Monday, December 22, 2025
CHENNAI

THE HINDU

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Growing together

Introducing Cooperative Learning at all levels of education helps students develop cognitive, interpersonal, self-leadership, and digital skills required for a volatile world.

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Selvam Jesiah

As technology transforms the world today, students need to learn new skills and to adapt to the emerging fields and changing dimensions of the workplace. A report from McKinsey revealed that the workforce of the future should be instilled with 56 Distinct Elements of Talent (DELTAs), otherwise called foundational skills, that help young people succeed during their career. DELTAs are a combination of skills and attitudes that are classified under four categories: cognitive, interpersonal, self-leadership and digital. Students can easily learn interpersonal and self-leadership skills if cooperative learning is imparted as a methodology in the regular teaching and learning process.

What is CL?

Cooperative learning (CL) is widely recognised as a pedagogical practice that develops socialisation and learning through participation among learners. This practice can be adopted across various levels of education and subjects. CL is a student-centred instructional strategy where a small team of students is responsible for an individual's and the group's learning. Each team has set goals and roles are assigned on the basis of skills and capabilities. Each individual is accountable for his/her progress and the team's outcomes. This involves students working together to achieve common goals that they would not or think cannot be completed by themselves. Though the teacher facilitates and structures the majority of the activities, the learning responsibility is totally in the hands of each member and the team.

Institutions should introduce CL at the beginning of the academic year and establish teams with not more than five members that will work for a specific period under the teachers' intervention and monitoring. The teachers should be responsible for creating a positive environment within the team. While the degree of intervention and monitoring will differ depending on the level of education, those at higher levels should require little or minimum intervention.

Teachers can help organise teams rather than allow students to form their own, as a team should be a heterogeneous group with different skill sets, abilities, gender, ethnicity and regional diversity.

While learners may differ in their personality and dynamics, those who are unwilling to work in a team and those who offload their work and responsibility should be identified to ensure they contribute equally.

From the beginning, the teacher and each team member must ensure that the team shows interdependence, facilitates one another's learning, is held mutually responsible for process and outcomes, and exhibits acceptable interpersonal skills and process team dynamics.

Benefits

Research has shown that CL has various benefits. It promotes positive interdependence with learners knowing how to promote each other's success. Most of the future skills and attitudes defined by McKinsey as DELTAs, particularly interpersonal and self-leadership skills, can be learnt irrespective of the individual's level of education. These include empathy, humility, inspiring trust, sociability, developing vision, organisational awareness, role modelling, win-win negotiation, coaching and collaboration, inclusiveness, motivating different personalities, resolving conflict, breaking conventional wisdom, courage and risk-taking, achievement orientation, coping with uncertainty, grit and persistence, ownership and decisiveness, self-development, integrity, self-confidence, self-control and regulation, self-motivation, understanding own emotions and triggers, and understanding own strengths.

Although Indian students have superior technical skills, many lack interpersonal, self-leadership and emotional intelligence needed to survive in a very volatile business and economic environment. This is where CL can be useful if implemented properly.

The writer is Principal, Faculty of Management Sciences, Sri Ramachandra Institute of Higher Education and Research, (Deemed to be University), Chennai.

SCHOLARSHIPS

Inlaks Fellowship for Social Engagement
Offered by the Inlaks Shivdasani Foundation
Eligibility: Indian citizens born on or after January 1, 1990, and currently residing in India and hold a Bachelor's degree from a recognised Indian institute
Rewards: Up to ₹45,000 a month
Application: Online
Deadline: December 31
www.b4s.in/edge/IFSE8

Federal Bank Hormis Memorial Foundation Scholarship
An initiative from the Federal Bank Hormis Memorial Foundation
Eligibility: Students who have secured admission under merit in MBBS, B.E., B.Tech, B.Sc. Nursing, MBA, B.Sc. Agriculture, or B.Sc. (Hons) Co-operation and Banking in a recognised institution and have an annual family income not exceeding ₹300,000
Rewards: 100% reimbursement of tuition fee
Application: Online
Deadline: December 31
www.b4s.in/edge/FHMF2

Aadhar Kaushal Scholarship
An initiative of Aadhar Housing Finance Limited
Eligibility: Students from across India who have physical disabilities and are pursuing a general or professional UG course with at least 60% in the previous academic year and a gross annual income of up to ₹300,000
Rewards: Between ₹10,000 and ₹50,000
Application: Online
Deadline: January 13, 2026
www.b4s.in/edge/AKSP2

Courtesy: Buddy4study.com

GREAT Scholarships

The British Council has announced the GREAT Scholarships 2026-27 in partnership with the U.K. government's GREAT Britain campaign. These scholarships support Indian students with a proven record of academic excellence to pursue postgraduate studies in the U.K.

