A. Joseph Dorairaj

The art and skill of
questioning

Why students should be encouraged to not take anything for granted and think critically

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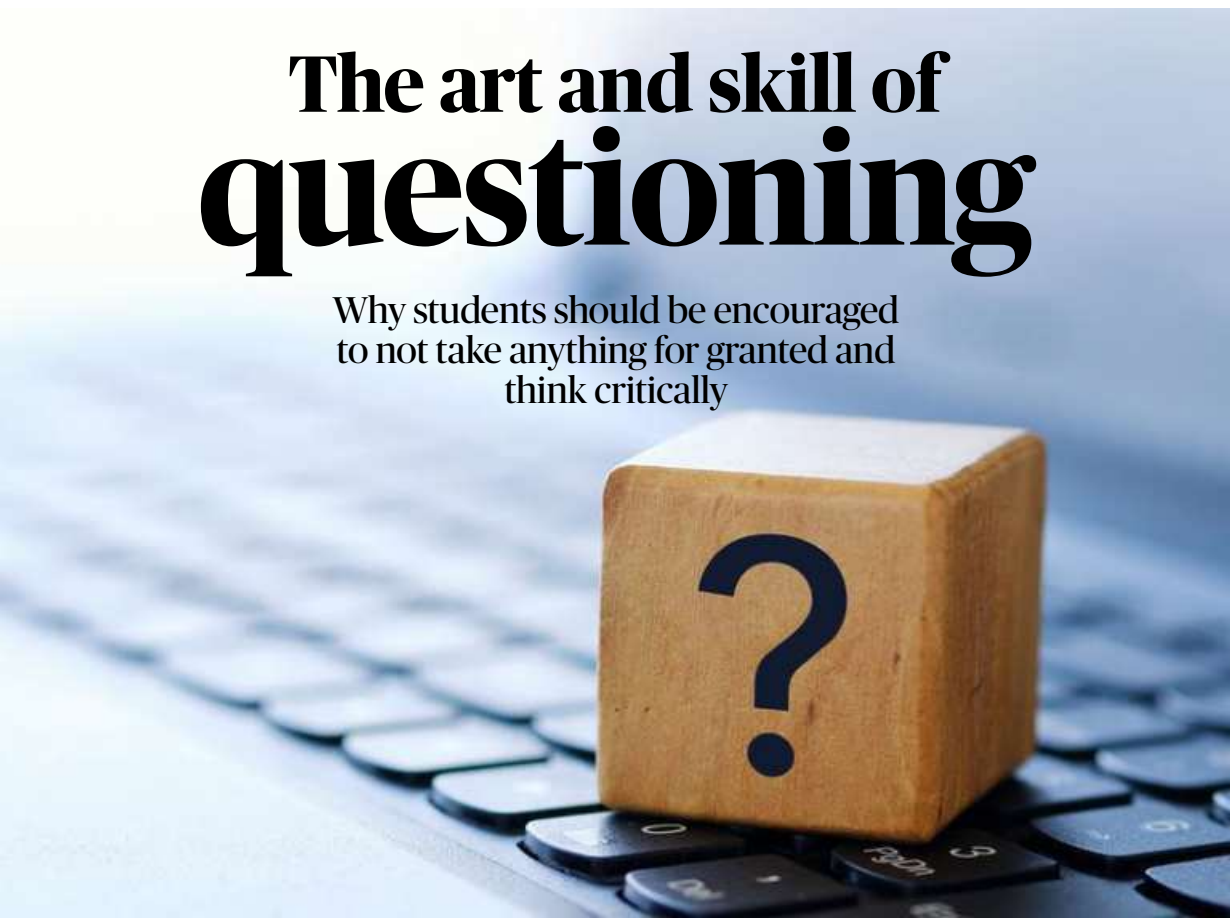
In *Theaetetus*, Socrates talks about his maieutic method. He tells Theaetetus, his interlocutor: "…my skill of midwifery is, in general, similar in character to theirs [midwives]… the greatest thing about my skill is that it is able to test, in every respect, whether the mind of the young man is bringing forth an image and a lie, or something genuine and true. Now, I do have this in common with the female midwives: I bring to birth no wisdom. And many people reproach me for this, since I ask questions of others while I myself proclaim nothing about anything…"

The Socratic method is based on the metaphor of a 'midwife' who does not deliver anything, but ably assists in the delivery of the child. Socrates compares himself to a midwife who, by asking probing questions, enables the youth of Athens 'deliver' the right answers. All he did was to ask his interlocutors a series of inter-connected questions that elicited the right response from them.

