Supplemental support

The next wave of AI-powered learning tools can not only reinforce a teacher's classroom activities but also elevate how students learn

Nina Huntemann

With an estimated 40% of its population under 25 years, India has immense potential to shape its economic future. Combined with a significant investment in education, the nation's prospects for continued growth are vast. We have already seen quality elementary education made universal through the Right to Education Act, boosting overall literacy levels from 61% in 2001 to 76% in 2022. Over 90% of the urban youth between six and 17 years attended school in 2021, and currently higher education enrolment has soared to 43 million students, up nearly two million in just one year.

Intense debates

Now, with the advent of AI, we are entering an era with the potential to build on such gains and further improve learning outcomes provided that we navigate it with care. There is no doubt that the rise of Generative AI tools such as OpenAI's ChatGPT and Google Gemini has shaken the world of education. Their emergence has prompted intense debates among teachers, administrators, and students about whether they should be deployed to support learning inside and outside the classroom and, if so, under what guidelines.

As the debate continues, student adoption of GenAI has been swift. A recent global student survey shows that 44% of Indian undergraduates have used GenAI for their university studies and, of those who do, 60% input a question one or more times a day. However, while adoption is broad, students are aware of the limitations of current GenAI tools. The same study found that, of the 44%, 28% are concerned about receiving inaccurate or incorrect information, while 49% of all Indian students surveyed said they would like to see the involvement of human expertise in generating answers.

These findings show that excitement for the technology's possibilities must be weighed against its limitations. Rapid advancements are underway and, as large language models (LLMs) verticalise for education, the next wave of AI-powered learning tools can both serve as an invaluable supplement to a teacher's classroom activities and elevate how students learn. So, what might we expect from GenAI-powered learning tools that get it right, and how will they truly personalise learning?

Way forward

First, students could have a learning assistant that anticipates their needs and adapts to their strengths and weaknesses. The promise of adaptive learning has been unfulfilled for decades in part because creating on-demand variations of learning materials for each individual student was too costly. GenAI tools for learning –when fine-tuned and evaluated rigorously to align with education outcomes – can respond instantaneously and in a more natural, back-and-forth conversational interface with students.

Conversational AI, designed for learning, can recognise the type of question a student is struggling with and provides the most relevant and effective response. For example, discerning when a procedural question needs to be broken down step-by-step or when a conceptual question could be illustrated with a real-world example. Conversational AI can encourage more active engagement by suggesting prompts that students might ask to deepen their learning. Guiding students to create useful follow-up prompts will also teach them how to interact with GenAI systems.

By integrating learning analytics that measure how students are learning, an AI learning assistant can also help students improve their study habits and up-level their learning such as finding the optimal time of day to learn and generating just-in-time learning aids such as practice problems personalised to individual need. AI's immediate feedback capabilities can correct errors in the moment, provide adaptive hints to help students get unstuck, and encourage them to push through difficult concepts.

Such innovations will support students on their individualised learning journey. However, in order to deliver on the promise of AI-enabled personalised learning, the next generation of GenAI models for education need to be fine-tuned on high-quality educational content and evaluated by both human subject-matter experts and students themselves.

As the application of AI in education emerges, the teacher's role remains critical. A student's unique developmental path cannot be facilitated solely by algorithms and large language models. However, when AI tools are deployed thoughtfully and strategically, they can deliver a personalised learning experience that adapts to students' pace and needs, offering supplemental support when and where most needed.

With more students enrolling for higher education, It is imperative to find the best way to help learners succeed. The synergy between human and artificial intelligence offers a promising path that leverages the best of both sides to help learners fulfil their potential in a rapidly changing world.

The writer is a former tenured professor at Suffolk University, Boston, and is currently the Chief Academic Officer at Chegg Inc.

