educated workforce. The challenge is crystal clear: the economy has to ensure that the benefits of education are not frittered away.

When AI enters law class, the teacher must change



G S BAJPAI

LAW SCHOOLS in India are on the brink of disruptive change. These shifts emanate from two powerful developments. First, the number of students in classrooms has dipped to almost half due to the removal of the attendance requirement stipulated in a recent Delhi HC judgment. Second, AI's use has impacted teaching-learning environments in schools across the country. It is bound to shake conventional methods of learning and practising law. It has already begun to make things easier for students in many ways. Teachers in law schools will soon find themselves on edge, as AI will perform certain tasks in a more structured manner. Students can now generate content on topics that a teacher is likely to cover in class. They find this output meaningful as it saves time.

AI began by taking over some preliminary stages of teaching (explanations, examples, summarisation, and practice questions). In the second stage, AI has begun to impact the value chain (learning design, verification, feedback, professional identity, ethics). The third phase could involve replacing roles that teachers ordinarily play. Critics argue that AI may attenuate the teacher's role in mediating knowledge. Students' reliance on the sharp, subject-specific outputs produced by AI tools has reduced their engagement in class and in collecting classroom material, which they now obtain through AI. This has affected traditional classroom interactions. A complete withdrawal of teachers is not yet visible, as all stakeholders are in a state of transition and confusion while exploring new roles and avenues.

The nuanced case analysis of combining dozens of cases to map single or multiple doctrines and jurisprudence in one exercise is now possible with advanced AI tools. In a recent workshop, we demonstrated that a deeper constitutional analysis of multiple Supreme Court decisions on a single issue can not only be done, but can also be presented through a remarkable display of data in tabular form, with both qualitative and quantitative mapping. The oft-cited concern about AI "hallucinating" case citations will diminish as these systems train on structured Indian case law and verified legal databases. Tasks such as contract drafting, pleadings, and standard notices are now generated quickly by AI tools. In many corporate legal departments and law firms, AI systems are no longer experimental. Law schools need to respond with urgency by integrating AI into academics.

Law libraries are losing prominence. Digitally adept students now rely on online platforms and engage with notes produced through targeted searches. While this improves efficiency, it raises concerns about depth of engagement, sustained reading, and the development of critical analysis skills. This is not entirely gloomy for the teaching profession. While the teacher's "lecturer" function may shrink, their roles as editor, verifier, coach, and ethics supervisor will grow. Teachers need to learn AI methodologies within their subject domains and deploy them as new teaching methods. They may now pitch from level two — presuming the content is already in students' hands — to encourage deeper and more comprehensive engagement with the subject matter.

While the teacher's 'lecturer' function may shrink, their roles as editor, verifier, coach, assessment architect, and ethics supervisor will grow

function may shrink, their roles as editor, verifier, coach, assessment architect, and ethics supervisor will grow

Unemployed and underemployed

A new study highlights how India's youth face significant challenges in transitioning from education to jobs

AKSHAY THAKUR

INDIA'S youth population, defined as individuals between the ages of 15 and 29, numbers 367 million. Of these, 283 million are not currently enrolled in education, and the pace at which employment opportunities are created for this generation in the coming decade will be crucial in determining whether India's demographic dividend translates into an economic advantage.

A report titled 'State of Working India 2026', released by Azim Premji University (APU) on March 17, underscores the critical nature of the transition from education to employment for India's youth. For most young people in India, this transition can stretch to over a year, with no guarantee of securing salaried employment.

The report, citing data from the Periodic Labour Force Survey (PLFS) 2023-24, reveals that 11 million out of 63 million graduates aged 20-29 were unemployed as of 2023. It also notes that 40 per cent of graduates in the labour force face open unemployment — a persistent issue that has remained steady between 30 per cent and 40 per cent from 1983 to 2023.

As per the latest PLFS report, while the all-India unemployment rate for those aged 15 years decreased slightly from 5 per cent in January to 4.8 per cent in February, the unemployment rate for those aged 15-29 years is three times higher at 14.8 per cent.

MANY GRADUATES, FEW JOBS

The report highlights that the growing number of young graduates has exacerbated the unemployment problem. In the past few decades, both the youth population and the tertiary enrolment rate (the number of students registered in higher education programmes) have surged, contributing to an increase in the absolute number of young graduates. However, the expansion in the number of graduates has not been matched by a corresponding increase in graduate-level employment opportunities.

While 50 per cent of young graduates in the age group of 20-29 find employment within a year, permanent salaried employment is rare. Moreover, the share of young men in education fell from 38 per cent in 2017 to 34 per cent in late 2024, with a large proportion citing the need to support household incomes as the reason. However, between 1983 and 2017, the country made considerable gains in higher education, particularly among women.

Between 2004-05 and 2023, about 5 million



A report by Azim Premji University underscores that despite increasing graduate numbers, job opportunities have not kept pace. AN

KEY FINDINGS OF THE 'STATE OF WORKING INDIA 2026' REPORT

- Drop in male tertiary enrolment:** The share of young men in education fell from 38% in 2017 to 34% in 2024, with many citing the need to support household incomes as the reason for dropping out.
- Expansion of higher education:** College availability has increased from 29 colleges per lakh youth in 2010 to 45 in 2021, largely due to private institutions. However, regional disparities persist.
- Teacher shortages:** Faculty numbers have not kept pace with rising student enrolments. Private colleges average 28 students per teacher, and public colleges 47, compared to the AICTE norm of 15-20 students per teacher.
- Growth of vocational institutes:** The number of Industrial Training Institutes (ITI) has surged by 300% since the 2010s, but the quality, particularly among private providers, has declined.
- Financial barriers:** The share of students from the poorest households in tertiary education rose from 8% to 15% between 2007 and 2017, but financial barriers to professional courses remain.
- Difficult transition:** Graduate unemployment remains high, with nearly 40% of 15- to 25-year-olds and 20% of 25- to 29-year-olds unemployed. Furthermore, securing stable salaried jobs is rare.
- Graduate wage premium:** Graduates earn approximately twice as much as non-graduates at the entry level, and the earnings gap widens as careers progress.
- Stagnating male graduate earnings:** Entry-level salaries for young male graduates have stagnated since 2011, while gender gaps in graduate earnings have narrowed.

graduates entered the workforce annually, yet only 2.8 million found employment, with an even smaller proportion securing salaried jobs. This imbalance has led to a rise in graduate unemployment and stagnating earnings for graduates.

"The failure to create adequate jobs for the burgeoning population of graduates has resulted in a situation of too many graduates and too few jobs. This has also contributed to the slowdown in graduate earnings," the report said.

Rosa Abraham, lead author of the report

and Associate Professor of Economics at Azim Premji University, explained, "Our report traces the journey of a young worker — from education to job search and employment — and how this transition has evolved over the last 40 years. We hope it contributes to a deeper understanding of these challenges and informs better policymaking."

TRENDS AND CHALLENGES

The report also explores the rapid expansion of private higher education institutions

post-liberalisation, with their number rising from 1,044 to 6,534. College density improved from 23 colleges per lakh youth in 2010 to 45 per lakh youth in 2021.

However, this growth has been marred by a severe teacher shortage. Private colleges now average 28 students per teacher, and public colleges 47 — well above the All India Council for Technical Education (AICTE) norm of 15-20 students per teacher.

A concerning trend is the widening gap in access to higher education based on financial backgrounds. Between 2007 and

2017, the share of students from the poorest households in tertiary education rose from 8 per cent to 15. Students from wealthier households are still far more likely to pursue expensive professional degrees, such as in engineering or medicine, which are often beyond the financial reach of poorer students.

WORK STATISTICS

Post-Covid, India's employed population increased from 490 million to 512 million between 2021-22 and 2023-24, with employment rates rising from 71 per cent to 74 per cent for men and from 28 per cent to 34 per cent for women. However, most of this employment growth has been in agriculture, with 40 million of the 63 million new jobs created in this sector, many of which are taken up by women.

The report also highlights migration as an important mechanism for youth seeking employment, as they respond to uneven economic development across India. Youth migration has increased, with poorer states such as Bihar and Uttar Pradesh serving as major sources of migrant workers, while more developed states like Delhi, Haryana, and Punjab rely on migrant youth to meet labour demands. Migrant youth now constitute about 40 per cent of informal migrant workers in the country.

CASTE INEQUALITIES

While India's gross tertiary enrolment rates (which measure the total enrolment in higher education, regardless of age) are comparable to other countries at similar income levels, caste-based inequalities in access to higher education persist. Enrolment rates among Scheduled Castes (SCs) and Scheduled Tribes (STs) have improved, but they still remain below the national average, with SC enrolment rising from 11 per cent to 36 per cent and ST enrolment from 8 per cent to 21 between 2011 and 2023.

To address the challenges, the report suggests that policymakers should focus on creating more salaried employment opportunities, particularly for women graduates, as well as integrating vocational and academic curricula to enhance employability.

Expanding social security systems to support young workers, particularly migrant youth, is also crucial. Strengthening local labour markets, especially in urban areas, and improving access to dignified work opportunities are essential for addressing the growing unemployment and underemployment among young people.

H. Kalpana Rao

Earlier this year, I sent a New Year's card to a student who was visually impaired and was taken aback when he responded saying that he had used an AI tool that provided him with details of the layout, the colours, the pictures within the frame, and even the emotional framework of the image. The confidence with which he immediately pointed out that he was able to grasp the image's nuances through an AI-generated tool made a deep impression on me.

Artificial Intelligence (AI) is today being viewed as an advantage and a disadvantage in relation to academic integrity, learning ability, and evaluation. But the above incident compelled me to rethink the capacities of AI and the range of its possible uses within the field of disability.



AI for inclusive education

While AI tools can help create an inclusive environment for students with disabilities, educators also should be aware of the problems involved

Persistent difficulty

For years, instructors have devised innumerable ways to teach, educate, and communicate with students with diverse disabilities. Yet, one of the persistent difficulties has been enabling such students to participate fully in the classroom. For instance, a visually impaired student who had to dictate to a scribe invariably took longer than others to complete a writing task. Added to this was the scribe's own ability to write the dictated material correctly.

With AI, such students can dictate and use generative tools to produce res-

ponses. Of course, there is potential for misuse but, with appropriate monitoring, this challenge can be addressed.

Similarly, AI can be used to understand maps and charts and assist with reading quickly. Teachers can also create assignments that match the students' intellectual abilities, thereby instilling appropriate challenges. AI can also assist other kinds of disabilities, such as students with cerebral palsy, allowing them to transcribe their thoughts and write meaningfully.

While teaching post-graduate students, I often faced challenges when working with visually impaired learners. Although I often read passages aloud and encouraged discussions so that all students could follow what was happening, there were moments when I would sometimes write key terms and references on the blackboard, forgetting that visually impaired students could not access what was written. Over the years, I became more aware of their needs and would consciously speak louder so

that they could record the audio. I also searched for e-books so that they could access the material independently.

But, in many Indian universities, teachers are not fully aware of how to create equitable and inclusive environments not because they lack the desire but because classrooms are often ill-equipped and have minimal technological access. Additionally, the heavy load of teaching and administrative work makes teaching feel like a burden rather than a pleasure.

It is high time that educators in India become aware of the various tools and strategies emerging through AI to support students. More importantly, curricula and syllabi need to be co-designed with disabled students and instructors so that lived experiences can shape more effective learning. The need of the hour is for university administrators to ensure that faculty are trained to meet the needs of disabled students. Training in the use of and understanding how AI can help innovate and support in-

clusive teaching practices is essential. Policymakers should also set guardrails to ensure that technologies remain unbiased and inclusive of diverse perspectives.