For the 2026–27 academic year, 12 postgraduate scholarships are being offered by leading universities across a range of subjects. Each scholarship provides a minimum of £10,000 towards tuition fees for a one-year taught postgraduate course. These are jointly funded by the U.K. government's GREAT Britain Campaign, the British Council, and the institutions. For details, visit https://shorturl.at/loG7V

Build a portfolio

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

OFF THE EDGE
Nandini Raman

I am a B.Sc. Electronics graduate more interested in practical work. I am thinking about working as an auto electrician. What courses should I do? Are there other options with better salary? My communications skills are poor so I need a job that doesn't involve too much communication. Fazil

Dear Fazil,

For a career as an auto electrician, you will need a ITI certificate or a Diploma in Automotive Electronics from a polytechnic or a private institute, which will cover modern vehicle systems.

Another option is to sign up for a Manufacturer-Specific Certification, which involves being certified by specific car manufacturers such as Maruti Suzuki or Toyota or Hyundai. You can work in authorised car service centres, independent garages, trucking companies or start your own workshop eventually.

Your B.Sc. Electronics opens doors to fields with significantly higher earning potential than an auto electrician role. Some excellent alternatives are Electronics Hardware and Service Roles as a PCB Design and Testing Technician, a Field Service Engineer (for specific machinery) or an ATM Technician or Service Engineer.

The Industrial Automation and Control Sector is booming and a great fit for your profile. You could be an Industrial Automation Technician (may need a short-term diploma or certification in PLC and SCADA programming). The IT and Networking Hardware Side offers Network Support Engineer or Technician roles for which you will require a foundational certification such as Cisco's CCNA.

I have an M.Tech. Structural Engineering from IIT-Kharagpur and am working in a construction company. I want to develop my skills in Behaviour Marketing. Should I do an MBA? Venky

Dear Venky,

An MBA will give you a comprehensive business foundation, a structured curriculum and networking opportunities. Choose it if you want a complete career transformation. The other alternative is a specialised programme such as an M.Sc. in Behavioural Science or a PG programme in Digital Marketing, which are highly focussed, research-oriented and dive deep into the psychology and neuroscience behind decision-making.

Online Certifications and Executive Education is the most flexible and immediate way to build this specific skill without leaving your job. Consider programmes on Behavioural Economics and Neuroscience or Digital Marketing with a behavioural focus on online platforms. You can also be self-directed and learn by application. This requires high discipline, but it is the most cost-effective.

Start with books like *Thinking, Fast and Slow* by Daniel Kahneman, *Predictably Irrational* by Dan Ariely, and *Influence: The Psychology of Persuasion* by Robert Cialdini.

I would recommend a hybrid approach. Start with a high-quality online certification, apply these principles to your current job, document the results and build a portfolio. If this seems transformative, then consider an Executive MBA or specialised Master's programme.

I am a B.Com. graduate preparing for the CAT. I am interested in finance. If I don't clear this exam, what are the alternatives? Vidhya

Dear Vidhya,

Consider other entrance exams such as XAT, SNAP, NMAT, MAT, or CMAT depending on the institution you want to study at. An MBA from any of these colleges will open doors to finance roles. Other highly specialised and globally recognised Finance Certifications include Chartered Financial Analyst (CFA), Company Secretary (CS), Chartered Accountancy (CA), and Certified Management Accountant (CMA, the U.S.).

You can also consider specialised degrees such as Master's in Financial Management, PG Diploma in Financial Marketing. All these will open doors to jobs in the banking sector. Consider taking the Bank Probationary Officer exams or the RBI Grade B Officer Exam or the SEBI Grade A Officer exam or the NABARD Grade A/B exams. All of them offer job security, good pay and a clear career path in the financial sector.