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Reduce the stress

A few suggestions to make the NEET-UG exam more student-friendly
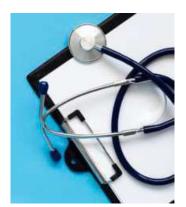
P.V. Navaneethakrishnan

The Supreme Court's ruling that the NEET-UG 2024 should not be cancelled should not be viewed as approval of the modus operandi adopted by National Testing Agency. The idea of resorting to a two-tier exam, like the JEE (Main) and JEE (Advanced), seems to be a consequence. Students who opt for the JEE have found this stressful. A two-tier NEET will increase the load on students. Another aspect is that the score in the JEE Main allows candidates to enroll in engineering colleges. Will taking the first part of NEET allow students to enroll in medicine or dentistry courses?

Possibilities

With many students opting to take both exams, the suggestion to merge NEET first part and JEE Main has been made earlier, with a common exam for Chemistry and Physics. Those who want to take JEE can choose Maths and those who want to take the NEET can opt for Biology. Those who want to take both can take all four papers.

If this is not possible, NEET can be held twice a year to help candidates whose performance was not satisfactory in the first attempt. The better grades can be taken into account.

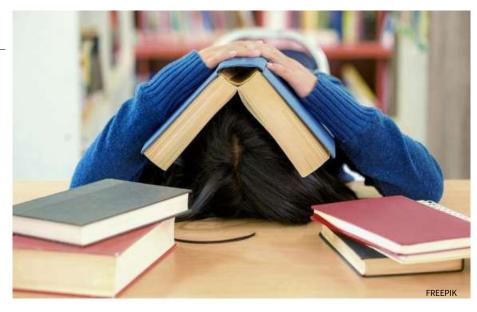With these exams being highly sensitive, ambiguous questions should not be allowed. If such a situation occurs, the question should either be withdrawn or credit should be given only to the correct answer. Scientific facts are not dependent on language or a specific edition of a book.

Lastly, NEET-UG is held in 13 languages, increasing the chance of errors in translation. Ideally the language version and the English version should appear side by side so that cross-checking is possible in case of doubts. The English version must be totally error-free and serve as the master version.

The writer is a Former Professor and Director Entrance Exams and Admissions, Anna University, Chennai

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Make that transition work

Some coping strategies when things don't go according to plan in the first year of college

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Shalini Sharma

Starting college is an exciting time, full of the promise of new experiences and exciting opportunities. But, it is also a period of transition. Expectations are at an all-time high and, when the reality of college does not match up, disappointment can set in. So, here are some tips to cope during this phase.

Acknowledge your feelings: Take a moment and tell yourself "Two things are true. I am feeling anxious, stressed, frustrated, and confused AND I need to come up with a better plan for the coming year." It is important to acknowledge what we are feeling and know that, though frustrating, this is part of the process. Figure out what did not go as planned. Some things that one normally struggles with are feeling the pressure to adjust quickly, homesickness, skipping classes, peer interactions, losing sight of academic coursework, making all-nighters a habit, hesitating to ask for help from peers and faculty, and going overboard with spending money. Once identified, it becomes easier for things to fall in place.

Social connections: Loneliness on campus can be frustrating, but it is also an important part of transition to campus life. If making friends is a challenge, do something you are already interested in while trying something new. Making new friends can be difficult, but the onus lies on us to initiate those interactions. You don't have to deal with this alone. So, ensure you talk to trusted adults. It is natural to be with people who have similar life experiences and backgrounds, but that should only be the beginning. Push yourself a bit to seek out and form friendships with people who have a different set of life experiences and world views from you.

Academic support: If you are struggling academically, it can tend to influence our overall wellbeing. Late-night studying, hanging out with friends, and cramming for exams can come in the way of managing time responsibly. If you don't understand something, ask a faculty member for help. Reach out to the academic support team and faculty members for specific inputs. Tell yourself from time to time: I" can do hard things!"

Functional anchors: Some of our basic functional anchors are nutrition, exercise and sleep, which normally go out of the window when we are struggling. It is important to identify and build our anchors to help ground us during the day.

Ask for help: It is not true that everybody else is succeeding at every aspect of their life while you are not. If you see others posting on social media about their thriving campus life, take it with a pinch of salt. Reach out to support services on campus; you don't have to go through this on your own. Sometimes, even reaching out to people can feel overwhelming. So, it is important that you take small steps forward on a daily basis.