Bedrock of education

Questioning is an art and a skill. To motivate the students to ask the right questions and, more importantly, to help them cultivate a questioning mind coupled with a sceptical temperament are the bedrock of any educational system. In classrooms where there are no questions, there is only passivity and information is consumed mechanically. In such a docile environment, hardly any learning takes place.

Both the temperament and the culture to question are sorely missing in our institutions. As a result, the teacher goes unchallenged and what he/she puts across is rarely critiqued. What is prescribed in the curricula and presented in textbooks is consumed implicitly by naive minds. In the final analysis, our students acquire degrees and diplomas but can hardly think and sift facts from opinions, and look at the world critically.

The key mandate of higher educational institutions is to train students to think critically. They should be able to analyse and interpret data and arrive at evidence-based conclusions. Put differently, colleges and universities should encourage their students to question just about everything so that they do not take anything for granted.

Problems and solutions

What factors impede questioning in our classrooms? First, teachers do not encourage their students to raise questions, as they are in a hurry to 'complete' the syllabus. Questions are considered a digression and waste of time. Second, students are afraid of raising questions for fear of failure. The spectre of raising a silly, inane or wrong question leads to shame and this fear and diffidence holds them back from raising questions inside classrooms. Third, our culture and traditions demand an implicit obedience to gurus and this, indirectly, forbids all of us, from challenging teachers and their authority. Fourth, in many institutions students are not competent to raise questions in English, which is the medium of instruction. Last, some teachers are intimidated by those who raise questions and see them as an affront to their authority.

What can be done to encourage students to ask question? First, teachers should be friends and mentors rather than authoritarian figures to encourage students open up. Second, teachers should offer prompts and cues. For instance, while teaching a short story, the teacher can ask, "How do you think the story will end?" In a Maths class, students can be encouraged to guess the sequence of a formula. Third, a climate of debate should be created so that students are not reduced to docile consumers of information dished out to them, and are are trained to become 'interrogators' who will be endowed with critical thinking skills.

A questioning mind should not be interpreted as challenging the teachers' authority. Nor should it be seen as being excessively argumentative indulging in empty rhetoric. In other words, a questioning individual should not be looked upon as a negative person who gets on the nerves of people.

The rote system of learning, which reduces students to passive consumers, should be thrown out. In its place, a robust system founded on the Socratic maieutic system that revolves around questions should be welcomed. Ultimately, there should be a transition from raising questions inside classrooms to transforming students into sceptics and dissenters who will not only raise questions but will have a questioning mind as well. Similar to the Cartesian pronouncement, students should be able to declare interrogo, ergo sum ("I question, therefore, I am").

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Rhodes Scholarships

The Rhodes Trust has opened the registration window for applications to the Rhodes Scholarship for India 2026.

Interested candidates who meet the eligibility criteria can apply for this fully funded, full-time postgraduate award at the University of Oxford, the U.K. The Rhodes Scholarship supports outstanding students to undertake two to three years of study — depending on the academic curriculum taken — at the University of Oxford.

Students aged 18–23 (up to 27 in particular circumstances) are eligible to apply.

A total of six scholars will be shortlisted and awarded the scholarship.

For details, visit https://t.ly/Q7ti9

Evaluate your options

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

OFF THE EDGE
Nandini Raman

I am in the first year of BBA (Marketing Management). My college does not provide internships and I feel the course is not going to help. I am interested in Law but didn't get admission. Should I continue this expensive course or quit and focus on something else? Kaksh

Dear Kaksh,

You seem to be at a crossroads and quite confused. Weigh your options carefully before making a final decision. Seek career counselling to gain an understanding of what you want and then explore your choices. Connect with alumni from your college or other BBA programmes to understand their career trajectories. Assess the actual curriculum of your college. Create networking opportunities by attending industry events, connecting with professionals on LinkedIn, and seeking mentorship to enhance your learning experience. Calculate the financial burden and consider the potential return on investment. Research the current job market and identify in-demand skills and career paths. Where do you see yourself in a few years from now? What kind of job would interest you?

If Law remains your primary interest, plan properly and re-take CLAT or MH-CET Law. Also explore other options that align with your interests and career goals. A degree in Economics, Political Science, or Mass Communication can be a good base for law and also other careers. Take your time to research and evaluate your options, and do not be in a rush.