Cause of concern

While the use of AI is exciting, it is also a cause of concern. Many AI tools collect user data and store it and this could lead to unwanted data exposure. Moreover, there could be the potential for the data to be collected in methods that are not very transparent. As a result, it could create a risk between technological enhancement and surveillance, especially when data protection protocols are not well-crafted.

Yet another issue that needs to be tackled is that AI systems could be stereotypical, as they are generated using vast data sets and in cultures that may be different. As a result, it may misread the needs of individual students and create problems in assessment and evaluation. A third issue is that students could become too dependent on it and may not understand that it is only a tool to enable them to earn better. Yet, if teachers understand the principles of ethics, integrity, and moral responsibility, AI can become a powerful tool to enhance learning and knowledge among students with disabilities.

The writer is a former professor of English at Pondicherry University and now volunteers as the editor for the literary section of the online journal, *Muse India*. Email: hkalpana@pondicherry.ac.in

SCHOLARSHIPS

University of Bath School of Management Scholarships

Offered by the School of Management, University of Bath, the U.K.
Eligibility: Students who have accepted an offer for one of the eligible taught postgraduate Master's courses in 2026-27 and have applied for a scholarship within the deadline.
Rewards: Up to £10,000 fee waiver.
Applications: Online
Deadline: April 8
www.b4s.in/edge/UBMS2

Masters' Union Scholarship

Offered by Masters' Union
Eligibility: Students who have passed Class 12 and want to do a full-time UG programme in Business Management; Technology;

Leadership; Design; Sustainability; Finance and Economics; Marketing, or related fields and score in Masters' Union Scholarship Aptitude Test (MUSAT) or approved alternate test.
Rewards: Fee waivers ranging from 10-80%
Applications: Online
Deadline: May 13
www.b4s.in/edge/MUSCASPI

ServiceScape Scholarship

Offered by ServiceScape.
Eligibility: Students above 18 years and enrolled or accepted in an accredited college, university, or trade school who submit an essay of 300-600 words on a topic provided by ServiceScape.
Rewards: \$1,000
Application: Online
Deadline: November 30
www.b4s.in/edge/SSS22

Courtesy: Buddy4study.com

Women in STEM

Progress Software has opened applications for the 2026 Progress Akanksha Scholarship for Women in STEM in India. This is a renewable four-year scholarship of up to ₹150,000 annually to support education-related expenses. Two recipients will be chosen based on academic achievement, financial need, interest and experience in

Computer Science, Software Engineering, IT and/or Computer Information Systems and other criteria.

Eligibility: Indian citizens who are women and enrolled in the first year of a Computer Science, Computer Science Information Technology or related courses with an aggregate of 75% or more in Class 12 and a family income not exceeding ₹500,000
Deadline: April 13
For details visit <https://tinyurl.com/sr764hne>

Balidan Diwas: Remembering the legacy of Bhagat Singh

RAHUL KAUSHIK



On March 23, each year, India pauses to remember not just the execution of Bhagat Singh, but the meaning of sacrifice itself. His Balidan Diwas is not a ritual of mourning; it is a reminder of a life lived with clarity, discipline, and an uncompromising sense of duty toward the nation. At just twenty-three, Bhagat Singh did not merely face death; he walked toward it with conviction, having already defined the purpose of his life.

To understand the significance of this day, one must look beyond the dramatic final moments in Lahore Central Jail and examine the deeper forces that shaped him. Bhagat Singh was not an accidental revolutionary. He was the product of a cultural and intellectual environment rooted in the ideas of the Arya Samaj, which had a strong presence in Punjab during his formative years. His family was deeply influenced by Swami Dayanand Saraswati's teachings, where nationalism was inseparable from civilizational pride and moral discipline.

His education in Dayanand Anglo-Vedic Institutions reinforced these values. These were not mere schools; they were spaces where young minds were trained to internalise courage, service, and respect for India's ancient heritage. Bhagat Singh's nationalism, therefore, did not emerge out of reaction to colonial rule alone. It was rooted in a long-standing belief that the nation was a living entity deserving total commitment.

The emotional and intellectual turning point of his childhood came after the Jallianwala Bagh massacre. The young Bhagat Singh visited the site, collected soil soaked in the blood of martyrs, and preserved it with reverence. This act, often remembered symbolically, reflected something deeper, and that is his early acceptance of sacrifice as sacred. The Arya Samaj's interpretation of 'yajna' as self-offering for societal welfare found a living embodiment in him.

By 1923, Bhagat Singh had already chosen his path. He openly declared that he would dedicate his life to Bharat Mata instead of pursuing personal ambitions like marriage or career. This decision was not driven by impulse but by a conscious rejection of individual comfort in favour of collective duty. His life from that point onward was an unfolding of that commitment.



This clarity of purpose became most visible during his trial. When his father attempted to seek clemency, Bhagat Singh opposed it firmly. He believed that asking for mercy would dilute the moral foundation of his struggle. He chose principle over survival, demonstrating that for him, freedom was not negotiable at any cost.

As 23 March 1931 approached, the atmosphere across the country was charged with emotion. Appeals, protests, and public pressure attempted to halt the execution. Yet, Bhagat Singh remained unmoved. He had already accepted death as the final step in his commitment. For him, martyrdom was not an end but the completion of a promise he had made years earlier.

Even in his final days, his actions carried meaning. His request to eat bread prepared by a safai karamachari in jail was a deliberate statement against social hierarchies. At a time when caste-based discrimination was deeply entrenched, this simple act conveyed a powerful message that dignity is inherent and not determined by birth. Equality, in his understanding, was integral to national strength.

His intellectual life in prison further reflects the depth of his character. Bhagat Singh spent his last month's reading extensively, engaging with texts that dealt with philosophy, politics, and history.

Among these, the Bhagavad Gita stands out for its resonance with his life. The Gita's central idea of 'nishkama karma' i.e. performing one's duty without attachment to outcomes, finds a clear reflection in his choices. He did not act for recognition or reward; he acted because he believed it was his duty.

The Gita also teaches that death in the path of righteousness is not defeat. This idea aligns closely with Bhagat Singh's acceptance

of martyrdom. His composure, clarity, and absence of fear in the face of execution reflect a mind anchored in conviction rather than circumstance.

His journey was not solitary. Alongside him stood Shivaram Rajguru and Sukhdev Thapar, who shared his commitment to sacrifice and duty. Together, they represented a generation that saw freedom not as an abstract goal but as a responsibility requiring total dedication. Their unity was rooted in shared values, not merely shared circumstances.

Bhagat Singh's intellectual influences extended beyond immediate circles. He was deeply impacted by the writings of Vinayak Damodar Savarkar, particularly the interpretation of the 1857 uprising as a national war of independence. Bhagat Singh understood the power of ideas in shaping action. He ensured that such works were circulated widely, believing that history could inspire future generations.

His writings and jail diary reflect a mind that rejected blind sacrifice. He believed that sacrifice must be purposeful, directed toward achieving a larger objective. This distinction is crucial in understanding his legacy. He was not driven by emotion alone but by a strategic and disciplined approach to revolution.

On Balidan Diwas, what is remembered is not just the act of hanging three young men in Lahore Jail, but the culmination of a life built on conviction.

Bhagat Singh's martyrdom was not an isolated moment of bravery. It was the flowering of values cultivated over years - discipline, equality, intellectual rigour, and an unwavering sense of duty.

The relevance of 23 March lies in its ability to confront superficial understandings of patriotism. Bhagat Singh's life does not allow for comfortable narratives. It demands an engagement with the idea of sacrifice as responsibility, not spectacle. It forces a recognition that freedom was not granted but earned through lives that refused compromise.

Balidan Diwas, therefore, is not about remembrance alone. It is about confronting the standards set by those who chose duty over self, principle over survival, and action over hesitation. Bhagat Singh's legacy continues to stand as a measure of commitment that is unyielding, disciplined, and rooted in a vision that extended far beyond his own life-time.

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The last defiance of Bhagat Singh and his comrades



HARISH JAIN

Bhagat Singh, Sukhdev, and Rajguru remain among the most luminous names in India's struggle for freedom. Bhagat Singh, born in 1907 into a politically conscious Sikh family in Punjab, emerged in his early twenties as the most articulate voice of revolutionary nationalism, combining daring action with rare intellectual depth. Sukhdev Thapar, his close comrade from Lahore, was the disciplined organiser behind much of the Hindustan Socialist Republican Association's work in north India. Shivaram Hari Rajguru, the youngest of the three, was remembered by contemporaries for his courage, marksmanship, and unwavering loyalty to the revolutionary cause. On 23 March 1931, all three were executed in Lahore Central Jail. Their martyrdom transformed them into enduring figures in India's political memory.

Among the many documents associated with their final days, one stands apart with unusual force: the demand that they should not be hanged like criminals but shot like soldiers. This text is generally believed to be a single letter written by Bhagat Singh and his comrades shortly before their execution. A closer examination of the historical record, however, suggests that it emerged through two related communications written in the last weeks before their death - one addressed to the Jail Superintendent and another to the Governor of Punjab.

The first communication appears to have been addressed to the Jail Superintendent, the immediate authority through whom prisoners were required to communicate with higher officials. In it, the revolutionaries made an argument that was both simple and devastating. They had been convicted under the charge of waging war against the King-Emperor. If that charge was to be taken seriously, they argued, they could not be treated as ordinary criminals. They were political combatants engaged in a struggle between an enslaved nation and an imperial power. As such, they should be treated as soldiers and executed by firing squad. This was not theatrical rhetoric. It was a deliberate political intervention. By invoking the very language used by the colonial tribunal, Bhagat Singh and his comrades turned the logic of the state against itself. If the state insisted that they had waged war, it had already admitted the political nature of their actions.

The second and better-known letter, addressed to the Governor of Punjab, carried this argument further. Here, the revolutionaries made their position unmistakable. They did not beg for pardon. They did not seek commutation of their sentence.

Instead, they demanded that the British government recognise the political character of their struggle and treat them accordingly. Their demand was stark: If they were to die, they should die as soldiers, not criminals.

The distinction mattered enormously. Hanging was the punishment reserved for criminals and murderers. Execution by firing squad was traditionally associated with war. By demanding the latter, Bhagat Singh and his comrades refused the moral vocabulary the colonial state wished to impose upon them.

They would not accept the label of criminal. They insisted on defining themselves as participants in a political struggle. In that act of self-definition, the letter rose far above its immediate context. It became a manifesto. The timing of these communications is crucial. March 1931 was a moment of uncertainty and political negotiation. The Gandhi-Irwin Pact had just been signed. It secured the release of many prisoners involved in the Civil Disobedience Movement and appeared to promise a temporary settlement between the Congress and the colonial state.

But revolutionaries convicted in violent cases were excluded from its provisions. This exclusion reflected a hierarchy that was emerging within the freedom struggle itself. Certain forms of resistance were being legitimised while others were being quietly disowned. Some patriots could be accommodated within the political mainstream; others were left outside its boundaries.

Bhagat Singh and his comrades clearly understood this. Their letter must therefore be read not only against the colonial judiciary but also against the shifting political climate within the nationalist movement. It was written at a moment when compromise was increasingly being treated as political wisdom.