The writer is Associate Director, Counselling and Wellness, at Plaksha University

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Gain practical experience

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

OFF THE EDGE
Nandini Raman

I am currently pursuing a Bachelor's in Business Economics (BBE) at the University of Delhi. What scope does it have after graduation? Abhishek

Dear Abhishek,
A Bachelor's in Business Economics can open up various career opportunities across different sectors. Some career paths are finance and banking, consulting, market research and analysis, government and public policy, corporate sector, entrepreneurship, academia and research. You can also look at international organisations and NGOs like the World Bank, IMF and others who hire economists to work on development projects, policy analysis, and research. To enhance your employability prospects, consider gaining practical experience through internships and developing relevant skills such as data analysis, financial modelling, and business strategy. Network with professionals in your field and stay updated with industry trends and developments.

I completed a B.Sc. In Chemistry, Botany and Zoology in 2022. I have been writing competitive exams including the UPSC but have not qualified. How can I get a government job based on this degree? Which specialisations in Master's are good for job opportunities? Anvisha

Dear Anvisha,
While attempting the UPSC, it is important to have plan B and C ready. Look at scientific research institutions like the Council of Scientific and Industrial Research (CSIR), Indian Council of Agricultural Research (ICAR), and Defence Research and Development Organisation (DRDO) that hire scientists and researchers with backgrounds in Chemistry, Botany, and Zoology. Other opportunities exist across public health departments, environmental and forestry departments, pharmaceutical and biotechnology industries, agriculture and fisheries and Food and Drug Administration (FDA) offices. For your Master's, consider specialisations in Environmental Science, Biotechnology, Agricultural Sciences, Wildlife Biology and Conservation, Pharmaceutical Sciences, Fisheries Science, Agribusiness Management and Public Health. Ensure that you gain practical experience through internships, research projects, and networking with professionals in your field. Stay updated with the latest job notifications, recruitment drives, and exam patterns to maximise your chances of securing a government job.

I have completed a Master's in Public Administration and also qualified in the NET. What do I need to do to become an Assistant Professor? Sandeep

Dear Sandeep,
If you have completed your Master's degree with at least 55% marks (50% for SC/ST/OBC/PWD candidates), and have cleared the National Eligibility Test (NET), you are eligible to become an Assistant Professor in any college/ university in India. Create a detailed resume highlighting your educational qualifications, NET qualification, research experience, publications (if any), and relevant work experience. Check job notifications and vacancies advertised by colleges, universities, and educational institutions and apply. A Ph.D. in the relevant subject is beneficial and, sometimes, a mandate in some institutions recognised by the UGC. Check the criteria in the advertisements and websites.

I am currently doing my B.Tech. Chemical Engineering and preparing for the UPSC. I am confused about whether to go in for a Master's or to look for a job. Abhiram

Dear Abhiram,
Both have their pros and cons so your final decision must align with your career goals, interests, and personal circumstances. Explore options, and seek guidance if needed to make an informed decision. Doing a Master's adds to your area of specialisation, enhances your knowledge and expertise and opens up advanced opportunities and better benefits in the long run. However, this will require an investment of time and money. Balancing a Master's course and UPSC prep can be challenging and will require effective time management skills, hard work, consistency and dedication. You can also work after completing your B.Tech. and gain practical experience in the industry and then plan the Master's. You will be financially independent and can support your education. However, your career progression may be limited to certain industries with only a Bachelor's. Preparing for the UPSC with full-time work is almost impossible and needs serious discipline and commitment. Seek guidance from career counsellors, professors, mentors, and professionals in the field to gain insights and advice based on your interests, skills, and career goals.

