Monday, April 22, 2024
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A love for the real

The current challenge in virtual learning is to address the increased longing for authentic and tangible learning experiences.

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Salil Sahadevan

You can learn a lot about pottery in an online class. Most of it is *about* pottery, not pottery as such. You miss the malleability of clay in your hands, the resistance felt while shaping it and the smell of clay. Similarly, a virtual Geography course may be great but you miss the humidity of the rainforest and the chill at the mountaintop. Nuances that build empathy and subtleties of humour in learning are diluted. Once we know what we miss, even in the best virtual learning environments, we can factor in those aspects in the course designs.

Top virtual learning providers aim to mimic real-world experiences. But, an algorithmically designed linear set of instructions limits its effectiveness. Immersive technologies like VR and AR can bridge this gap to some degree. They may create a more engaging environment but might fall short when it comes to the hidden shades of the real world. So, it is important to see learning design through the lens of what cannot be done in virtual. It is the first step towards designing better online learning.

Hands-on virtual

While a virtual simulation can instruct you on gardening or farming techniques, it cannot replicate the feeling of soil between your fingers. A virtual baking class offers knowledge of ingredients and steps for baking. Yet, you miss the distinctive aroma of freshly baked bread. This sensory experience, often taken for granted, is powerful in memory-making and emotion-building. The sensory disconnect extends to sights, smells, and tastes that are central to sensory-motor skills. While replicating scents in the virtual space remains a future possibility, we must explore reintroducing sensory elements into the learning process.

Virtual environments often lack the innate unpredictability found in real-world learning. While a virtual Chemistry lab might simulate explosions, it fails to emulate the adrenaline rush (in a safe setting, of course) of a real experiment gone slightly wrong.

The true magic of learning often lies in the unexpected. In linear instructional design, you miss the opportunity to see ethical dilemmas in action and lack first-hand experience with data privacy concerns and the algorithmic bias of the AI world. The unexpectedness is a fertile ground for problem-solving and is difficult to develop in a controlled virtual world. Many masterpieces in science, technology, and literature stem from the unexpected and the messy.

A virtual baking class offers knowledge of ingredients and steps for baking but the distinctive aromas are missing. This sensory experience, often taken for granted, is powerful in memory-making and emotion-building. While replicating scents in the virtual space remains a future possibility, we must explore reintroducing sensory elements into the learning process.

Haptic labs and fitness apps

Imagine a Geology class where, using special gloves, students virtually explore rock formations, feeling the variations in texture that a screen cannot convey. Haptic learning labs can create this reality by adding a layer of realism. The key question guiding instructional designers is: how can we incorporate real-world interaction without relying solely on screens? During the design stage of the course, provide spaces for unforeseen questions and divergent thinking for experimentation. It is okay to derail at times from a predetermined learning path that limits spontaneous exploration. When things get really messy, you really learn.

Beyond typical online activities like competitions, webinars, quizzes, and presentations, let students break the screen time. Embed short movement activities related to the lesson. Consider collecting and crowdsourcing local weather data, shadowing an experienced professional or documenting an art installation. Design such online challenges that send students on quests in their homes and neighbourhoods offline.

Just like fitness apps nudge you to move and do physical activity, design online lessons that get students off-screen. The screen should be a guide, a touch point, not the entire experience. Use unboxing exercises that involve sending kits for build-it challenges for science experiments.

Another option is to provide prepped canvases for collaborative online painting. Here, students follow online instructions, conduct the activity offline, and then share and compare results virtually. Doing citizen science projects that classify things, behaviours, or ideas in video clips, then heading outside to observe them in the backyard, street, or society can create a tangible connection between virtual and real worlds. Avenues for cultural immersion can be scaffolded using service learning, collaborative storytelling, and linking them with real-world communities of practice.

Cyberkinesthetics

No one ever found a new flower in an online botany course, no matter how immersive the technology is. Missing out on that thrill means losing a serendipitous moment that could have ignited a lifelong passion for flora. Pre-programmed experiences cannot replicate this spark. Thus, we require a new chapter in online experiential education where visuals and videos alone are insufficient, and engagement metrics are differently designed.

What we might term 'Cyberkinesthetics' could be an area of study on how virtual environments can be designed to engage our bodies and movement for learning. While cost, logistics and scaling present challenges, integrating authentic learning with consistent quality is a continuing pedagogical experiment. The use of technology to evoke the sense of touch in a virtual environment – let us name it 'digital tactility' – will be a core theme in education studies. In learning too, the body knows things that the mind does not remember.

(Views are personal)

The writer is Deputy Secretary with the University Grants Commission, New Delhi.