The revolutionaries responded with an ethics of refusal. They would not ask for mercy. They would not dilute the meaning of their struggle. And they would not allow either the colonial state or sections of the nationalist leadership to narrate their deaths as the punishment of criminals. What is striking about the document is its composure. It is not an emotional farewell. It is precise, disciplined, and politically clear. Even at the threshold of execution, the revolutionaries were concerned less with death than with how their struggle would be understood. The legal intelligence of their argument is remarkable. Colonial power had used the charge of waging war to justify exemplary punishment. Bhagat Singh and his comrades seized that very charge and exposed its contradiction.

Please read the complete story online at www.daily-pioneer.com

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Not STEM, But STEAMpunk



Rohit K Singh

If you grew up in the 70s-80s, the brightest students were steered into science streams, IIT being the ultimate dream. Engineering or medicine became the gold standard of success. Literature, philosophy or history was admired, but quietly dismissed as an impractical indulgence. In a country emerging from scarcity, STEM was not merely an academic preference, it was a survival strategy.

AI is now dismantling that hierarchy. This does not mean science and engineering are losing importance. The AI revolution rests on extraordinary breakthroughs in maths, computing and data science. But the premium is moving away from those who merely execute technical tasks towards those who can frame problems, interpret complexity and communicate insight. AI's rise is restoring the importance of capabilities long cultivated by humanities — from STEM to STEM + Arts = STEAM.

For decades, subjects were valued less for what they revealed about the world and more for the salaries they promised. Engineering degrees became the most reliable hedge against economic uncertainty. The system produced exceptional engineers. But it also narrowed our imagination about what intelligence looks like. AI is forcing a rethink. LLMs can generate code, summarise research papers and analyse complex

datasets within seconds. The question is no longer, 'Can you code?' It's 'Can you ask the right question?'

Prompt engineering captures this transformation. The quality of an AI system's output depends on clarity and nuance of its instructions. Crafting those requires linguistic precision, conceptual clarity and contextual awareness, capabilities that liberal arts education encourages.

Sam Altman says the effectiveness of LLMs depends on the quality of human prompts and supervision. The most powerful users of AI are not necessarily the best programmers, but those who can frame problems clearly and guide machines towards meaningful outcomes.

Communication is becoming a strategic capability in the AI economy. The engineer who can explain algorithmic risk to a corporate board, the policymaker who can translate data privacy

concerns into regulation — these individuals operate at the intersection of tech and society, and increasingly shape the trajectory of innovation.

When introducing iPad in 2010, Steve Jobs argued that the most transformative innovations emerge at the intersection of tech and the liberal arts. Apple's success, he suggested, was not a triumph of engineering but of design, psychology and storytelling. He himself cultivated a deep sense of design after attending calligraphy classes in college.

AI is making that intersection even more important. Machines excel at pattern recognition and prediction. What they lack is judgement. Questions about fairness in algorithmic decision-making, accountability for automated systems or the ethical deployment of AI cannot be answered through maths alone. They require perspectives drawn from philosophy, history, sociology and law. As AI begins to influence hiring, lending, healthcare and governance, stakes of these questions become enormous.

Tension between scientific precision and human interpretation is hardly new. In a celebrated 1900 conversation in Berlin, Einstein and Tagore debated the nature of truth. Einstein argued that scientific truth exists independent of human perception. Tagore countered that truth ultimately acquires meaning through human consciousness and cultural understanding. Nearly a century later, AI's rise is reviving that debate in unexpected ways. Machines may process data efficiently, but the interpretation of meaning, values and purpose remains profoundly human.

India's own technological journey illustrates the importance of this bro-

ader perspective. Success of DPI such as Aadhaar, UPI and India Stack did not emerge from engineering excellence alone. It required regulatory imagination, policy design and the ability to build trust among citizens.

The next phase of India's AI journey will require a similarly interdisciplinary approach. Our education system, however, is built around high-stakes exams and narrow academic funnels that privilege technical disciplines while marginalising broader intellectual exploration. While this model produced technical excellence, it often discouraged curiosity across fields. In the age of AI, such rigidity becomes a disadvantage.

Students trained only in routine technical tasks risk seeing those skills automated. What endures is cognitive agility, the capacity to keep learning, think critically and move across domains. Advantage will shift from narrow specialisation to integration: connecting technological capability with human context. A product designer who understands behavioural psychology. A policy expert who grasps ML.

Ironically, rise of intelligent machines is increasing the value of uniquely human qualities — curiosity, creativity, empathy and storytelling. Real AI disruption is not technological alone but also intellectual.

The future will neither belong to STEM alone, nor solely to humanities. It will belong to those who can stand at their intersection, combining analytical precision with human insight. In the age of intelligent machines, the most valuable skill may no longer be solving equations. It will be asking better questions than machines can.



Artificial, eh?

The writer is former secretary, Govt

Degrees but no job: Is a college education still worth it?

India possesses one of the youngest populations in the world, a demographic advantage that could fuel economic transformation. But this potential can only be realised if the country's education system is closely aligned with the shifting demands of the global economy

FIRST
Column

DINESH SOOD



A COLLEGE DEGREE MAY PROMISE POTENTIAL, BUT A PUBLIC PORTFOLIO PROVIDES UNDENIABLE PROOF OF COMPETENCE

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For decades, millions of Indian students have followed a familiar economic script: study hard, earn a college degree, and a stable job will follow. This belief, shaped by the 1990s era of economic liberalisation, evolved into an unwritten social contract between schooling and work.

Yet, recent evidence suggests that this contract is rapidly weakening. A recent report by Azim Premji University reveals a striking reality: "around 67 per cent of India's unemployed youth today are graduates. In 2022 alone, roughly 1.1 crore unemployed young people were degree holders, a dramatic rise from 32 per cent in 2004". Over the same period, the proportion of graduates in the youth population rose sharply from about 10 per cent in 2004 to nearly 28 per cent in 2022.

These figures reveal a structural paradox in India's labour market. While access to higher education has expanded, the economy has not created enough high-quality jobs to absorb the growing number of graduates. The result is an emerging crisis: more degrees, but not enough employment.

For earlier generations, the formula worked. A college degree was rare and therefore highly valuable in the labour market. But the India of 2023 presents a different reality. Higher education has expanded rapidly, yet employment opportunities have not kept pace. As a result, the value of a conventional degree is steadily declining while youth unemployment continues to rise.

Degrees are rising faster than jobs

Data from the International Labour Organization's India Employment Report 2024 paints a troubling picture. According to the report, "young people account for nearly 30 per cent of India's total unemployed population. Even more alarming is that graduate unemployment is nearly nine times higher than that of individuals with little or no formal education."

These figures raise a difficult but necessary question: does a college degree still guarantee economic mobility in India? The problem today is not simply a short-

age of jobs; it is the hyperinflation of degrees. Over the past two decades, the number of universities and colleges in India has expanded. While this expansion has increased access to higher education, it has also created a mismatch between what students learn and what industries need.

The economics of signalling and the declining value of degrees

Economists describe part of this phenomenon via signalling theory. A degree does not simply certify knowledge; it also signals certain qualities to employers: discipline, perseverance, and the ability to complete organised tasks.

When graduates were relatively few, that signal held substantial weight. But when millions of students graduate each year with similar qualifications, the signal becomes diluted.

A Mercer-Mettl India Graduate Skill Index (2024-25) report reveals that only about 35 per cent of Indian graduates are considered employable for modern industry roles. In other words, nearly half of India's degree holders enter the labour market without the skills employers actually require.

One reason for this gap lies in the slow pace of curriculum reform. University syllabi often take years to update, while

the digital economy evolves almost weekly. As a result, students graduate with outdated knowledge that does not match contemporary business demands.

Artificial intelligence and the end of generic knowledge work

Technological disruption, particularly the rise of Artificial Intelligence (AI), has accelerated this shift. Many knowledge-based tasks, once justified by white-collar employment, are now being automated. If a degree primarily trains students to perform routine analytical tasks, basic coding, or standardised reporting, these skills are rapidly losing economic value. AI systems can perform such tasks in seconds and at minimal cost.

Industry projections show this transformation. According to NASSCOM, India will require over one million specialised AI professionals by 2030 to meet growing technological demand. However, these roles require advanced, applied skills that cannot be acquired solely through outdated classroom lectures.

In other words, the modern economy does not simply need what individuals know. It rewards what they can build, solve, and create.

Proof of Work in the Digital Economy
The internet-driven economy has intro-

duced a powerful shift in recruitment methods. Increasingly, employers and clients care less about formal credentials and more about demonstrable ability.

Aspiring AI engineer is judged by the projects visible on their GitHub profile. A digital writer or marketer is evaluated by their published articles, audience reach, or portfolio. A college degree may promise potential, but a public portfolio provides undeniable proof of competence. This transformation has created a more meritocratic environment where skill, creativity, and execution matter more than institutional pedigree.

The rise of parallel learning ecosystems

Recognising these realities, a parallel learning ecosystem is emerging across India. Web platforms, coding boot camps, digital learning hubs, and professional communities provide learners with practical skills that traditional institutions often fail to deliver.

These platforms emphasise project-based learning, industry exposure, and practical problem-solving. Many global technology firms are increasingly prioritising skills assessments and portfolios based hiring instead of purely academic credentials.

Government initiatives, including Skill India, Digital India, and various start-up incubator programmes, also reflect a rising recognition that employability depends on practical capability rather than academic qualification alone.

The Real Solution: Degrees Plus Skills
However, the answer is not to abandon formal education altogether. Universities still play an important role in building intellectual foundations, social networks, and academic disciplines that remain essential in many fields.

What needs to change is the way students approach higher education.

Instead of treating a degree as the final destination, students should adopt what investors call a "Barbell Strategy": Completing a college education provides a basic safety net. It satisfies society's expectations and guarantees that graduates are not automatically filtered out by conventional recruitment systems.

At the same time, students must invest in developing specialised, high-value skills, whether in AI, data analytics, design, digital media, entrepreneurship, or emerging technologies. Building projects, internships, and digital portfolios should become an integral part of the college journey.

Redefining the purpose of education

India possesses one of the youngest populations in the world, a demographic advantage that could fuel economic transformation. But this potential can only be realised if the country's education system is closely aligned with the shifting demands of the global economy.

The value of a college degree has not disappeared—but its meaning has fundamentally changed. It is no longer a guarantee of success; it is merely a starting point. In the 21st-century knowledge economy, students must treat their degree as a foundation and make the development of practical skills their true competitive advantage. Those who assume responsibility for their learning journeys and build relevant expertise will define their own success.

To compete and thrive, students must build not just credentials but also skills, practical experience, and a mindset that welcomes change.

By pairing formal education with continuous learning and hands-on expertise, India's youth can turn the degree inflation crisis into an opportunity for long-term growth.

A Subramaniam & Vinayak M B | TN

TN's new welfare: Study hubs, gig pods, women's hostels

Thirty-five-year-old Nishith Kumar, a resident of Perambalur, Chennai, cleared his first hurdle — the TNPSCT (Tamil Nadu Public Service Commission) Group D post, but faltered at the mains. Nishith, who shares his home with a large family, realised he simply had to study harder on his second attempt, with not any distractions. But that was impossible at home, where he didn't have a private study space.

Thankfully, there was an easy solution. He booked a slot at a nearby Mudhalvar Padappagam — which roughly translates into 'chief minister's creative space', a co-working facility opened up as part of Tamil Nadu CM M K Stalin's several welfare schemes aimed specifically at young people. The co-working space, which is also used by civil service aspirants, allowed Nishith space for uninterrupted study. This time around, he cracked the test.