I have done BSMS, MA in Sociology through distance learning, and qualified in the SET. Should I do a B.Ed. or M.Ed.? What are my career options? Alisha

Dear Alisha,

You have a unique and interesting combination of qualifications! First, identify your personal interests and career aspirations. Do you enjoy teaching, research, or community outreach? Research the job market in your region to identify in-demand skills and qualifications. If your primary goal is to teach in schools, a B.Ed. is the most direct and necessary qualification. Your BSMS degree and M.A. Sociology can be valuable assets in teaching related subjects or offering a unique perspective.

If you are interested in higher education, research or educational administration, then an M.Ed. would be a more suitable choice. Your M.A. Sociology and SET qualification provide a strong foundation for advanced studies in education. You could also consider further studies, like a Ph.D., to enhance your career prospects in academia or research. Career options would be available across school teaching, higher education role, educational research, health education and community outreach, (with NGOs, government agencies, or healthcare organisations to promote health awareness and education), civil service roles particularly those related to education, health, or social welfare, content development and consulting.

I am in Class 12 (Commerce stream). I wish to be a company secretary. Should I do a B.Com. or BBA? Varada

Dear Varada,

Both have their own merits and approach the subject matter with different focus. However, if your primary goal is to become a Company Secretary, a B.Com is generally considered more suitable, as it emphasises accounting, finance, taxation, and business law and provides a strong foundation in accounting and law, which are highly relevant for a company secretary.

BBA, on the other hand, focuses on management principles, including marketing, human resources, and organisational behaviour and provides a broader understanding of business operations. While management skills are valuable, the core of a Company Secretary leans towards legal and financial compliance. Regardless of your undergraduate degree, focus on preparing for the Company Secretary (CS) exams conducted by the Institute of Company Secretaries of India (ICSI).

I am going to start preparing for the NEET from next year. Can you give me tips on how I can do this properly? Parvati

Dear Parvati,

Starting your preparation a year in advance is a good strategy. Understand the NEET exam, the syllabus (which is based on the Class 11 and 12 NCERT syllabus for Physics, Chemistry, Botany and Zoology), the exam pattern (number of questions, marking scheme, and duration), and the pattern of the past papers.

Create a realistic study plan that allocates sufficient time for each subject. Split this up into daily, weekly, and monthly goals based on weightage given to the topic and difficulty level. Spend time on numericals in Physics and Chemistry, and gain conceptual understanding across all subjects. Spend extra time to learn concepts that are unclear. Revise regularly to reinforce learned concepts by using flashcards, mind maps, and short notes.

Make sure that you have the right study resources: NCERT textbooks, reference books, online resources, test series, and relevant study materials. Consider joining a reputable coaching institute if you need structured guidance and mentorship.

Consistency is key to success. Stick to your study plan and avoid procrastination. Eat a balanced diet and maintain your energy levels and focus. Get enough sleep and allow your brain the rest it deserves. Engage in regular physical activity to reduce stress and improve concentration. Practise stress management techniques like meditation, yoga, or deep breathing exercises. Take regular short breaks during your study sessions to avoid burnout. Most importantly, maintain a positive attitude and believe in your abilities. Minimise distractions like social media and unnecessary use of devices. Don't compare yourself to others. Focus on your own progress.

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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Give them a voice

A holistic and coordinated approach is required to de-stigmatise mental health issues in educational institutions

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Archika Sudhanshu

Imagine corridors packed with students, each carrying their unique concerns and worries about life. We have always focused on academics, but now the conversation about mental health is finally getting its voice. What we need to do is start conversations to break down the stigma and empower students to reach out. Here's how this can be done.

Normalise discussions: Sometimes, students don't know how to talk about issues that bother them. This can be changed by building a safe and supportive space and normalising conversations about mental health. We have to include mental health into everyday discussions and not make it a taboo topic. When we talk openly about feelings, troubles, and coping techniques, the stigma of mental illness fades and gives students the courage to open up and encourages positive relationship building with mental health.

Integration into curriculum: An early prevention strategy to break the stigma is to include common mental health disorders, coping strategies, and resources in the curriculum. This gives students the knowledge required to manage their mental health.

Mental health first aid training: Teachers are front liners in recognising and helping students with mental health problems. Providing teachers and staff with mental health first aid training enables them to recognise signs and symptoms; use appropriate tools and strategies to intervene successfully; and engage students in thoughtful and supportive discussions. Early treatment is important for healthy development, and this training is crucial.