I have completed B.Sc. Computer Science and will be doing MCA. What courses should I take to upskill myself for the IT Sector, given the mass layoffs due to AI's impact? Keerthana

Dear Keerthana,

Build specialised, high-value skills to complement AI rather than compete with it. Move from being a generalist coder to a specialist who can solve complex problems, design systems, and work effectively with AI tools. Courses like Data Structures and Algorithms (DSA) on LeetCode and GeeksforGeeks are performant and cost-effective.

System Design is highly valued for senior roles. Mastering a Tech Stack (Go Deep, Not Wide), but MERN/MEAN Stack, Java Spring Boot, Python/Django, Cloud-Native Stack are also helpful.

Instead of fearing AI, learn to leverage it. Prompt Engineering for Developers and learn to effectively communicate with AI models (like GitHub Copilot, Amazon CodeWhisperer) to generate, debug, and document code. This is a fundamental new skill for all developers. Understanding the fundamentals of AI/ML is crucial.

Data Engineering and Data Literacy is a superpower. Learn SQL (advanced), Python (Pandas, PySpark), ETL/ELT processes, and data warehousing (Snowflake, BigQuery).

Specialisation protects you from mass layoff. So invest in Cloud Computing and DevOps. Get a foundational certification like AWS Certified Cloud, Cybersecurity (specialise in application security or AppSec or network security). Certifications such as CompTIA Security+ are a good start. Mobile Development (Native) is also a specialised skill.

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

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

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A culture of care

How India can create suicide-safe campuses

Dr. Sabine Kapasi

Entering the gates of the Indian Institutes of Technology (IIT) is a remarkable achievement. But every year, there are disturbing headlines about the young lives lost on these campuses. Between 2005 and 2024, 115 IIT students were reported to have died by suicide. Surveys indicate that over 60% of students identify academic pressure as the primary source of stress, alongside employment insecurity, family issues, and harassment.

While these numbers are troubling, the IITs are making proactive efforts such as introducing and enhancing counselling services, peer support networks, and specialised wellness programmes to assist the students get treatment early, prevent them from feeling alone, and create an environment where they feel safe asking for help.

Building support networks

The IITs are now laying emphasis on mental health and peer support. Some have trained teachers, administrators, wardens, and student volunteers to recognise warning signals and help students. Others have introduced the Question, Persuade, Refer (QPR) method, which educates people on what to do when they think someone might be in trouble. Counselling services, peer support, suicide awareness, accessible support are all various measures that various institutions are taking to ensure that help is available. Some IITs have also restructured academic demands to reduce stress. IIT-Bombay, for example, allows first-year students to drop one topic each semester. Others have established programmes and orientation sessions to help students deal with their emotions.

But there are not many resources for counselling and not enough people to help. Finding out depends on students speaking up. The pressure to do well in school has not gone away. People still do not receive help because of stigma. Researchers have found that being alone raises the chance of suicide. Students who face stressful family relationships, high expectations, or exposure to peers who are also struggling are more vulnerable. Addressing this issue needs a combination of strategies such as such counselling, peer networks, early discovery, and family engagement. Digital tools, like anonymous check-ins, give students a safe way to reach out when they are struggling but not ready to talk openly. Workshops, mentoring, and initiatives to raise awareness need to happen periodically.

Culture change

To make campuses safer, we need to modify policies and the way people think. Educational institutes that make mental health a part of everyday life, make support easy to acquire, and teach people how to help when someone is in trouble offer intervention and a chance to prevent problems from getting worse.

Families play a part too, as parents need to know about mental health and what their children are going through. Government programmes like Manodarpan can succeed only if institutions ensure their policies are implemented properly.

While counselling and wellness programmes, family and community engagement, peer and faculty training for early intervention interventions and continuous monitoring and research have begun, the challenge is to make sure these initiatives are consistent. Monitoring and collecting data will show if progress is still being made. Student suicide exposes cultural and systemic flaws, which can be reversed only if families, educational institutions, and policymakers work collaboratively. Mental health requires time, effort, and consistent attention.

The writer is CEO of Enira Consulting, founder of ROPAN Healthcare, and UN advisor.