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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SCHOLARSHIPS

Mohan T. Advani Centennial Scholarship
An initiative from Blue Star Foundation.
Eligibility: Open to first- and second-year students enrolled in a degree programme in Architecture and Engineering (excluding Civil Engineering) or diploma who are not beneficiaries of other scholarships. Annual family income must be less than ₹6 lakhs.
Rewards: ₹75,000 or 50% of annual fees (whichever is less) for students in degree programmes; ₹30,000 or 75% of the annual fees (whichever is less) for students in diploma programmes.
Application: Online
Deadline: August 20
www.b4s.in/edge/BSFS2

Jawaharlal Nehru Memorial Fund Scholarships for Doctoral Studies
An initiative of the Jawaharlal Nehru Memorial Fund (JNMF).
Eligibility: Open to full-time Ph.D. scholars below 35 years as of October 1 and are already registered/ admitted to a doctoral programme at a recognised Indian institution and scored minimum 60% marks aggregate at graduate and postgraduate levels.
Rewards: ₹18,000 monthly and ₹15,000 annually
Application: By post to Administrative Secretary, Jawaharlal Nehru Memorial Fund, Teen Murti House, New Delhi -110011
Deadline: August 31
www.b4s.in/edge/JNMF1

HDFC Bank Parivartan's ECSS Programme
An initiative from HDFC Bank.
Eligibility: Open to Indian students in school (Class 1 to 12) or pursuing diploma, ITI, polytechnic, UG or PG (general and professional courses) who have scored at least 55% in the previous qualifying exam. Annual family income must be less than or equal to ₹2.5 lakhs. Preference will be given to those who have experienced personal or family crises in the past three years that puts them at risk of dropping out.
Reward: Up to ₹75,000
Application: Online
Deadline: September 4
www.b4s.in/edge/HDFC54

Courtesy: buddy4study.com

MSIS Global Case Competition

The Kelley School of Business at Indiana University has launched its inaugural MSIS Global Case Competition in August 2024. Round one will involve a case analysis and video presentation. The final round will be held in New Delhi on September 22, where participants will present their solutions to a panel of industry experts.

Eligibility: Open to all third- and fourth-year undergraduate students from any Indian college and recent graduates with less than two years of experience.

For more details, visit https://host.kelley.iu.edu/gcc/

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A CH-CHE

Sonal Garg
Sneha Shashidhara
Kanika Timar

India has long grappled with a profound learning crisis, exacerbated by the pandemic-induced learning loss, resulting in more setbacks than progress. In response, the Government of India launched the NIPUN Bharat mission in 2021, to establish an environment conducive to achieving universal foundational literacy and numeracy by 2026-27. However, the ASER 2023 Beyond Basics report reveals alarming statistics: 25% of 14 to 18 year olds struggle to read a Class 2 text, and 56% face challenges with division. Hence, it's crucial to review the policy with a specific focus on its primary facilitators: teachers.

Under the mission, teachers are gradually redirected towards an evidence-based structured pedagogy approach with clear learning objectives, well-structured tools and practical training to transact the curriculum. However, teacher adoption of the programme and its components remains low.

Deep dive
To facilitate the adoption of effective pedagogy and help with classroom preparation, teachers are provided with a manual of lesson plans called the Teacher Guide (TG). Training on using the guide and the underlying teaching methods is provided through a cascade model. While efficient for training many teachers quickly, this model is sometimes susceptible to transmission loss, resulting in knowledge gaps and fragmented adoption of prescribed practices. Moreover, yearly changes to teaching aids, although implemented to enhance these resources, can affect teachers' confidence in their proper usage. Additionally, while technology is being leveraged for communicating programme updates, it is a double-edged sword. Receiving numerous resources through multiple communication channels (apps) can result in information overload, leading to engagement with the programme solely for compliance rather than actual application.

In such situations, teachers may demonstrate status quo bias and an unwillingness to invest in new techniques due to the belief that changes would not be permanent. Additionally, the top-down nature of training and disproportionate focus on compliance may affect their' agency and lower motivation to take ownership of the programme. If teachers do not feel in control, they are less likely to accept accountability for low learning levels. A 2021 analysis of systemic drivers of

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Empower
educators

As the burden of the NIPUN Bharat mission falls heavily on teachers, energising them necessitates policies that position them as integral members of a collective effort

foundational learning outcomes also highlighted that stakeholders, including teachers, attribute low learning to factors like low parental support and administrative burden.