"I studied for four months," Nishith says. "I used to come in at 6.30am and study the entire day. The space was completely without disturbances. At home, I had several distractions."

From Birth To Death

Popular welfare is a policy perfected by successive governments in Tamil Nadu. From birth to death, welfare now virtually covers every stage of life in the state.

Registration of pregnancy is mandatory in Tamil Nadu, and a 10-digit PMCE (Pregnant and Infant Cohort Monitoring and Evaluation) number is generated the moment a pregnancy is confirmed. This reproductive and child health ID entitles the unborn baby and its mother to its 10,000 under the Dr Mahalingam Reddy Child Benefit Scheme, in addition to several other state facilities.

Even death doesn't end this welfare journey as cremation expenses are entirely borne by the state.

In between, there are monthly dues for students of govt schools and colleges — scholarships, text books, free bicycles, laptops, unemployment support, free ration, monthly (Uram) Thogai (cash assistance) for women, widows, persons with disabilities, free bus travel, free healthcare, free houses, to name only a few. First-generation students pay zero fees in colleges, including for professional courses. Children have even got free television sets, music graders and home-to-state gifts.

But as widely known, the welfare state is not a fully occupied field, with not even a word held left for new arrangements, would be mistaken.

Even as Tamil Nadu gets ready for



Workspace at a Mudhalvar Padappagam centre



assembly elections on April 23, the 51st gen's wave of 'new-age' welfare has triggered ripple in 'unused' voter demographics such as users of co-working spaces, gig workers and working women.

Work Together, Study Together

Mudhalvar Padappagam had a modest beginning in Nov 2023, debuting in Stalin's Kallathur assembly constituency in Chennai as a Rs 4-crore, two-storey building, offering co-working space for about 100 people. The centre in Kallathur has three conference rooms, too, apart from 180 seats. Run by professionals, the centre offers phased play facilities (inspired from several interferences at one-fifth of the cost) or private cost.

The model was such a hit among tech-savvy youth that the govt has planned more such centres at 30 locations — at least 10 are already operational — at a total outlay of Rs 200 crore. Other corporations, such as Cummins, Maruti, Tata, and TCS, are also set to

From exam aspirants to IT professionals, and delivery personnel to women workers, schemes focus on creating accessible, well-equipped spaces for work, study and rest

Co-working centres at a fraction of usual cost

Mudhalvar Padappagam, or the 'CM's creative space', essentially a co-working facility, has opened at multiple locations, starting Nov 2024.

Use charges (PMCE) per day, 1100 for a full day, 7500 for a month

- Comparable co-working spaces in good Chennai locations cost ₹30,000+ per desk per month
- Mudhalvar Padappagam centres are professionally run with plug-and-play facilities
- Booking process is online and transparent
- Total outlay for planned centres is ₹2500

be able to get their own Padappagam centres soon, say govt sources.

Booking slots at these centres is online and transparent. It costs just Rs 50 for half a day, Rs 300 for a full day and

Rs 2,000 for an entire month. The average per-desk-per-month rate for a similar co-working space in a good Chennai location is Rs 30,000 upwards.

Most users of these spaces are IT professionals, or those preparing for civil services, CA, Net, or JEE exams. Now the Chennai Metropolitan Development Authority (CMDA) is also hosting free co-working classes for UPSC aspirants, with teachers being sent from the All India Civil Services Association. The first batch of aspirants appeared for the civil services exams in Feb.

Seripio Priya from Kallathur, a computer science graduate who's studying for UPSC, said it was a blessed who recommended such co-working space for study. "A centre was nearby, so I gave it a go. I was pleasantly surprised," she says. "It's not just a physical space to study but also a place where one can find study materials. If a particular book is not available, we only have to request it, and we get it soon after. The facilities are also great: there's 24-hour wifi and the aircon is always on. It's helping me immensely in my studies."



Co-working centre



A gig-worker walking into an AC resting lounge in Chennai. Inside, there are 20 people, facilities like clean drinking water, mobile-charging points, and well-maintained washrooms are available

Heela Sathish, director of the centre, said some users had cleared competitive exams so far, and about five had cleared Net. "The discipline we maintain keeps the centres safe, especially for young women, the regular dress code, restrict phone calls, and have six staff members managing the facilities."

Chennai Metropolitan Development Authority (CMDA) will shortly roll out such co-working spaces, and the Greater Chennai Corporation (GCC), too, said G Prakash, CMDA member-secretary. "We will have 40 more in various locations of the city. Our aim is for each of the co-working spaces to cater to around 500 to 600 students of a particular locality. Students or professionals should not have to spend much time or money commuting in a vehicle; it will be in the neighbourhood."

Gig Workers' Pod

But it's not just young white-collar workers or students that the welfare schemes target. One of the biggest hits has been Scandinavian-style pods for gig workers. These are conditioned lounges

serve as waiting rooms for gig workers. The 600-sq-ft pods, which cost just 20 people each, have comfortable seating, clean drinking water, mobile-charging points, well-maintained washrooms, lighting, and 24/7 access. These facilities have become quite popular with gig workers, who sleep come rain or shine but rarely find dignified spaces to rest and recharge.

Five such centres have come up in Chennai neighbourhoods such as T Nagar, Anna and K K Nagar, and at least 10 more such pods are being set up at a cost of Rs 25 lakh each, said govt sources.

The state already has a Gig Workers Welfare Fund, through which it provides subsidies for e-scooters and auto-rickshaws, apart from education and accident claims.

Thushi Hostels

Another group the govt has targeted is young working women through the Thushi Hostels scheme. The Thushi (meaning 'comfortable') hostels are World Bank-funded, state govt owned, but privately maintained facilities. The first of these came up in July 2023.

There are 13 hostels now, and the govt has announced 10 more in districts such as Erode, Karur, Namakkal, and Tirupur, at a total outlay of Rs 75 crore. The govt also plans to establish three hostels in Chennai, Madurai and Coimbatore that would provide priority to women from SC, ST, OBC communities and those from religious minorities groups.

Most residents use the hostels for job safety and comfort as a trampoline of the typical rent. There's 24/7 security, CCTV coverage on each floor; bio-metric and other access-control measures and plush rooms, mostly in apartment locations.

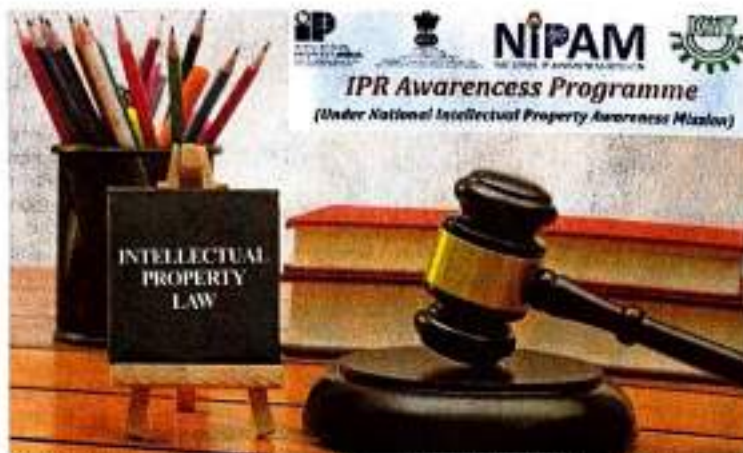
Divya R, who works in the IT industry in Tambaram, about 30km from Chennai, says: "The Thushi hostel has made it much easier for women like me to work in the city without worrying about safety or high rents. The rooms are decent, and the environment feels secure, especially for those who are new to Chennai. It's always room for improvement but, overall, it's a really helpful option for working women."

The hostel chain is being managed by the Tamil Nadu Working Women's Hostel Corporation (TNWWHC), which was established by the state govt as a special initiative to address accommodation needs of working women who travel from different areas and other states for jobs, training and official visits.

Thushi Hostels cost anywhere between Rs 2,000 and Rs 10,000 per head per month, depending on one's choice of room: single or double occupancy rooms, or dorms for host, with or without AC. It's one cap for food, that could add up to Rs 3,000 per head each month.

Building IP awareness

Despite many positive developments, intellectual property education in India still faces several challenges. One of the primary issues is the lack of widespread awareness among the general population. Many creators, particularly small entrepreneurs, artisans, and independent artists, are often unaware of the legal protections available to them. As a result, innovative ideas sometimes go unprotected, leaving them vulnerable to misuse or exploitation.



Intellectual property is essential for encouraging innovation and safeguarding creative output.

Historically, intellectual property education in India was confined largely to law schools and specialized legal training programmes. However, as India's participation in the global knowledge economy expanded, policymakers and educators began recognizing the importance of spreading IP awareness beyond the legal profession. Today, intellectual property education is gradually being incorporated into universities, technical institutions, and even school-level curricula.

A significant milestone in India's IP awareness movement has been the role of the World Intellectual Property Organization, which collaborates with national governments to promote intellectual property education and training. Through workshops, online courses, and academic collaborations, the organization has helped build a culture of IP awareness among students, researchers, and policymakers in India.

Within the country, the Office of the Controller General of Patents, Designs and Trade Marks plays a crucial role in promoting intellectual property awareness. Under the National Intellectual Property Rights Policy introduced in 2016, the government initiated several programmes to educate citizens about the value of protecting their innovations. These initiatives include intellectual property awareness campaigns, training sessions for start-ups, and integration of IP modules into academic institutions.

Educational institutions have increasingly recognized that intellectual property literacy is essential for students pursuing careers in science, technology, business, and the creative arts. Technical institutions such as engineering and management schools have also begun emphasizing the importance of intellectual property in innovation-driven industries.

Students involved in research and development are taught how to protect their inventions through patents and how intellectual property can support entrepreneurship. Innovation cells and incubation centres in universities now often include training sessions on intellectual property rights as

part of start-up development programmes.

Another major stakeholder in intellectual property education is the National Intellectual Property Awareness Mission, which aims to reach millions of students across the country. This initiative conducts online and offline awareness sessions in schools and colleges, helping young learners understand the significance of respecting and protecting creative works. Through these programs, students are introduced to basic concepts such as plagiarism, copyright infringement, and the value of original thinking.

Despite these positive developments, intellectual property education in India still

faces several challenges. One of the primary issues is the lack of widespread awareness among the general population. Many creators, particularly small entrepreneurs, artisans, and independent artists, are often unaware of the legal

protections available to them. As a result, innovative ideas sometimes go unprotected, leaving them vulnerable to misuse or exploitation. Another challenge lies in the uneven distribution of IP education across regions and institutions. While leading universities and metropolitan institutions may offer comprehensive courses on intellectual property,

smaller colleges and rural institutions often lack access to such programs. This disparity creates a gap in knowledge that can limit the ability of students from underrepresented regions to participate fully in innovation-driven industries.

Furthermore, intellectual property education must adapt to the rapidly evolving digital landscape. The internet has made the creation and dissemination of content easier than ever before, but it has also increased the risks of copyright infringement, piracy, and unauthorized reproduction.

Students and young professionals must therefore be educated not only about protecting their own work but also about respecting the intellectual property rights of others.



Another important dimension of intellectual property education relates to fostering ethical academic practices. In universities and research institutions, issues such as plagiarism, data misuse, and unauthorized reproduction of scholarly work have become matters of serious concern. Teaching students about intellectual property rights encourages responsible research practices and strengthens the credibility of academic institutions.