SCHOLARSHIPS

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Deadline: Round the year
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Get the right fit

How students can choose a STEM course that's right for them

Padmaja Gonuguntla

FREEPIK

Advances in technology have led to the evolution of existing markets and industries. As new job sectors emerge, it's essential to stay abreast of the latest technology tools and tactics, as technologies taught in classrooms may not be relevant by the time students graduate. This can cause a gap between the graduates and organisational expectations. This requires more focus on Science, Technology, Engineering, Mathematics (STEM) in educational institutions to allow the next generation of leaders to develop the competencies required.

The first step in choosing the right STEM course is to understand what one wants in their career. What do you hope to achieve with a degree in any of the STEM fields? Do you want to pursue a career in a specific aspect or just gain foundational knowledge that could be translated to a wide variety of roles, including a general business position?

New skills

The growing demand for new and advanced skills like Artificial Intelligence (AI), Cloud Computing, Data Science and Analysis, automation, audit and compliance, customer service, engineering and maintenance, finance and accounting, software project management and leadership are projected to bring in new job avenues. Some of the niche skills within each field that are hardest to find are knowledge of robotics, ethics and compliance know-ledge, audit tools and software, and natural language processing (NLP). Stakeholder communication and control systems related to auditing, quality assurance for auditing, and software project management are skills highly in-demand with lower talent availability in the market. Set yourself apart by pursuing one of these unique backgrounds.

Market disruptions are not uniform across skill clusters. For example, engineering and maintenance talent are experiencing stronger demand compared to other clusters. At the same time, the growth of this talent pool has been particularly slow, especially in the areas of green technology and other related emerging skills. There is also a surge in demand for content creation skills as the digital marketing landscape becomes more competitive. As organisations across sectors become more reliant on data to make educated decisions, they need more people who can gather, evaluate, and exchange data to solve business challenges.

Customer service skills are also still in demand, despite the automation prospects from AI. Humans are still vital in handling personal interactions, fostering client relationships, and leveraging other soft skills that build trust and loyalty. Organisations are seeking expert knowledge of local regulations and best practices. Sound decision-making skills are additionally critical, and employers look for candidates who they can count on for independent thinking, research, reasoning, and problem-solving.

What to look for

STEM aspirants can take into consideration the prerequisites for roles they are interested in, skill supply in the market, compensation, work trends, and so on. This will help to narrow down the STEM degree that suits their needs. They can also make use of online platforms, videos, and articles to gain more insights. Networking events, informational interviews, online platforms, and other resources to connect with professionals and learn about their work roles and responsibilities and the skills required. Internships are also valuable to gain hands-on experience in and explore different STEM fields, including day-to day responsibilities, field cultures and challenges of specific professions.

Students should also have candid self-assessments to identify individual strengths, weaknesses, opportunities, and threats. This analysis will help them to find the STEM disciplines and courses that are a fit. Students can evaluate their preferences, likes and dislikes based on their interest and the prospect that STEM holds for them.

The writer is Senior Manager, MassMutual India.

OFF THE EDGE
Nandini Raman

Strike a balance

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

I finished my graduation in 2023 and am gearing up for CAT 2024. I want to boost my knowledge with courses in business. What are the additional courses that will enhance my readiness? Vijay

Dear Vijay,

You can consider the following courses:

Business Analytics with Python, R, data visualisation software; Digital Marketing with marketing strategies, social media, SEO, content marketing, and Financial Modelling; Project Management: Project Management Professional (PMP) or Certified ScrumMaster (CSM) certifications; Leadership and Management principles; Strategic Management; Supply Chain Management; Corporate Finance; Negotiation Skills; Business Communication; Advanced Excel and Data Analysis; Economics and Managerial Economics; and International Business, Negotiation, Influence, and Persuasion.

Remember to strike a balance between CAT preparation and additional courses.

I am in the final year of B.Tech. Electronics and Communications. Apart from MBA and M.Tech., what are my options for higher studies? Karisma

Dear Karisma,

What are your interests, career goals, and skills? You could consider a Master's in any of the following disciplines: Data Science, Big Data Analytics, Embedded Systems, VLSI Design, Telecommunications Engineering, Networking, Cybersecurity, Networking, Robotics, Artificial Intelligence (AI), Renewal Energy, Power Electronics, Control Systems, Biomedical Engineering, Project Management, Technology Management, Mobile Application Development, Human-Computer Interaction (HCI), Satellite Communication or Computer Vision.

Before deciding a specific path, consider your core interests, career goals, and what you enjoy the most, as your choice will impact your career path and life.

I finished B.Sc. Physics and have been preparing for the UPSC for two years. What are my options? I am also interested in finance. Ankit

Dear Ankit,

With a B.Sc. in Physics, you could become a lab technician, a content developer, an academic counsellor, a subject matter expert, a junior research fellow, a quality control manager, a professor or a research scientist. To move to a career in Finance, you will need to pursue additional education/certifications such as an MBA with a specialisation in finance, a Master's in finance, or certifications like Chartered Financial Analyst (CFA). Some potential career paths are Financial Analyst, Actuarial Sciences, Quantitative Analyst (Quant), Data Analyst/Data Scientist in Finance, Financial Consultant/Advisor, Chartered Financial Analyst (CFA), Risk Analyst, Corporate Finance, Treasury Management, Investment Banking, Financial Planning and Analysis, Insurance Underwriter, and Portfolio Manager.