To provide ongoing guidance to teachers, state governments appoint mentors to conduct frequent school visits and help teachers reflect on their classroom practices. However, they are often tasked with supporting too many teachers and struggle with limited time and capacities, which inhibits the cultivation of personalised mentor-mentee relationships. A case study on the Teacher Development Coordinator Programme in Delhi (2021) also highlighted early teacher apprehension regarding outsiders — who were viewed as evaluative rather than supportive – observing their classrooms.

Overload
Another issue is teachers experiencing cognitive overload due to balancing teaching and non-teaching responsibilities. This is compounded by complex or changing programme instructions, focus on compliance, and limited user-friendliness of resources such as TGs. According to a 2019 report by the Delhi Commission for Protection of Child Rights and Accountability Initiative, teachers expressed that non-teaching duties ate into their teaching hours, often affecting teaching quality and student relationships.

The burden of the NIPUN mission falls heavily on teachers. Energising them necessitates policies that position them as integral members of a collective effort toward achieving this goal. Prioritising community and parental engagement is essential, not only for their direct impact on student learning but also to ensure teacher motivation. Districts in Bihar are leading the way by setting up NIPUN Gram Sabhas to drive student attendance and parental engagement.

Several issues impact teachers' perceptions and attitudes. The key issue remains, "How does a country with one of the largest education systems design and implement a decentralised programme without making compliance the driving force?" Programmes at scale will inevitably have some chinks in the armour, such as the transmission loss in teacher training cascades. It is in this balancing act that behaviour science communication and interventions have the potential to move the needle, albeit slightly, but in the right direction. We can change the communication to make it more purposeful and encouraging. We should build teacher investment by appreciating and recognising their efforts and aligning them with simple, actionable steps to improve teaching. We should avoid message overload and leverage technology platforms to highlight achievements and foster community spirit with a dash of healthy competition.

Views expressed are personal.

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For that perfect dish

Seven must-have skills for a student of Culinary Arts

Thierry Le Baut

In the realm of Culinary Arts, a strong foundation in certain essential skills are necessary to thrive in the dynamic world of gastronomy. Aspiring chefs must cultivate the following skills to be successful.

Foundational Skills: Once you have the basic knowledge, you do not need the crutches of a recipe to produce a dish. Foundational skills are the core of culinary education and give the confidence to cook any cuisine and produce a reasonably good outcome. Culinary schools should prioritise comprehensive instruction in knife handling, cooking techniques, flavour balancing, and food safety protocols. Hands-on training and immersive learning will help students develop a solid understanding of the fundamental principles that underpin culinary craftsmanship.

Cutting Techniques: Precision and efficiency in culinary preparations involve skills with knives. Apart from cutting techniques such as mincing for finely chopped aromatics, dicing for uniform cubes, and julienne for matchstick-like strips, there are additional skills such as *chiffonading* leafy greens, *batonnet* for rectangular sticks, and *brunoise* for tiny cubes. Decorative cuts like *tourne* enhance presentation, while filleting ensures precise portions of fish or meat. Slicing techniques yield even portions for proteins and attractive arrangements of fruits and vegetables to execute intricate culinary creations and elevate the quality and presentation of their dishes. Practical exercises and practice sessions enable students to hone their knife skills under experienced instructors.

Cooking Methods: To get the best out of an ingredient and to ensure sustainable cooking practices, culinary schools should expose students to a range of techniques such as grilling, sautéing, braising, and more through hands-on cooking labs and demonstrations. Practical application of different cooking methods will help them how heat transforms ingredients and influences flavour, texture, and aroma.

Flavour balancing: Seasoning and flavour balancing is an important part of culinary creativity. Through guided tastings, sensory workshops, and flavour profiling exercises, students learn to discern and manipulate flavour profiles to achieve optimal taste harmony in their creations. By encouraging experimentation and palate development, schools can nurture students' ability to create dishes that delight and satisfy.