At the same time, intellectual property education can play a crucial role in promoting entrepreneurship and economic development. Start-ups and small businesses often rely heavily on innovation and brand identity. By understanding how to secure patents, trademarks, and copyrights, entrepreneurs can protect their competitive advantage in the market. Intellectual property awareness also helps businesses attract investors, as protected innovations often carry greater commercial value.

India's rapidly expanding start-up ecosystem illustrates the growing relevance of intellectual property education. Young innovators developing new technologies, software platforms, and digital services must understand how to safeguard their intellectual assets. Universities and innovation hubs are increasingly working to ensure that students receive guidance on patent filing, licensing agreements, and technology commercialization.

Looking ahead, the future of intellectual property education in India will depend on sustained collaboration between government institutions, universities, industry leaders, and international organizations. Integrating IP awareness into school curricula, encouraging interdisciplinary learning, and supporting innovation ecosystems can help build a generation that values creativity and respects intellectual ownership.

Ultimately, intellectual property education is not merely about legal knowledge; it is about cultivating a culture of innovation, responsibility, and respect for creativity. As India continues to position itself as a global hub for technology, research, and creative industries, equipping citizens with the knowledge to protect and manage intellectual assets will be crucial.



MURASHIS DATTA

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Infrastructure hurdle to govt proposal

'Unrealistic' tag

on school AI timer

**BASANT KUMAR
MOHANTY**

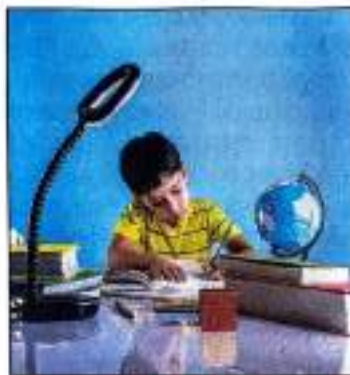
New Delhi: The Centre on Wednesday told Parliament that artificial intelligence (AI) would be included in the curriculum of Class III and above from 2026-27, the proposal coming at a time when teachers are yet to be trained and Internet connectivity eludes nearly 40 per cent of schools.

Education minister Dharmendra Pradhan told the Rajya Sabha that the department of school education and literacy had developed a Curriculum on Computational Thinking and Artificial Intelligence (CT&AI) to inculcate AI-readiness in school students.

BJD MP Sulata Deo wanted to know whether the ministry planned to introduce coding and AI courses in secondary schools.

"This curriculum will be implemented from Classes III to VIII, in the session 2026-27, and aims to develop AI-ready learners by focusing on computational thinking skills. The states/Union Territories are also working on bringing emerging technologies, including AI, into their academic framework," the minister said.

The minister said the National Council of Educational Research and Training (NCERT) had included a pro-



FUTURISTIC LEARNING

ject on animation and games in the vocational education textbook for Class VI.

"AI is being embedded for awareness and foundational competencies among school students (Classes VI-XII) and building AI literacy among educators," Pradhan said.

Additionally, CBSE offers a skill module on AI for Classes VI-VIII and as an optional skill-based subject in Classes IX-XII.

Through supplementary questions, Deo and nominated MP Sudha Murthy wanted to know if Internet facilities were available and whether teachers were trained to teach the subject in schools.

"We are developing two indigenous AI models. The primary focus will be to prepare our teachers' community. The AI platform is a self-learning model," Pradhan said.

"AI is a horizontal subject. The primary knowledge of AI will be given in Class III. After

that, the students will use AI for a deeper understanding," he said.

The minister said 60 per cent of high schools in the country had Internet.

"The government has envisaged providing broadband connectivity in all high schools. In the next 2-3 years, all schools will get broadband/Internet connections," he added.

Ashok Agrawal, president of the All India Parents Association (AIPA) and former member of the Delhi University court, said the government's proposal seemed to be unrealistic in view of poor infrastructure in schools.

"They are talking in the air. This proposal sounds like a joke. Basic infrastructure is not available in government schools. The schools are in hopeless condition. For example, thousands of school buildings are in dilapidated condition in Rajasthan. The students are sitting in open spaces. The situation is similar in many other states," Agrawal said.

"Electronic equipment like computers and other facilities are not functional in five per cent of government schools. Electricity is not available in many schools. Power supply is erratic, too. In such a situation, the priority should be on the improvement of basic infrastructure," he said.

WORK EVOLUTION



**JOHN FELIX RAJ &
SOVIK MUKHERJEE**

JOHN FELIX RAJ IS THE VICE CHANCELLOR, AND SOVIK MUKHERJEE IS AN ASSISTANT PROFESSOR OF ECONOMICS, BOTH AT ST. XAVIER'S UNIVERSITY, KOLKATA

Rather than replacing roles outright, AI integrates into workflows, accelerating routine tasks and expanding analytical capacity

Power Of AI Leverage

Fears of AI replacing jobs are misplaced; the real shift is subtler, reshaping work itself, rewarding those who use it, and exposing those who don't

Every few months, a headline warns that artificial intelligence is about to erase millions of jobs. Writers worry about AI-generated articles; programmers' eye code-completion tools; analysts wonder whether algorithms will soon own every data-driven decision. The anxiety is understandable—AI can write essays, generate images, crunch massive datasets, and mimic conversation with startling fluency.

But the reality inside most workplaces is less dramatic and more consequential. AI isn't replacing people wholesale. It's changing how the work gets done. The professionals pulling ahead aren't the ones with the fanciest degrees; they're the ones who've learned to use AI well.

The real threat, then, isn't the model. It's the colleague, competitor, or student who treats AI as a power tool. This isn't humans versus machines. It's humans with AI versus humans without it.

Technology and Human Adaptation

We've seen this movie before. When Gutenberg's press spread in the fifteenth century, scribes feared obsolescence. During the Industrial Revolution, looms and steam engines were blamed for gutting craft trades. Later, computers triggered panic as they automated calculation and record-keeping.

Each wave followed the same arc: fear first, then a redefinition of work. The press didn't kill writing; it expanded literacy and created new professions. Factories didn't erase craftsmanship; they scaled production and spawned technical roles that hadn't existed. Computers didn't end analysis; they birthed software engineering, UX, and the digital economy.

AI is the latest turn of that wheel—with one twist. It reaches into cognitive work: drafting, researching, coding, analysing, designing. Google's Gemini shines at research-heavy tasks and live information. Meta AI is tuned for quick, casual interactions woven into social platforms. OpenAI's ChatGPT helps pro-



AI isn't taking your job—the person who knows how to use AI might

fessionals brainstorm, draft, and distil complex material in seconds. Developers lean on GitHub Copilot for suggestions and debugging; designers prototype with DALL-E before refining by hand. None of these erases expertise. They compress the grunt work so people can spend time on strategy, judgment, and creativity.

Rise of AI-Augmented Professional

A new archetype is emerging: the AI-augmented worker—not a replacement, but a partnership. The human sets direction; the model supplies speed, breadth, and a first draft of almost anything.

In marketing, tools like Jasper or ChatGPT let a team spin out a dozen ad variants in minutes, test tones, and iterate—rather than polishing a single draft all afternoon. In journalism, reporters feed thousands of documents into AI-assisted text analysis and surface patterns that once took weeks to spot. In academia, researchers use Elicit or Semantic Scholar's AI features to triage literature reviews, summarise papers, and map gaps far faster than manual skimming.

The result isn't fewer professionals. It's professionals who can carry more weight, explore more options, and deliver sharper insights.

Productivity in the Age of Intelligent Tools

The productivity lift is hard to ignore. Work that used to take hours now collapses into minutes. An analyst who once cleaned spreadsheets, ran stats, and built charts by hand can now lean on Microsoft Copilot or AI-assisted Tableau to generate dashboards and call out insights almost instantly. Studies of coding assistants consistently show developers finishing tasks markedly faster than peers working without them.

Expectations shift with that speed. Teams assume quicker turnarounds and broader exploration. A gap opens—not because some people are smarter, but because some people have better leverage.

Opportunity and Competition in an AI-Driven World

AI also flattens the playing field. Capabilities that once demanded specialists or expensive software are now in the hands of students, solo founders, and small teams. A founder can research a market, draft a pitch, mock up brand assets in Canva's AI tools, and prototype a landing page without hiring a full crew. Students use Notion AI or Perplexity to organise notes, summarise readings, and generate study guides.

Access alone isn't the edge, though. When everyone can open the same toolbox, the difference is how well you use it—creatively, strategically, consistently.

Human Edge in the AI Era

As AI settles into daily workflows, the skill stack is changing. Domain expertise still matters, but AI literacy is now table stakes: knowing what a model can do, how to prompt it, and where it trips. Verification is non-negotiable because models can be confidently wrong. Human judgment is the filter.

And some strengths remain stubbornly human: empathy, ethical reasoning, contextual nuance, original creativity. AI can flag anomalies in medical images; treatment still hinges on a clinician's judgment and a conversation with a patient. It can draft a policy memo; leadership—weighing trade-offs, reading a room, taking responsibility—remains ours.

The pattern is clear: AI doesn't erase the need for professionals; it redefines what makes a professional valuable. The advantage goes to those who pair human insight with machine efficiency.

Adaptation is the Real Competitive Advantage

AI is one of the defining technological shifts of our time, but the central challenge isn't raw automation or job loss. It's adaptation—how we rethink work, learning, and leverage.

Ignore the tools, and you risk falling behind, not for lack of talent, but because others can do more with the same hours. Embrace them and you expand what you're capable of.

The future of work won't belong to machines alone, or to humans alone. It will belong to humans who know how to collaborate with intelligent systems. Which is why one line keeps landing with such force: AI won't replace you. But someone using it might.

Views expressed are personal

Few takers for CBSE second board exam

JHINUK MAZUMDAR

Calcutta: CBSE schools said only a few among their Class X students had so far expressed willingness to appear for a second board exam to improve their performance.

At South Point, it is 70 out of 800; at Mahadevi Birla World Academy - 20 out of 210; "only a handful" out of 470 at Delhi Public School Ruby Park; 16 out of 200 at The Newtown School were some of the responses.

The last date for schools to submit the list of candidates in the first phase is March 31, and some schools have given students until the weekend.

The schools' window to

enrol for Round II opened on March 18.

Students have the freedom to decide whether they want to appear for the second board exam after the declaration of the first exam results.

"We expect to get a more realistic picture after the Class X results are out. Students can always reconsider their decision," said Jaidev Ghosh, the South Point principal.

Students can enrol or withdraw from the list even after the publication of their Class X results.

The CBSE is introducing the two-board exam policy this year. It will allow students to improve their performance in up to three subjects among



science, mathematics, social science, and languages.

All passed students would be allowed to improve their performance, and it is mandatory to appear in the first exam

to be eligible for the second.

The board has asked schools for an initial list of candidates and the subjects in which they wish to appear to ensure "foolproof preparations" for the exam, the board had said.

"We have received a few entries so far for the first level. The moment students finish Class X, they move on to preparation for Class XI, and they don't want to spend time restudying the Class X syllabus," said Joyoti Chaudhuri, the principal of Delhi Public School, Ruby Park.

Many students aspiring to secure engineering or medical seats are more focused on competitive exams than on

revisiting the Class X syllabus, said teachers.

The first board exam ended on March 10, and several schools plan to start the new Class XI academic session in the third week of April.

The second board exam is scheduled in May, the board has said.

"If they decide to appear for the second board exam, they will be caught between Class X and XI and might find it difficult to balance. If they get their subjects and stream of choice, they feel it is better to move on with Class XI. They prefer to move forward rather than look back," said Anjana Saha, the principal of Mahadevi Birla World Academy.