SAVE THE DATE

Admissions

The Division of Flexible Learning, IIIT-Hyderabad has launched Engineering Agentic AI Systems: Agentic AI from Concepts to Practice, a 12-week online hands-on, practice-oriented certificate programme delivered by Prof. Karthik Vaidhyanathan. The course will enable learners to design, build, test, and deploy agentic AI systems grounded in real-world use cases.
Eligibility: Anyone over 18 years with a background in basic Maths (functions and their plots) and experience with programming.
Deadline: December 29
https://dfl.iiit.ac.in/programs/aai

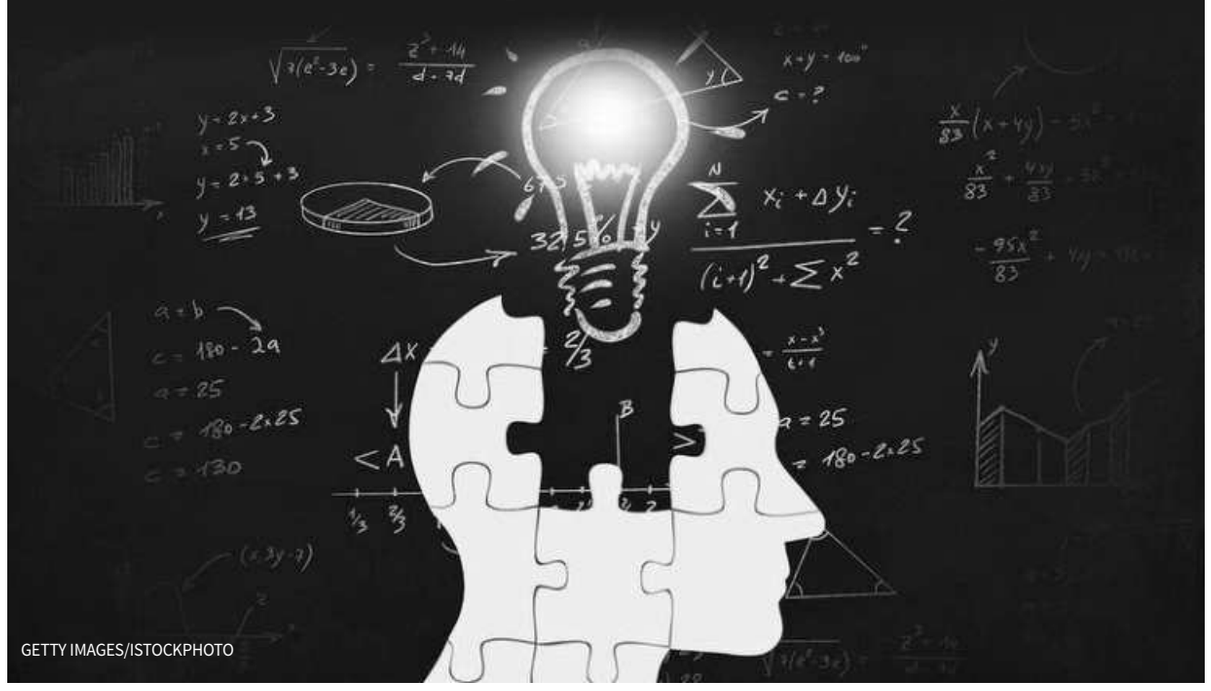
The University of Sheffield, the U.K., is inviting applications for its new MSc in Digital Marketing, starting in September 2026. Scholarships are available.
Eligibility: Minimum 60% in a three- or four-year Bachelor's degree in any subject from a recognised university. Overall IELTS score of 6.5 with 6 in each component or equivalent.
https://2cm.es/1graS

The Institute of Bakery and Culinary Arts invites applications for 2026.
Eligibility: Class 12 pass from any recognised board
Deadline: December 25
https://www.chefibpa.com/

The University of Strathclyde, Glasgow, the U.K., invites applications for its MSc in Design Engineering with Sustainability, starting in September 2026.
Eligibility: First or second-class Honour's degree in a relevant Engineering, Technology or Science discipline. Overall IELTS Academic Score of 6.5 with no individual band less than 5.5.
https://tinyurl.com/yez5z3ju

Make Maths meaningful

On National Mathematics Day, an educator writes about how judicious use of technology can help transform abstract mathematical concepts into real-world understanding



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Sajna Hameed

While experiential learning has gained attention in educational reforms, its application in Maths is limited. According to David Kolb, experiential learning involves four stages: concrete experience, reflective observation, abstract conceptualisation, and active experimentation.