Food safety and handling: Food safety is non-negotiable and culinary schools must instill best practices from day one. From farm to fork, each stakeholder has to keep the principles of food safety and hygiene in mind. Schools should provide rigorous training in food handling, and sanitation protocols, emphasising the importance of hygiene, proper storage and prevention of cross-contamination. Practical assessments and simulations allow students to apply their knowledge in real-world scenarios, ensuring they graduate with the skills and habits necessary to maintain a safe and sanitary kitchen environment.

Ingredient Selection: "We are what we eat". Hence the approach to ingredient selection, sourcing, and culinary creativity is vital. Students should be exposed to a diverse range of ingredients, emphasising seasonality, quality, and sustainability. Through research projects, menu development exercises, and industry collaborations, students can be encouraged to explore innovative flavour combinations, techniques, and presentation styles that showcase their vision.

Plating: The art of plating is a hallmark of culinary excellence and schools should provide instruction in aesthetic principles and techniques. Workshops, demonstrations, and hands-on practice sessions on the principles of colour theory, texture contrast, and composition will help students create dishes that not only taste exceptional but also captivate the senses.

The writer is the Academic Director Le Cordon Bleu, Gurugram, India

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Into the Quantum realm

With interest in Quantum Computing increasing, the field is set for aspirants to hone skills and explore opportunities

Vinay Konanur

"You cannot build a better light bulb by building better and better candles." This was a striking takeaway from Shalini Ghose's TED Talk on "A Beginner's Guide To Quantum Computing".
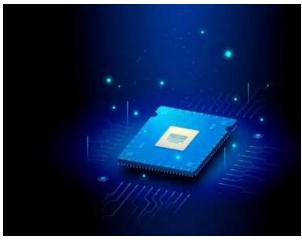
Distant. Exciting. Confusing. Gimmicky. Too early for me. These are probably some of the initial responses one is likely to hear when a conversation around quantum computing starts. Let's be honest. Everyone's a beginner in this space because the field is different, operating environments are different and, more importantly, the rules are completely different. Even bizarre.

From the current binary approach to computing, the shift is towards tapping into computational capabilities using everything that lies between 0s and 1s. Within these possibilities lie (most likely) the answers to the world, the mind, the cosmos, and ultimately the universe.

Gaining ground
Over the last few years, debates and discussions around quantum computers have been gaining significant ground, especially in India. This follows the successful attraction of special interests from GCCs in setting up their R&D wings in India, considering the talent pool and geographical advantage.

In the context of quantum computing, a NASS-

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COM report reveals that over $1bn is dedicated to advance progress over the next five years. Besides, there increased and sustained interest from the quantum ecosystem in India to support this such as support from government agencies for the infrastructure; participation from academia to develop curricula and materials; service providers who further help specialise in different branches of quantum mechanics and computing through programmes and certifications, and start-up communities who act as the bridge between vision and reality. When the field is set, the next and the most important question is the careers one can potentially explore in quantum computing.

Requirements
India's ambitions with quantum computing estimates a demand of over 25,000 professionals in the next 5-7 years. This demand can be classified across three requirements:

Software development: Which includes quantum programming languages, transpilers, open-source development ecosystems and more

Hardware development: Which involves superconducting architectures, nuclear magnetic resonance and more

Allied technologies: Which take care of cryogenic components, optical benches, cathode ray oscilloscopes that enable functionality of the device

While the rules of Quantum Computing are different, fundamentals remain the same. In comparison to digital computing, one needs a good academic background and specialisation in

Physics: A solid foundation in theories of Quantum Computing, where how particles or waves function, is critical

Engineering: Specifically Electrical, Materials Science, and Computer Engineering to develop the hardware and peripheral requirements

Maths: Strength in concepts such as calculus, algebra, discrete mathematics, and probability theory

Ph.Ds. in any of these fields are highly preferred; however, specialisations or certifications from IBM or Microsoft courses, and practical exposure help secure internships and job opportunities. Specialists of classical computing have an edge here as Quantum Computing involves transferable skills such as