The cost of India's UPSC fixation



AVIJIT PATHAK
SOCIOLOGIST

RECENTLY, a leading women's college in the national capital felicitated 10 alumnae for securing top ranks in the UPSC Civil Services Examination, 2025. As the college principal celebrated the success stories of these "agents of change", young students got an opportunity to interact with them and learn the techniques needed to crack this heavily valorised competitive examination.

And, needless to add, an exercise of this kind, the college principal might have thought, was required to generate a sense of pride among its current students, and inspire them to do well in life.

While I congratulate the principal and these 10 alumnae of the college, I also pray that these 'achievers' restrain their egos, remain humble, and acquire the moral courage to distance themselves from the seductive trap of power and privilege associated with their jobs.

However, because of my deep interest in the politics

and sociology of knowledge, a disturbing question haunts me. Why is it that a college known for liberal arts and humanities has to showcase the UPSC toppers to prove its worth? Will the college, I ask myself, be equally proud of these alumnae had they chosen an altogether different trajectory of life as, say, a social activist working with the activists of Chhattisgarh and Jharkhand; a school teacher trying her best to inculcate the spirit of critical thinking among her students; or, for that matter, a historian/ political theorist/ psychologist contributing immensely to her respective field of knowledge?

Accept it. We live in a society that constructs its unique notion of 'success' and 'failure'. No wonder, the purpose of education is often defined in terms of these utilitarian tales of success and failure. For instance, if you opt for the science stream, you are repeatedly told that you must become a doctor or an engineer. Or, if you happen to opt for the humanities and social sciences, you cannot salvage yourself unless you crack the UPSC Civil Services Examination and become an IAS/IPS officer!

In fact, the way middle-class families internalise this dominant notion of success or the instrumental value of education makes it exceedingly difficult for



EFFECT : The UPSC phenomenon is destroying the rigour of academic culture in colleges and universities. *Pr*

youngsters to imagine and strive for alternative life trajectories. Hence, it is understandable why a college of liberal arts and humanities sees the UPSC toppers as its role models.

Yet, it is equally important to realise that this socially constituted notion of success has led to what I would regard as the pathology of the UPSC phenomenon — the way it has led to a huge profit-making Rs 3,000-crore business of the coaching industry.

It has destroyed the vital and creative energy of innumerable young minds and hampered the spirit of engaged teaching and research in our

colleges and universities.

Even though we love to hear tales of 'success', we should not forget that because of this one-dimensional and obsessive craze for IAS/IPS/allied services, we see lakhs of young people getting psychologically wounded and bearing the stigma of 'failure'. After all, what else can you expect if, say, out of 10 lakh applicants, only 1,000 lucky ones are selected for these coveted jobs?

While 'success' is celebrated and worshipped, we tend to forget the agony of failure. Possibly, a young person could have excelled as a schoolteacher, an anthropologist, a sportsper-

While 'success' is celebrated, we tend to forget the agony of failure. Possibly, a young person could have excelled as a schoolteacher, an anthropologist, a sportsperson or a film maker.

son or a film maker.

However, because of this UPSC craze, a significant part of his/her young life is wasted in roaming around coaching centres, spending a huge amount of money and consuming all those 'notes' of history, current affairs, sociology and political theory that coaching 'gurus' sell with huge fanfare and become instant crorepatas.

Truly, it is a sad commentary on the state of education and the mental health of our young students.

Likewise, every sensible academic would tell you that the UPSC phenomenon is destroying the rigour of academic culture in our colleges and universities. For a typical UPSC-oriented student, what matters is not the rigour of knowledge, but what the coaching industry sells as 'success manuals'.

Why should she/he attend classes regularly, read original texts, learn the art of writing a 5,000-word rigorous essay and participate in seminars and discussions if his/her sole objective is to get a degree and concentrate primarily on what is 'useful' for these competitive examinations?

This crisis is not fundamentally different from the way the obsession with standardised tests like IIT-JEE and NEET and associated dependence on coaching centres have led to the phenomenon called "dummy

schools'. Yes, it is not uncommon to see empty classrooms in many of our colleges and universities while the business of IAS coaching centres grows exponentially.

The principal of the college I am referring to, I am sure, is well aware of this pathology of the UPSC phenomenon. However, I understand her compulsion. After all, in this market-driven and hyper-competitive age, a college/university has to continually think of its 'ranking', its prestige and glamour and its 'brand' value. I also understand that the achievements of the alumnae — particularly, if they further reinforce the dominant narratives of 'success' — are often showcased and advertised to attract the new generation of students and their parents.

Yet, even amid these constraints, a college/university ought to realise that its primary function is to unite academic excellence with critical thinking, cultivate 'the spirit of democratic citizenship, decondition the minds of young students.

This will help them see beyond the mainstream notion of 'success' — say, the job of an IAS officer or the job of a corporate professional with a fancy 'salary package' and find meaning and purpose in what they do as active, awakened, knowledgeable and compassionate citizens.

From rote to the roots

Why bridge courses are important for students entering college



A. Joseph Dorairaj

A bridge course is a preparatory one just before the start of a new academic year to help students transition smoothly from school to university. The twin objectives are to fill knowledge gaps and help students acclimatise themselves to a new environment.

For many students, bridge courses often revolve around transitions:

to a higher knowledge ecosystem, to another medium of instruction (often from regional language to English), and from rural to urban or semi-urban settings. But, for all, the most crucial is the passage to young adulthood.

Problems

In many institutions, bridge courses do not yield the desired results. This is because some teachers, fuelled by the notion that they have to give the stu-

dents a head start, try to package the curricula of the first semester into this time.

Another issue is that most adopt the same pedagogy of a regular class: the lecture method. Whereas an interactive method would be more suitable for the needs of these students.

Also, a bridge course classroom, is heterogeneous in nature. Teachers need to vary their teaching styles and strategies to ca-

ter to the differential abilities of the students.

Many institutions do not have a proper curriculum or textbooks for such courses. Even the schedule is tentative. So the faculty have to improvise and, often, do it badly.

Bridge courses are meant as much for academics as for socialisation and peer teaching and learning. However, the latter aspect is ignored. Bridge schools should not be confused with summer schools, which are rigorous and intensive programmes and are meant to boost students' domain knowledge.

Strategies

All these problems can be overcome by adopting certain efficient strategies. First, the faculty must understand that the objectives of a bridge course and a regular undergraduate programme are different and deploy appropriate pedagogies in the classroom. There should be less teacher-talk and more student-talk, making the classroom student-centric and interactive.

Second, the focus must be on academics and social integration. To facilitate this, peer teaching and mentoring, especially by senior students, should be encouraged.

Third is the inclusion of fun-filled activities that will effectively help in social integration and, as Krashen argued, make learning meaningful and faster when the affective filter is

low.

Finally, a bridge course is a short-term programme. What could not be taught over 12 years of study in terms of domain knowledge and proficiency cannot be achieved in a couple of weeks. So, neither the student nor the faculty should expect miracles.

Bridge courses must focus on enhancing the participants' communication skills in English and deepen basic knowledge of the discipline's concepts to wean them away from rote memorisation and acquire knowledge in a systematic manner. This will provide a foundation for their undergraduate programme.

When conducted efficiently, bridge courses help students, especially those from disadvantaged backgrounds, to move to a different medium of instruction and also cope with the change to a college environment.

They are meant to acclimatise students to different intellectual and physical environments and fill knowledge gaps to some extent. In any rite of passage, the liminal space leading to aggregation is a crucial step and, therefore, bridge course participants should be helped to cross the threshold of liminality and enter the university system.

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The rise of temporary teachers in West Bengal

The State has not been able to expand its institutional capacity in line with rising demand

DATA POINT

Arnab Chakrabarti
Anwesha Basu

West Bengal's higher education system is increasingly being defined by an unusual feature: an exceptionally high reliance on temporary teachers. While contractual and ad-hoc faculty are not uncommon across Indian universities, the scale observed in West Bengal is far beyond the national norm. Evidence from the All India Survey on Higher Education (AISHE) reveals that this is not a short-term administrative adjustment, but a persistent structural feature of the system.

Chart 1 captures the magnitude of the issue. Over the past decade, the share of temporary teachers in West Bengal has consistently remained above 15%, far exceeding that of any other major State. In 2021-22, while Rajasthan (1.25%), Tamil Nadu (2.84%), and even Uttar Pradesh (6%) reported relatively modest shares, West Bengal stood at a striking 18%. In absolute terms too, the State leads, with over 13,200 temporary teachers – higher than Karnataka (11,300), which ranks second. The skew is even sharper along gender lines. Temporary appointments account for 22.5% of all female teachers in the State, compared to 15.4% for men. The next highest share of female temporary teachers among major States is just 7.8%.

While the latest data from AISHE are available only up to 2021-22, the insights they reveal are still relevant. Structural features of higher education systems such as institutional capacity, hiring practices, and workforce composition tend to evolve slowly. As such, the trends observed are unlikely to have reversed dramatically in the short span since, and continue to offer valuable insights.

A common explanation for the unusually high share of temporary

teachers in West Bengal could be that such reliance stems from a freeze in permanent recruitment. However, data does not support this claim. Growth in permanent teaching positions in West Bengal has fluctuated between 8% and 15% annually – neither stagnant nor unusually low relative to other States (Chart 2). Moreover, we see that the growth of temporary and permanent teachers in West Bengal has broadly moved in tandem.

An alternative line of inquiry is whether this pattern reflects a demand-side pressure, specifically whether a higher Gross Enrolment Ratio (GER) in West Bengal has outpaced the system's ability to expand permanent faculty. However, a comparison of GER across States suggests otherwise. West Bengal's GER (26.3% in 2021-22) is not particularly high; in fact, it lies toward the lower end of the spectrum, with States like Tamil Nadu (47%), and even Rajasthan (28.6%) outperforming by a margin.

The problem, therefore, lies elsewhere – on the supply side of higher education.

Strained numbers

West Bengal has not been able to expand its institutional capacity in line with rising demand. Between 2017-18 and 2020-21, the number of institutions grew by just 10.83%, well below other States with relatively weaker educational infrastructure, such as Rajasthan (23.5%), Madhya Pradesh (21%), and Uttar Pradesh (19%). This limited expansion has resulted in a heavy burden on existing institutions. With roughly 1,100 students per institute, West Bengal ranks second in the country, behind Delhi, and far above most other States.

This strain is further reflected in teaching capacity. The pupil-teacher ratio in the State ranges between 29 and 35 – among the poorest in India (Chart 3). Compared to many other major States, the number of permanent faculty per one lakh students is also low in West Bengal (257). These indica-

tors converge on a single conclusion: there are simply not enough institutions or permanent teachers to meet the demand for higher education.

In this context, the proliferation of temporary teachers appears less a policy choice and more a coping mechanism. An excessive reliance on temporary teachers may have a fiscal incentive from the State's perspective in the short run, but it has certain long-term consequences on the health of the higher education system. By design, such positions offer limited job security, lower pay, and little scope for research or professional development. This can adversely affect teaching quality, as instructors juggling multiple appointments may have less time and lower incentive for student engagement or curriculum development. A system that depends heavily on precarious employment risks disincentivising individuals from pursuing academic careers altogether. Moreover, since temporary positions are disproportionately filled by women and early-career academics, existing inequities are deepened.