In today's technology-driven world, Maths education is moving beyond traditional methods as smarter tools transform teaching and learning. Engaging with technology improves their understanding and confidence in applying concepts to real-world objects like lawn mowers and gas cylinders. Thus, disruptive technologies such as artificial intelligence (AI) connect abstract ideas with hands-on experimentation, thereby promoting curiosity and critical thinking.

Maths has often been seen as abstract, but technology is changing this perception. Students today are digital natives who value experiential learning and environments that foster exploration. They engage with AI, augmented reality (AR), and digital platforms and expect immersive and participatory educational experiences. Opportunities like virtual reality (VR) field trips and AI-assisted laboratories are turning this into a reality.

Enrich learning experience

Coordinate geometry uses a precise mathematical framework to describe object locations, which is essential for navigation and the Global Positioning System (GPS). Though comprehending Cartesian coordinates can be challenging, the free interactive programme "GeoGebra" helps enhance understanding by effectively visualising concepts. Students use tiled floors as a grid to simulate the Cartesian plane, marking coordinates with coloured chalk in all four quadrants. They call out ordered pairs like (3, -2) and practise positioning them correctly. Some struggle to place points in the right quadrant, leading to discussions about positive and negative values. Visual aids clarify concepts, engage slow learners, and blend traditional methods with technology to enrich the learning experience.

Trigonometry explores the relationships between the sides and angles of triangles, particularly right-angled ones, and is essential for solving distance and angle problems using trigonometric ratios and the Pythagorean Theorem. Integrating virtual reality (VR) in teaching trigonometry helps students develop crucial 21st-century skills and understand real-world applications of their knowledge. It teaches them how to use a clinometer to measure the height of tall objects.

Visual aids provide alternative methods to find heights using the concept of similar triangles. For example, when measuring a tree's height, students visualise a right triangle where the tree is the vertical side, its shadow on the horizontal, and the sun's rays form the hypotenuse. The student's height and shadow create a similar, smaller triangle. Since the sun's rays are parallel, both triangles share the same angle of elevation, making their corresponding sides proportional. As experiential learning turns abstract theory into practice, they use the tangent 450 concept in finding heights by equating an object's height with its shadow length, a property unique to an isosceles right-angled triangle. This technique promotes discussion among students about their findings.

Role of educators

Digital technologies enhance interaction in Maths classrooms, helping students understand complex concepts. However, it's important to understand that genuine learning cannot be facilitated by technology alone. Hence, this educational evolution necessitates a redefinition of the role of educators. Interestingly, today's Maths teachers employ technology to spark students' curiosity, as they become facilitators who promote inquiry and experimentation. Encouraging student reflection enhances understanding and meta-cognitive awareness. AI tools help teachers quickly identify misconceptions and tailor instruction to individual needs. As a result, technology turns the instructor into a guide for students' mathematical exploration.

Learning Maths through an advanced technology-driven experiential learning methodology enables students to approach life in innovative ways, rather than merely as a means of knowledge acquisition. It also promotes critical thinking and emotional intelligence, helping children develop essential traits like empathy and resilience. Hence, to cultivate compassionate and adaptable individuals, a holistic approach to development is necessary.

The author is a Hyderabad-based CBSE Certified Maths Facilitator.

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Equitable opportunities for all

The gap between urban and rural institutions can be bridged by improving infrastructure and ensuring equitable opportunities for all.

WIDE ANGLE
Albert P' Rayan

Recently, I conducted a two-day training programme, Enhancing English Communication Skills, for final-year Computer Science and Computer Applications students at the 75-year-old Sacred Heart College, Tirupattur, Tamil Nadu. When I asked whether the initiative was student-driven or imposed, the organiser explained that the students themselves had requested it. Academically strong and high-performing in their core subjects, many of them, who hail from a rural background, lacked confidence in spoken English, a crucial skill for placement and professional success. Throughout the programme, the students were receptive, engaged, and interactive, often exceeding my expectations. Many aim high – preparing for competitive exams like TNPSC – and firmly believe that focused skill-building can turn their ambitions into reality. The organiser's initiative, bolstered by alumni networking and financial support, ensured that programmes like this could continue, a small step with potentially transformative impact.