Algorithm design and development, where skills from conventional computing can be borrowed to develop quantum algorithms

Software development featuring skills in coding, debugging, testing, deploying are indispensable

Problem-solving a myriad of unheard-of challenges in problems in the quantum space, be it with respect to hardware architecture or software

Professional skills such as efficient project management, communication, inter-personal skills and traits will be valuable to foster a collaborative work environment

The timing is now ripe to explore career opportunities and hone necessary skill sets. To get started, understand your strengths, work on your academic or practical shortcomings, seek mentors, get internships for hands-on exposure, and gear up as a holistic professional to embrace change.

The writer is the Vice-President, Emerging Technology, UNext Learning

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THINK
Aruna Sankaranarayanan

When ChatGPT debuted in November 2022, it created a brouhaha. How were educators to make out if a student wrote a term paper or whether ChatGPT spewed it out? Banning its use in educational institutions would prove futile, as students would find ways to access the software. Some professors tried to co-opt ChatGPT into their assignments, asking students to evaluate the bot's response to a question, for example. As its use proliferated, the nefarious side of generative AI was also revealed, as it fabricated claims and exhibited "hallucinations". The wunderkind of AI wasn't so wonderful, after all. Like most technologies, AI too is knife-edged, with a plethora of benefits and drawbacks.

In an article in *Financial Times* (May 29, 2024), Nicholas Fearn cited a study by an edtech company in which around 60% of the high-school students surveyed confessed to taking help from ChatGPT for assignments ranging from writing essays to solving Maths problems to translating text from one language to another. Some students admitted to getting the bot to write an entire essay, especially when the deadline was near. These students were aware that this constitutes cheating but they haven't

Friend or foe?

When it comes to education, AI is knife-edged, with a plethora of benefits and drawbacks.

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yet been pulled up by their teachers.

Great potential
But not all students are using AI to beat the system. Some of those interviewed by Fearn use ChatGPT as an aid or instructional tool. For example, one uses it to research a topic more deeply and to get suggestions for further reading and to check his workings on Maths problems.

An article in *Forbes* (February 21, 2023), by Olufemi Shonubi, discusses the pros and cons of using AI in education. To optimise learning and student outcomes, personalised lessons can allow each student to progress at their own pace and harness their unique interests. By providing instant feedback, students also get a better grip of their errors

and how to avoid them.

AI can also support the learning of students with special needs. Features like text to speech and vice versa, spell and grammar checks and software that corrects student's oral reading in real time can enhance student learning and engagement.

When AI has immense potential as a teaching and learning tool, how can educators incorporate it while limiting its abuses? Fearn interviews John Morganelli Jr, director of college admissions, Ivy Tutors Network, who avers that educators may give greater weightage to "real-time assessments" that may include interviews and in-person testing.

Flip side
While AI platforms can facilitate learning, another

question that dogs the educational establishment is whether AI can replace human teachers. Regardless of how 'smart' and efficient AI-powered tools may be, they cannot and should not supplant human teachers entirely. The COVID experiment revealed that children do not thrive if they stare at screens all day. We cannot downplay the importance of human contact, interaction and emotionality in the learning process.

Though AI can provide "personalised learning and instant feedback," argues Shonubi, bots cannot provide a rounded education that also addresses our socio-emotional needs. As AI grows more sophisticated in its ability to deliver apt and engrossing lessons, teachers may find their role morphing

into a coach or mentor rather than an instructor.

Another important point that Shonubi raises is the question of privacy. While AI may "collect and store sensitive personal data", is it fair on young learners to create a digital trail that can tail them for life? Who owns this information? Surely, we cannot allow for-profit edtech companies alone to decide how this information is stored and secured.

Educators and parents need to take a more active role in determining AI's role in education. Given that our children's learning and future are at stake, we need a diverse array of voices to speak up and be heard.

The writer is the author of Zero Limits: Things Every 20-Something Should Know. She blogs at www.arunasankaranarayanan.com