The implications of this structural imbalance extend beyond the higher education system itself. In recent years, the policy focus of the West Bengal government has increasingly leaned towards cash transfer schemes aimed at immediate welfare gains.

While such interventions help vulnerable households, they cannot be a substitute for long-term investments in human capital.

Addressing the underlying structural constraints – expanding institutional capacity, improving student-teacher ratios, and strengthening the base of permanent faculty – is essential. Without these reforms, the State risks undermining its ability to generate a skilled and productive workforce.

The authors are Assistant Professors, FLAME University. With inputs from Ridhima Mittal, UG2 student, FLAME University.

Faculty fragility

The data for the charts were sourced from the All India Survey on Higher Education

CHART 1: The share of temporary teachers across select States (2010-11 to 2021-22). Figures in %

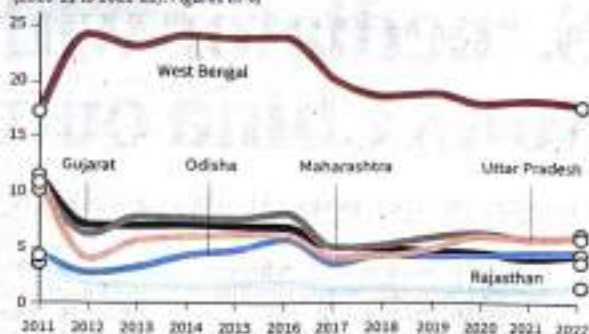


CHART 2: The annual growth (in %) in the number of permanent teachers across States and years

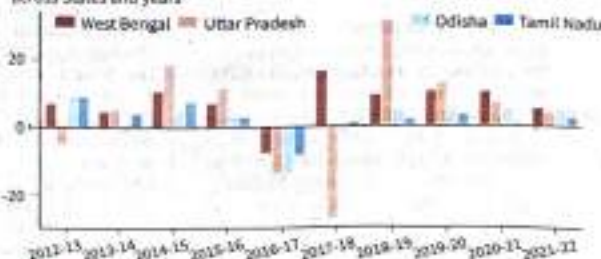


CHART 3: Pupil-teacher ratio in major States in 2020-21. The pupil-teacher ratio is the average number of students enrolled per teacher



Sahitya Akademi Award for microcosms of Manipuri society



RATAN BHATTACHARJEE

Haobam Nalini stands today as one of the loudest voices in Manipuri literature. Her recognition by the Sahitya Akademi for her collection of short stories *Kanglamdriba Eephut* late last year marked a milestone not only in her career but also in the broader acknowledgement of Manipuri writing within the Indian literary canon. To

write about her in depth requires not only a recounting of her biography and achievements but also a sustained analysis of her works, their themes, stylistic qualities, and the cultural contexts they illuminate. In this essay, the focus will be on her writings, moving through her major works with close attention to the stories in *Kanglamdriba Eephut*, while situating them within the larger landscape of Manipuri literature and society.

Haobam Nalini's literary career is

deeply intertwined with her academic and pedagogical background. Having taught at institutions such as Kha Manipur College, Thoubal College, and DM College of Teachers' Education, she developed a sharp awareness of the intellectual and cultural currents shaping Manipuri society. This awareness translates into her fiction, which is marked by a keen sensitivity to the everyday lives of ordinary people, particularly women, and the subtle tensions between tradition and

modernity.

Her award-winning collection is a set of short stories that exemplify her literary style and thematic preoccupations. The title itself, which evokes fragility and resilience, sets the tone for the collection: these are stories of people navigating precarious circumstances, yet finding ways to endure. Each story is a microcosm of Manipuri society, reflecting its cultural richness, its social hierarchies, and its emotional landscapes. Nalini's characters are drawn from diverse backgrounds - villagers, teachers, mothers, daughters, workers - and through them, she paints a mosaic of Manipuri life. One of the central themes in *Kanglamdriba Eephut* is the condition of women.

Nalini's female characters are often caught in the web of patriarchal expectations, yet they resist in subtle ways. In one story, a young woman negotiates her role within a traditional household, balancing respect for elders with her desire for autonomy. In another, a mother grapples with the challenges of raising children in a rapidly changing society. These narratives highlight the resilience of women, their capacity to endure hardship, and their quiet assertion of individuality. Nalini does not portray women as passive victims but as active agents, even when their agency is constrained by social norms. This feminist undertone is significant in the context of Manipuri literature, which has historically been dominated by male voices. Another recurring theme is the tension between tradition and modernity. Nalini's stories often depict characters caught between the pull of ancestral customs and the demands of contemporary life. For instance, a story may revolve around a family torn between preserving traditional rituals and adapting to modern practices. This duality reflects the broader socio-cultural reality of Manipur, where globalisation

and local traditions intersect in complex ways. Nalini's narratives highlight the contradictions of progress: modernisation brings opportunities but also alienation; cultural pride coexists with social fragmentation, and the pursuit of modern education sometimes clashes with traditional values. Through these stories, she raises questions about identity, belonging, and the costs of change.

Stylistically, Nalini's writing blends realism with lyrical prose. Her descriptions of landscapes, rituals, and everyday objects are imbued with poetic resonance, turning the mundane into the profound. At the same time, her dialogues are sharp and authentic, capturing the rhythm of Manipuri speech. This balance between poetic imagery and realistic detail gives her stories both aesthetic beauty and social relevance. She has a gift for evoking atmosphere - whether it is the quiet tension of a household, the bustle of a marketplace, or the serenity of a rural landscape. Her prose is not ornamental but purposeful, using imagery to deepen the reader's understanding of character and context. Beyond *Kanglamdriba Eephut*, Nalini's broader oeuvre includes essays and critical writings that engage with Manipuri literary traditions. While her short story collection brought her national recognition, her essays reveal her intellectual engagement with questions of language, identity, and pedagogy.

In analysing Nalini's work, one must also consider her role as a cultural bridge. Her writings not only preserve Manipuri traditions but also make them accessible to wider audiences. By writing in Manipuri and foregrounding local experiences, she asserts the importance of regional voices in the national literary landscape. At the same time, her themes - gender, identity, modernity - resonate universally, allowing readers from outside Manipur to connect with her narratives. This dual

appeal is part of what makes her work so significant: it is rooted in local culture yet speaks to broader human concerns. The Sahitya Akademi Award for the collection is thus not just recognition of Nalini's literary talent but also an acknowledgment of Manipuri literature's growing prominence in India's cultural sphere. Her work exemplifies how regional literature can enrich national discourse by offering fresh perspectives rooted in local realities. In a literary landscape often dominated by metropolitan voices, Nalini's stories remind us of the richness and diversity of India's regional literatures.

To delve deeper into her stories, let us consider a few in detail. One story in *Kanglamdriba Eephut* revolves around a young girl navigating the expectations of her family and community. The narrative captures the subtle pressures exerted on her - pressures to conform, to marry, to uphold tradition - yet it also reveals her inner strength and her quiet defiance. Nalini's portrayal of this character is nuanced: she is neither a rebel nor a conformist but someone negotiating her identity within a complex social framework. The story resonates with readers because it reflects a universal struggle, the tension between individuality and conformity. Another story focuses on a mother's relationship with her children.

Here, Nalini explores themes of sacrifice, love, and generational change. The mother embodies traditional values, while her children are drawn to modern lifestyles. A third story deals with the impact of modernisation on rural life. Her dual role as a creative writer and a critic enriches her work, allowing her to approach literature both as an artist and as a thinker.

(THE WRITER IS A FORMER AFFILIATE FACULTY AT VIRGINIA COMMONWEALTH UNIVERSITY & RETIRED HEAD OF THE POST GRADUATE DEPT OF ENGLISH, DUM DUM MOTILAL COLLEGE)

Hard Knocks Of Life Pushing Kids Out Of School

For Many, Survival Comes Before Schooling As Identity Issues, Poverty And Unstable Living Conditions Disrupt Education

Meghna Dhillon &
Shilpa Jaisrath | TNN

New Delhi: For 12-year-old Dev, dropping out of school was not a sudden step but the result of a gradual unravelling. His mother died when he was young. His father, who used to be often unwell, passed away soon after. His stepmother then left him never to return. "Everything in my life stopped," he says.

Dev, who now lives in Shaikarpur with his sister, attends the occasional tuition but remains out of school. However, education did not fail him. It gave way to survival.

Dev's case is not an exception. It is, in many ways, the story of several children in Delhi.

At a recent stakeholder consultation on 'Ensuring Access to Education for Out-of-School Children in Delhi' organised with CHETNA NGO and Delhi education department's Samagra Shiksha, such cases took centre stage, each revealing a different path to the same outcome: of children being pushed out of classrooms early in life.

Junaid doesn't know anything about schooling. Living under the Sarai Kale Khan flyover, his days, which are shaped by the basic urge of survival, see him sometimes selling papayas.

There was, briefly, a glimmer of hope. A volunteer used to teach him how to write. Then the pandemic struck and the lessons stopped abruptly. Today, the barrier to his education is not intent, but identity. "Without an Aadhaar card, I cannot be admitted anywhere," he says.

Dev and Junaid's cases show that exclusion from education is rarely caused by a single factor. On top of that, the gender factor complica-

Never seen a classroom: What stole Sahiba's chance?

SAHIBA (12), has grown up under the Sarai Kale Khan flyover, crafting trinkets to sell at signals. Orphaned young, no one enrolled her in school. Some days she earns Rs 400, most days less. "I have never even seen a school," she says. For Sahiba, childhood has always meant work, never learning.

Aadhaar blocked the door: Junaid's lost start

JUNAID, seven-year-old lives under the Sarai Kale Khan flyover, where survival comes first. A volunteer once taught him to write, but that moment faded. Today, the lack of Aadhaar blocks his admission. "One sir taught me... then he was gone," he says, his brief encounter with education slipping away.

STAKEHOLDERS' VIEWS ON AADHAAR & SCHOOL ACCESS

- 1 Aadhaar not mandatory; schools can't deny admission
- 2 Still acts as a key ID for schemes and benefits
- 3 No birth certificate = no Aadhaar (major bottleneck)

tes the equation. Girls often stay longer in school, as dropping out can lead to early marriage. Boys face pressure to earn and are sucked into jobs in their teens. In both cases, staying in school is as difficult as getting in.

According to Rita Panick-

er, director of Butterflies, an NGO, problems strike early in life. "Many migrant children lack birth certificates, an impediment to their entry into the formal education system. While anganwadi records can help secure an Aadhaar, awareness is low," she says.

"Sarva Shiksha Abhiyan surveys help identify such children and enable their enrolment, sometimes by initiating documentation. But the implementation remains uneven. Moreover, enrolment alone isn't enough. Without sustained support,

first-generation learners often drop out of school," Panicker says.

Inside childcare institutions, the gaps are more visible. Neel from Salaam Balaak Trust says even after admission, age-appropriate placement is a challenge. A

14-year-old may be in Class 9 on paper but still struggle with basic literacy.

This mismatch gives rise to classrooms where children are present but unable to participate meaningfully. Attendance remains low, with many carrying traumas that the system is

LEFT IN THE LURCH



WHAT EXPERTS SAY ABOUT CHALLENGES?

- 1 Lack of Aadhaar blocks admission
- 2 Children join late, can't keep up academically
- 3 Girls risk early marriage if they drop out
- 4 Boys are pushed to work or distracted by phones
- 5 Rigid school timings don't suit working children
- 6 Weak systems to track and prevent dropouts

Loss after loss: Dev's schooling slipped away

DEV (12), lost his mother, then his ailing father; his stepmother left soon after. Now living with his sister, he attends occasional tuition but remains out of school. Missing documents add to the struggle. "Everything stopped," he says. With family support gone, education was the first casualty.