Exposure and opportunity

This experience also gave me an opportunity to compare the attitudes, English language proficiency, and other professional skills of rural students with those of their urban counterparts. Students from rural backgrounds often struggle to communicate in English not because of a lack of intelligence, but due to limited exposure and fewer opportunities for practice. This challenge can erode their confidence and self-esteem and, in turn, affect their motivation to develop other essential workplace skills. However, with the right guidance, encouragement, and supportive learning environment, they can compete on equal footing with their urban peers and excel.

The challenges are real. Students in tier-2 and tier-3 colleges often contend with poor infrastructure, limited industry exposure, and inadequate career support, resulting in skill gaps and lower placement opportunities compared to their counterparts in tier-1 institutions. While some institutions in small towns remain committed to addressing students' academic needs and take concrete steps to equip them with the skills required to compete effectively, most continue to struggle to bridge the gap created by systemic inequalities. Some highly motivated students manage to upskill independently, but this is neither feasible nor realistic for many others.

It is, therefore, the responsibility of governments and policymakers to acknowledge this disparity and take decisive steps to empower these students and prepare them for the demands of the workplace. The pressing question is what measures can be implemented to help them. While it is the moral obligation of those in power to provide institutions with adequate facilities, it is equally the right of institutions and students to demand such support.

Building competencies

In many developed countries, rural colleges build employer-valued competencies through strong industry partnerships, remote internships, and robust career services that bridge the gap between academia and the workforce. This prepares graduates more effectively for employment. Unfortunately, many comparable colleges in India lack strong industry links, and their students have limited access to internships and work-integrated learning opportunities. In this context, the blame cannot rest solely with individual institutions; rather, it lies with a system that has yet to provide the structural support necessary to make such integration possible.

As part of their CSR initiatives, corporates should actively reach out to tier-2 and tier-3 colleges to offer placement training, mentorship, internships, and recruitment opportunities; sponsor skill-development programmes; and support faculty development initiatives to ensure that educators remain aligned with evolving industry needs. Governments, in turn, should encourage corporates to extend such engagement to colleges in semi-urban regions.

Alumni can play a vital role in strengthening rural colleges and enhancing students' placement prospects through sustained mentorship, resource sharing, and professional networking. Numerous success stories highlight colleges that actively engage their alumni, leveraging their experience and connections to benefit current students. In an era where distance is no longer a barrier, thanks to advances in information and communication technologies, alumni can easily connect with their alma mater and interact with students through virtual platforms. Mentors can provide career guidance, interview preparation, and soft-skill training, conduct webinars on in-demand technical skills, and support students in upskilling. Additionally, in-person workshops – including mock interviews and constructive, industry-specific feedback – can be invaluable. Alumni can also sponsor skill development programmes and foster a sense of belonging and make students feel supported and connected to their college community.

Higher education in less developed areas is often neglected, leaving rural students feeling disadvantaged and disheartened about their prospects. Governments must work to bridge the gap between urban and rural institutions by improving infrastructure and ensuring equitable opportunities for all.

Students should receive a transformative education that equips them not just academically, but with the confidence and resilience to face life's challenges. With collective effort from institutions, corporates, alumni, and policymakers, rural students can be empowered to turn potential into performance.

The writer is an ELT resource person and education columnist. Email rayanal@yahoo.co.uk

GREEN CAREERS HUB

A "hip-hop wildlife educator"

Content creator and Nature educator Sahir Doshi on combining wildlife, music, performing arts, and storytelling

A monthly series by WWF-India that highlights niche and unconventional green careers through the stories of well-known personalities from the field of environment and conservation

When the tide pulls back from Mumbai's shoreline, it exposes creatures most people rarely notice. For me, these tide pools and rocks are classrooms, stages, and an endless sources of excitement. The thrill of seeing a live sea snake on the shore is unforgettable. Parakeets overhead, black kites gliding, and globe skimmer dragonflies migrating into Mumbai from Africa all inspire the same awe, which powers my work

Beginning

Much like the intertidal zone where I now spend most of my time, my career path has been murky but productive. I've been fascinated by wildlife, music, performing arts, and storytelling since childhood. I wanted to be a zoologist or ecologist but, at the University of Pennsylvania, the U.S., I gravitated toward public policy and journalism. My first reporting job in the U.S. was to cover attempts to remove protections for endangered species, including wolves and the American burying beetle. When a member of a politician's staff questioned the beetle's value, I realised I wanted to make conservation accessible to the general public, helping them understand and defend species often considered unimportant. I wanted to do it in India.