Access to counsellors and professionals: A critical step is providing access to trained support through counsellors and mental health professionals, who should offer one-on-one consultations, counselling, and therapy interventions to meet individual needs and build resilience.

Peer support: Peer advocacy is an opportunity to connect and develop a feeling of being understood. The peer support group can be trained to normalise mental health challenges, challenge and reduce stigmas and myths, and lessen the feeling of "otherness" surrounding mental health disorders.

Impact of social media: In this digital era, social media has a huge role in mental health. Students need to be aware of negative aspects such as comparison traps, cyberbullying and information overload among others. Those taught to use social media in a healthy way are better prepared to navigate the Internet safely.

Adult support: Parents and guardians also need to be made aware of mental health issues through workshops, resource materials and open communication lines. This ensures a combined support system that provides students with the guidance required.

Public awareness: Basic information on mental health must be disseminated to the larger community to diminish stigma and discrimination, increase help-seeking behaviour, and enhance understanding and empathy.

In conclusion, we need a holistic and coordinated approach to de-stigmatise mental health issues and create a climate where students feel comfortable, supported and empowered to seek help. Investing in their mental health is investing in their future and ensuring they have the tools and resources to thrive.

H.B Raghavendra

In ancient times, knowledge was shared through manuscripts and gurukuls limited access to education to a select few. Over time, education and learning have been revolutionised.

While the fierce competition in knowledge and research has increased documentation costs, it has also made resources more widely accessible. Educational institutions and governments worldwide have recognised the need for equitable access to knowledge, leading to a global push for open-access resources.

Welcome change

For generations, students have struggled with the high costs of textbooks and learning resources, which often add significant financial burdens to their education. However, with modern information technology, free, open-access educational resources (OER) are changing this situation. The COVID-19 pandemic acted as a catalyst, accelerating the shift towards OERs, as remote learning became the norm and digital resources gained unprecedented importance.

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Knowledge for all

Open-access educational resources are not just reshaping the educational landscape but also building a more equitable and interconnected world of learning.

OERs are freely available materials that can be used, shared, and modified at no cost. These include textbooks, lecture notes, research articles, videos, and interactive platforms.

Unlike traditional textbooks, they are typically hosted online and accessible to anyone with an Internet connection. This has prompted organisations, universities, and educators worldwide to contribute to developing these resources to meet the expectations of global knowledge seekers. It has also helped institutions showcase their academic expertise and research prowess.

Benefits

The emergence of OERs has been a boon for learners worldwide.

One of the most significant advantages is eliminating the need to buy costly textbooks. This is especially beneficial for students from low-income backgrounds, allowing them to focus on their studies without the constant worry of affording learning materials. By reducing this financial barrier, OERs promote educational inclusivity and democratise access to knowledge.

OERs provide up-to-date information, which is a crucial advantage in fields where knowledge evolves rapidly.

Traditional textbooks often become outdated, requiring students to buy newer editions. In contrast, open-access resources can be updated frequently by educators and researchers, ensuring access to the latest knowledge and developments. This makes OERs particularly valuable in fast-changing disciplines like technology, medicine, and environmental science.

Additionally, open-access resources enhance collaboration and sharing. These platforms encourage collaborative learning, where students and educators worldwide can share insights, ask questions, and contribute to knowledge development. This global exchange of ideas enriches the learning process and fosters a culture of collective intellectual growth.

Barriers

A challenge many learners face with OERs is reliability and authenticity. But with top educational establishments involved, finding credible resources has become easier. The Massachusetts Institute of Technology (MIT) was one of the pioneers of OER with its OpenCourseWare, offering a vast collection of courses, including lecture notes, assignments, and certifications.

India's Swayam platform provides lessons and interactive exercises with certifications.

Other initiatives include OpenStax, ePathshala, Vidwan, ShodhGanga, Swayam Prabha, and the National Digital Library (NDL), all of which ensure that learners can access high-quality, peer-reviewed content from reputed institutions.

Despite their numerous benefits, OERs come with challenges. Some students may struggle to find relevant materials or face Internet access issues. However, these are being addressed through institutional support and government initiatives. Universities are also training students and faculty on how to navigate OER platforms effectively, ensuring they can make the most of these resources.