One move, one document: How Neha dropped out

NEHA (12), studied till Class IX in Haryana and loved mathematics. But after moving to Delhi, missing Aadhaar stopped her from enrolling again. Now in Shakur Basti, her schooling has stalled. "Math was my favourite subject... but after coming here, I had to stop," she says.

SOLUTIONS RECOMMENDED

- 1 **Flexible schooling models**
Evening classes, mobile schools, or part-time options for working children
- 2 **Early warning systems**
Track absenteeism and intervene quickly to prevent dropouts
- 3 **Bridge learning programmes**
Special classes to help older or first-generation learners catch up
- 4 **Flexible admission pathways**
Allow provisional enrolment without documents; complete Aadhaar later
- 5 **Stronger outreach & awareness**
Use NGOs and anganwadis to guide families through enrolment processes

not equipped to address.

"The challenge is not just getting them into school, but making learning consistent and relevant," Neel says.

"The collaborative consultation will facilitate the survey of out-of-school children and may support the establishment of special training centres in child care institutions. It will also strengthen coordination between Samagra Shiksha, the department of women and child development and NGOs within every district. Additionally, this is expected to expedite Aadhaar card access for underprivileged children," says Sanjay Gupta, Director, CHETNA.

For children living on the streets or engaged in informal

work, the barriers are immediate. Pooja from CHETNA says many travel 10 to 15 kilometres daily selling small items just to ensure a square meal. "They want to study, but their lives don't allow fixed schedules," she says.

Without this stability, formal schooling remains out of sync with their realities. Experts propose flexible learning models to accommodate irregular attendance.

There are attempts to bridge these gaps. Child rights advocate Varun Patil points to early warning systems that can track children at risk. In one instance, a child skipping school triggered an alert, allowing swift intervention.

At the policy level, efforts are underway to improve tracking of such kids. Sunita Yadav from Samagra Shik-

ha highlights a QR code-based system. Once an out-of-school child is identified, alerts go to nearby schools for follow-up action. Children are placed in special training centres for three months to two years before mainstreaming them.

Amid these efforts, one question persists: Does Aadhaar decide access to education? Col Nikhil Sinha from UIDAI says Aadhaar is not legally mandatory. "Schools cannot deny admission for lack of Aadhaar," he says.

The law calls for inclusion first. Documentation can follow. Yes, a lack of birth certificate can create problems.

Women and child development secretary Rashmi Singh says Delhi was

among the first states in the country to enable Aadhaar enrolment for the homeless by using surveys to overcome verification challenges.

Highlighting the gaps in the system, she says many children in open shelters remain out of school. Calling for special training centres within child care institutions, she says, "Every day a child misses school is a loss." Systems like the Delhi Commission for Protection of Child Rights (DCPCR) alert mechanism help track dropouts in real time, she adds.

Singh focuses on the need to address the mental health of such kids through counsellors linked to child welfare committees and juvenile justice boards, while calling for stronger digital integration between anganwadis and schools.

TIMES Special

SCHOOLS

Learning from a 19th century teacher

IN HIS autobiography, Charles Darwin described his acquaintance with his teacher, John Stevens Henslow, as the “most important circumstance” in his career. A geologist and priest, Henslow began offering botany courses to Cambridge undergraduates in 1827. His methods were unconventional. Henslow nudged his students to observe how different species adapted to their environment. A leaf’s venation, the symmetry of a flower, the arrangement of stamens — these were clues to deeper relationships among the features of a plant. Drawing pushed the student to pay close attention to them and Henslow would use his own illustrations in his lectures. The study material that once inspired the sage of evolution is back at his alma mater. Botany students at Cambridge University will now learn from the ink drawings and water illustrations of Darwin’s mentor.

Henslow’s drawings lack the aesthetic ambition of an artist’s creation. They are sparse — each line is an act of interpretation. For Henslow, this transformed passive observation into active inquiry. Darwin’s own drawings reveal a mind working through visual patterns. The famous branching diagram that anticipates evolutionary theory is perhaps the most striking example of how visualisation can precede conceptual insight.

Today, as students increasingly rely on digital tools, some experts fear that observational skills may atrophy. At a time when AI is poised to reshape science pedagogy, Cambridge University’s decision to return to the teaching tools of a 19th-century teacher is significant. It’s an invitation to students to engage patiently with the living forms they study, to forge a sense of connection with the natural world that automated processes cannot.

AI will not replace universities: It will invite them to reflect and rediscover their true purpose



RS PAVITHR

"Let us be clear about what many technology leaders and futurists are suggesting when they argue about the relevance of university degrees in the era of advanced artificial intelligence" — their argument isn't about the advancements of just AI technologies and their exponential progress — it's that AI will reach a point where it will make universities irrelevant and potentially replace them with knowledge-driven and content delivery AI systems.

They envision a world where a student never needs to attend a campus to earn a professional degree. Knowledge will be free and credentials will follow skills and ultimately, leading to employability. If the outcome of the university system is entirely focused on developing skills for employment, and if success is measured solely by campus placement metrics, then one could certainly argue that advanced AI-based knowledge and personalised content systems could outperform traditional university systems.

However, if we consider that the university education system extends far beyond employability, the debate takes a different direction. Indeed, the advancement of AI has sparked an important discussion between these two contrasting perspectives.

"Even a crore kinds of knowledge are ultimately for earning a livelihood" and "Education is not merely vocational but liberating, holistic, and transformative."

How our universities quietly accepted the smaller version of themselves

In current times, it can be observed that many higher education institutions, somewhere along the way, compromised and prioritised employment over other essential attributes of true education. They packaged knowledge into degrees, degrees into salaries, and salaries into measures of student success and institutional rankings. In chasing these success metrics, institutions drifted from the deeper, comprehensive purpose of education to mere vocational and skill-based training. This is precisely



what many technology leaders and futurists are now highlighting, warning universities that, if they define success solely through placement statistics, they may not survive the AI wave.

At the same time, we should consider that their words are prompting higher education institutions to reflect, identify what they have forgotten, and rediscover their deeper purpose — one that "envision[s] nurturing learners who go beyond academic excellence, demonstrating creativity, emotional intelligence, ethical grounding, empathy, and social responsibility, while mastering 21st-century skills such as critical thinking, problem-solving, collaboration, communication, and digital literacy." This reflection is essential for institutions to stay relevant and, at the same time, enhance their evaluation mechanisms by integrating all these value components into assessments and measurement criteria.

The hard truth is that universities became vulnerable not because AI became too powerful, but because they quietly accepted a smaller version of themselves and failed to prioritise all the existing value propositions qualitatively.

Perspectives of Indian education system

From the Indian perspective, education was never really about what you could do — it was about who you became. Swami Vivekananda did not describe education as a transfer of information; he referred to it as "the manifestation of the perfection already in man."

That is a fundamentally different starting point. You are not filling an empty vessel; you are drawing something out. Rabindranath Tagore wanted students to learn under open skies, in conversation with the world

around them, not chained to syllabi. Mahatma Gandhi insisted that true education must involve the hands, the community, and the moral self. These were not idealistic or impractical ideas they were radical.

And they remain radical today because most institutions still have not caught up with them.



What NEP 2020 recognised — and what AI cannot replace

India's National Education Policy 2020, in many ways, recognises these challenges. It encourages institutions to go beyond skill development and employment, emphasising critical thinking, creativity, ethical grounding, and the ability to engage in lifelong learning.

It is also important to note that students often try to emulate faculty in exhibiting values, ethics, and empathy. Current AI systems cannot provide such mentorship, informal learning, and emotional guidance. That is a gap only human education can fill.

AI is not the adversary of the university. It is, in a strange way, its most honest critic.

It has stripped away the pretence of what a mediocre education can offer and left behind a real question: if not content delivery, then what? The answer — mentorship, inquiry, ethics, community, character — is the most compelling case for universities that has ever existed.

But making that case requires universities to live it, not just describe it in mission statements.

The measurement problem — what is not measured is not there

Unfortunately, holistic education has been discussed since the initial policy laid out by Sarvepalli Radhakrishnan, and the same emphasis is reflected again in NEP 2020. It is now 2026.

The vision is already six years old, yet we are still waiting for implementation with full spirit and rigour. It is also important to understand that, in the institution's consciousness, "what is measured is what exists".

It doesn't mean students are not developing creativity, ethical judgement, and empathy. These things are happening despite the system, not because of it. If we do not project enough emphasis on these parameters and do not assign value to these characteristics and ignore the need to bring meaningful measurements to these parameters, these components become irrelevant to the student and eventually eliminated. We all understand, there is no perfect mechanism to assess these parameters but at the same time, we do not need a perfect measurement system before we start measuring.

Even the simplest measurement model, if consistently applied, is definitely more powerful than no measurement model. It will certainly create a baseline, defines accountability, and further creates an opportunity and the possibility of improvement.

The moment demands action — not discussion

At this juncture, higher education institutions need to evolve by developing practical implementation guidelines for applying the policy; otherwise, we risk missing the boat and making our higher education system irrelevant.

Change in institutions is always hard. There are structures to protect, traditions to honor, and interests to navigate. But the proverb holds: every step feels difficult until you take the first one. The universities that survive this moment and thrive in it will be the ones that stop defending what they were and start rebuilding around what education was always meant to be. The question was never "Do we need universities?" — It was always "What kind of universities do we deserve?"

Author is a Director Hindustan College of Science and Technology, Farah-Methura

MOVE TO MINIMISE HUMAN ERROR

On-screen marking begins for CBSE Class XII exams

JHINUK MAZUMDAR

Calcutta: The on-screen marking of CBSE Class XII answer scripts, introduced by the board this year, has started across schools.

The evaluation of answer scripts is being conducted mostly in computer labs, and every teacher has been assigned a desktop, a school principal said.

The introduction of on-screen marking for the evaluation of Class XII answer scripts beginning with the 2026 examinations is to “enhance efficiency and transparency”, the board had said earlier.

“Examiners have been provided login IDs and passwords, and the evaluation is being done in computer labs because each examiner needs a machine. The examiners assign marks from the drop-down for each question. It is a smart system that could minimise human error,” said Loveleen Saigal, the Birla High School principal.

The calculation and



totalling are being done automatically by the software, so there is unlikely to be calculation errors, said Meena Kak, director of Lakshmipat Singhanian Academy.

“We had on-screen marking during the pandemic also, but the system has improved a lot from there,” said Kak.

The system doesn’t allow a teacher to over-mark an answer, she said.

“Suppose a question is of 5 marks. The maximum that a teacher can give is 5 and not more because the system won’t allow that,” said Kak. Mock trials were held across schools before the final eval-

uation began.

In a circular in February, the CBSE said that on-screen marking would eliminate totalling errors, reduce manual intervention and enable faster evaluation with wider teacher participation.

“The on-screen marking is going on smoothly, without glitches. About 100 of our teachers will be engaged in Class XII correction,” said Jaidev Ghosh, the principal of South Point High School.

In the physical marking scheme, blank pages had to be crossed out, and it had to be manually checked whether all questions had been marked, Ghosh said.

“In this new way, human errors will be minimised and will save time. Even if a student answers the same question twice, only the best answer will be considered,” said Ghosh.

The evaluation of Class X answer scripts will continue in physical mode this year.

The CBSE has 46 lakh students in Classes X and XII.