After returning to Mumbai, I began posting about urban wildlife on social media and, soon, I was invited to guide tours, speak in schools, and teach wildlife communication. Today, I describe myself as an India-based hip-hop wildlife educator. It's a niche blending performance, music, and conservation outreach. At least half my days are outdoors filming species or leading nature walks. Writing includes reading scientific papers, interviewing experts, contributing to *Sanctuary Cub*, and freelance content creation. I also do workshops for schools in which we create verses on animals. The most exciting part of my work is the creatures themselves. Tide-pooling, bug-hunting, or observing species interact never fails to thrill me. It's even more rewarding to see others connect with wildlife. Children writing nature raps, adults wading through polluted water to see a slug or coral, or people voting for better shoreline protection.

To Sahir Doshi (right), tide pools and rocks are classrooms, stages, and an endless sources of excitement.

Crucial skills

For my work, three skills – what I call "nerd muscles" – have been crucial. First, diving deeply into unglamorous subjects. Second, translating scientific knowledge into accessible stories. Third, being comfortable on stage or screen. Early exposure to performing arts made the latter possible, and showing my own face in videos has been essential for audience connection.

Of course, not everything is easy. Sustainability is a challenge. I am a team of one, balancing outdoor work, writing, content creation, and administration. However, partnerships with Sanctuary Nature Foundation, Nature Wave, and Teach For India help scale programmes, and collaborations with other Indian wildlife creators provide guidance and community.

Looking back, the best guidance I received came from mentors and communities that encouraged curiosity and courage. For anyone starting, I would say the same: find mentors, reach out, and don't be afraid to take that first step. Focus on the work that comes your way, but keep developing the skills and passions that make your approach unique. The world is full of creatures to discover and stories to tell. Follow your curiosity and combine your talents and help others see them too.

Heard at last

How Paraspeak, which was a National winner at the Samsung Solve For Tomorrow 2025, allows those with speech disorders to be understood

Pranet Khetan

In April 2024, I went on a field trip to the Indian Stroke and Paralysis Foundation, Delhi, where I met patients who could speak, but could not be understood. This led me to research the current state of impaired speech recognition technologies, a fragmented research ecosystem of speaker-dependent models, English-only datasets, and inaccessible deployment options. There was limited research in low-resource or Indian languages. This motivated me to create Paraspeak, and start working on dysarthria, which is among the most debilitating voice and speech disorders. I began with Hindi, while creating a framework that can be expanded at scale to cover similar disorders in other languages.

Research

To develop a large database of Hindi dysarthric speech using a custom data collection toolkit, I visited multiple NGOs and rehabilitation centres to record speech samples with patients. Then, I developed a patent-pending framework for high accuracy impaired speech recognition with limited data. Finally, I created an affordable, portable, and easy-to-use IoT device to act as an interface for the AI model running on a cloud server. Patients can effortlessly activate the device, speak into it, and hear the clear speech played back in near-real-time. When people hear someone speak clearly with Paraspeak, they realise that the person never lacked thought, intention, personality or understanding. All they needed was an interface.

The physical device is compact and can be worn comfortably around the neck. It has a battery life of more than 10 hours and needs an Internet connection to function. Testing Paraspeak with real patients has been most meaningful. One patient with a congenital disorder smiled repeatedly when he heard his clarified speech for the first time through the device. Moments like these reaffirm why accessibility matters.

Recognition

Paraspeak has won multiple national and international accolades, including being named a National Winner of Samsung Solve for Tomorrow 2025 and winning a fourth Grand Award at Regeneron ISEF in the U.S. representing Team India. Going forward, the focus is to scale Paraspeak into more Indian languages and collaborate with hospitals, rehabilitation centres and assistive-tech organisations so that speech-impaired individuals can communicate without barriers.

Paraspeak aims to change perceptions around voice and speech disorders and accessibility in India by making sure that a person's identity is not shaped by their disability. At its core, Paraspeak is about giving people their voices back.

The writer is a Class 11 student in Shiv Nadar School, Noida.