The shift towards OERs is not just a passing trend but a lasting transformation. Reliance on traditional textbooks is expected to decline as open-access resources continue to make learning more affordable, reduce educational costs, and promote lifelong learning opportunities for all. By fostering a culture of open knowledge sharing, OERs are not just reshaping the educational landscape but also building a more equitable and interconnected world. As technology continues to evolve, the potential for OERs will only grow, opening new avenues for students and educators.

The writer is Vice Chancellor, CMR University, Bengaluru.

Nature meets science

Vaishali Kulkarni, Founder and CEO of KBCols Sciences, on her domain

FUTURE PERFECT
Ananya Ganapathy

The next in the series featuring conversations with entrepreneurs, technologists and researchers about emerging technologies and what students need to know about these fields.

What do you do?

I am Founder and CEO at KBCols Sciences, a biotech company at the forefront of manufacturing natural bio-colours. We use microbial fermentation to produce natural, biodegradable colourants. Our custom technology feeds non-pathogenic microbes with agricultural waste, transforming them into vibrant, sustainable alternatives to synthetic dyes. Serving industries from textiles to high-end sectors, we help businesses reduce environmental impact while maintaining efficiency and performance. By turning waste into value, we enable a circular, eco-friendly solution for the future of colouration.

Why is your work important?

Almost 95% of colours used in existing applications are synthetic dyes, which come from petrochemical sources and can pollute water and harm ecosystems and human health. Our bio-colours are a safer and more sustainable alternative. By reducing reliance on fossil fuels and cutting down industrial pollution, this approach is a smart, eco-friendly solution that helps protect the planet while also creating new opportunities for local communities.

What is exciting about your work?

It's incredible to see invisible microbes produce rich, natural colours; it feels like Nature doing science. What excites me most is turning this scientific process into real products that are beautiful, sustainable, better for the environment and a safer, greener alternative to chemical dyes. It's where innovation meets impact, blending science, sustainability, and business opportunity in a powerful way. We are serving sustainable colour requirements of global fashion brands from India.

Any experiences in college that led you to become an entrepreneur?

During my Ph.D., I learned a lot about how science can solve real problems, especially in sustainability. I also discovered the challenges of turning ideas into products. Attending start-up events and meeting industry experts helped me understand how to bridge the gap between research and business. These experiences inspired me to take my knowledge beyond the lab and build a company that can create an ever-lasting impact.

What should students know about your field?

Biotech sustainability isn't just lab work; it's where science meets real-world impact. To succeed, you'll need both technical skills (like microbiology or engineering) and the ability to think across disciplines. Our microbial dyes, for example, only became viable when we combined biology with textile chemistry and business. Stay curious, collaborate widely, and focus on solutions that scale. The future needs problem-solvers who can bridge science and society!

The writer is an avid follower of emerging technologies and their applications.

Neelakantha Bhanu Prakash

The global ed-tech industry is growing at an unprecedented rate throwing up a new generation of opportunities for interested students. As schools, universities, and corporations increasingly adopt digital learning solutions, the demand for skilled ed-tech developers has reached an all-time high.

EdTech developers create innovative tools, adaptive learning platforms, and engaging educational experiences across diverse educational settings. For students, pursuing a career in ed-tech development is an opportunity to create tools and platforms that can help make education accessible to millions of learners worldwide. Whether it's addressing local learning challenges or crafting scalable solutions for global needs, a career in ed-tech offers a chance to leave a lasting impact on educational systems.

Moreover, the skills gained in ed-tech development are not confined to education alone. From software development to UX/UI design and data analysis, the expertise developed is transferable across other industries, opening doors to a range of career paths. Ed-tech development is a collaborative field. Developers often work with teams and clients across the globe, offering a unique environment for continuous learning and exposure to diverse perspectives and cutting-edge technologies.

At the core of ed-tech development lies technical expertise and proficiency in programming languages such as Python, JavaScript, and Swift. Familiarity with frameworks like React and Flutter, along with advanced AI tools like TensorFlow, empower developers to integrate innovative features such as AI-driven tutoring systems and gamification into their projects. Innovations such as Virtual Reality (VR) and Augmented Reality (AR) can be used to make complex concepts interactive

FREEPIK

Build classrooms of tomorrow

What students need to know to build a career in the education technology space

and engaging and train teachers to practise classroom managements and develop lesson plans in a simulated environment. The Metaverse could bring about fully virtual campuses, which could reduce the need for physical campuses and allow students to study and collaborate in a shared online space.

Tips for students

Let us now look at what students need to do to work in the ed-tech space. Here are some tips:

Strengthen your foundation in Maths, as it can help nurture creativity and critical thinking. Try engaging in applied Maths activities like coding challenges, puzzles, or STEM projects to build problem-solving skills and a logical mindset.

Start with beginner-friendly languages like Python or JavaScript, which are widely used in ed-tech development. Focus on core concepts like loops, conditionals, and algorithms, as these form the foundation of most educational platforms and tools.

A deep understanding of how people learn will help you design better tools. Look for ways to connect your technical skills with your interest in education, whether through internships, research, or volunteer opportunities.

The journey from student to ed-tech leader starts with embracing Maths, technology, and a passion for making education better for everyone. Together, we can build the learning systems of tomorrow.

The writer is the Founder and CEO of Bhanzu

Varun Parikh

In today's fast-evolving media landscape, sound engineering and audio production have become essential in bringing creative visions to life. Whether it is cinema, a live concert or a podcast, professionals in this field play a crucial role. With the increasing demand for high-quality sound, a range of career opportunities awaits those willing to invest in the right skills and education.

At its core, sound engineering and audio production involve the art and science of capturing, manipulating, and enhancing sound. They encompass activities such as recording, editing, mixing, mastering, sound design, and live sound. It is not just about managing technical aspects, but also about appreciating the creative potential of audio. Designing soundscapes that enhance a narrative or ensuring that live events deliver an impeccable auditory experience requires both technical expertise and creative flair.

Education

Aspiring professionals can pursue several educational routes. Certification courses provide a short-term, practical introduction to industry-standard tools

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Behind the mike

Sound professionals require a blend of technical mastery, creative innovation, and lifelong learning

and techniques and focus on specific skills, such as operating digital audio workstations (DAWs), basic mixing techniques, and live sound management. Diploma programmes offer a more comprehensive curriculum that blends theoretical knowledge with hands-on practice. Covering topics from acoustics and signal processing to creative sound design, they ensure that students develop a well-rounded skill set. For those wishing to fully immerse themselves, UG and PG degrees offer extensive training, including music theory, media studies, and entrepreneurial management, preparing graduates for diverse roles.
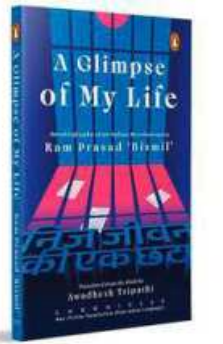
Many reputable colleges and specialised institutes in India now provide diploma and degree programmes tailored to industry needs. However, for those seeking exposure to global best practices and cutting-edge techniques, studying abroad is an attractive option. Countries such as the U.K., the U.S., Canada, Australia, and Germany offer well-established programmes that combine advanced technology, extensive studio work, and industry internships.

Beyond the classroom

While formal education lays a strong foundation, success also depends on several additional skills. A finely tuned ear – the ability to discern subtle differences in sound quality – is essential. Equally important is technical proficiency, with familiarity in software platforms such as Pro Tools, Logic Pro, or Ableton Live being critical. Creative problem-solving, attention to detail, and an understanding of acoustics and signal flow further enhance one's capabilities. Moreover, strong communication skills and the ability to collaborate effectively are highly valued, as many projects require coordination with artists, directors, and other technical professionals. Continuous learning and adaptation to new technologies are vital for long-term success.

It is important to remember that, regardless of formal education, sound engineering remains a predominantly practical industry. While theoretical knowledge is invaluable, nothing can substitute for the experience gained through hands-on work via internships, live projects, or personal experimentation. Direct engagement with equipment and real-world production challenges refines technical skills and nurtures creativity in ways that classroom learning cannot. This is crucial to develop the intuition and problem-solving abilities necessary to excel.

Careers

Prospects in sound engineering and audio production are varied and promising. Graduates can pursue roles in recording studios, film production houses, broadcasting networks, and live event venues. Common job titles include recording engineer, mixing engineer, mastering engineer, live sound technician, and sound designer. Many professionals also choose to work as freelance consultants or establish their own studios, combining technical expertise with entrepreneurial ambition. As the media and entertainment sectors continue to evolve, the demand for innovative and skilled sound professionals is set to grow.

For those passionate about sound and its transformative power, a career in sound engineering and audio production offers creative fulfilment and professional advancement. By combining education with continuous skill enhancement and practical experience, aspiring professionals can forge rewarding, diverse, and inspiring careers.

The writer is the Founder of Bay Owl Studios.