Connect with professionals in the industry through networking events, LinkedIn, social media and relevant internships. Enhance your financial modelling, data analysis, and Excel skills. Stay updated on financial markets, economic trends, and developments to demonstrate your interest in the field.

I completed my B.Tech. CSE in 2023 but am very interested in Psychology and classical dance. Is there a possibility that I can do a Master's in Psychology? Are there any courses in classical dance for my age? Jhosna

Dear Jhosna,

This depends on the eligibility criteria of the institutions you wish to apply to. Some colleges offer Master's to students who do not have a background in Psychology through an entrance exam while others do not allow non-psychology undergraduates to apply for Master's. The final decision depends on the institute. For classical dance, look for dance schools or academies that offer your classical dance programme. Some colleges offer a Bachelor of Fine Arts in Dance which can be followed by a Master's and later even a Ph.D.. Some top dance colleges are Bharatiya Vidya Bhavan, Bengaluru (Bharatanatyam and Kathak); Nalanda Nritya Kala Mahavidyalaya, Mumbai; Sri Thyagaraja College of Music and Dance, Hyderabad (Kuchipudi); National Institute of Kathak Dance, Delhi, and Nrityanjali Institute of Performing Arts, Mumbai. Attend workshops or retreats organised by dancers or dance institutions that provide intensive training sessions, networking and internship opportunities. You could also learning from a private dance teacher according to your specific needs and schedule.

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

SAVE THE DATE

■ **Admissions**

The **International Institute of Information Technology (IIIT) Bengaluru** has launched a full-time one-year Post-Graduate Diploma programme in Digital Product Design and Management (PGD-DPDM) for the academic year 2024-25.
Eligibility: Bachelor's degree in any discipline including Arts, Science, Commerce, Design, Management, Law, or engineering
Last date: April 30
Exam date: May 11/12
https://t.ly/6HoIX

The **Entrepreneurship Development Institute of India (EDII)** has opened applications for its two-year PGDM programmes in Entrepreneurship (PGDM-E) and in Innovation, Entrepreneurship and Venture Development (PGDM-IEV).
Eligibility: Graduation from a recognised university with a minimum aggregate of 50%. A qualifying score in CAT, MAT, XAT, ATMA or C-MAT. FThose in the final year can also apply
Last date: April 27
Visit https://t.ly/Z9JWv for details

JD School of Design has opened admissions for the academic year 2024 across its B.Sc. in Fashion and Apparel Design, Interior Design and Decoration, Jewellery Design, Graphic Design, and Product Design among others. For details of courses, eligibility and other information, visit https://www.jdsd.in/

Badruka School of Management (BSM) has introduced BSM IGNITE (Ideas Generating New Innovative Ventures Entrepreneurially), a business case competition.
Eligibility: Final year students
Round 1 will be an online quiz on April 29.
For details, visit https://t.ly/QBltq

Create culinary innovators

Culinary schools should foster chefs who are as savvy in business management as they are in culinary arts to revolutionise the F&B industry in India

Kunal Vasudeva


FREEPIK

In India, culinary education has traditionally been synonymous with teaching recipes and techniques. While this has turned out skilled chefs, the burgeoning food and beverage (F&B) revolution demands more. It's time for our educational institutions to nurture not just chefs, but also culinary innovators and doers.

Fostering 'thinking entrepreneurial chefs' requires integrating robust business education, akin to MBA programmes, into culinary courses. The objective? To mould individuals who are as savvy in business management as they are in culinary arts.

Novel experiences

Today's culinary enthusiasts aspire to craft novel culinary experiences, merging their passion for cooking with a keenness for management and entrepreneurship. Addressing their aspirations necessitates an educational model that marries culinary skills with real-world business applications. Theoretical knowledge, while foundational, must be complemented by practical experience.

Imagine culinary institutions operating real-world entities like restaurants, QSRs, or bakeries, entirely run by students, where they apply their lab-learned skills to manage the establishments, oversee profit and loss, and engage directly with customers. This model doesn't just teach; it immerses students in the very fabric of the F&B business.

Central to this new educational paradigm are innovation and entrepreneurship labs. These hubs are not mere classrooms; they are breeding grounds for creativity and business acumen. Here, students conceptualise and develop their culinary ventures, receiving mentorship and connecting with potential investors. It's a place where ideas meet opportunity.

Mirror the marketplace

For culinary education to keep pace with the F&B revolution, it must mirror the dynamism of the marketplace. Institutions taking this leap are already making strides but, to truly revolutionise the industry, this model needs to be the norm, not the exception. We need more innovators and entrepreneurs who can lead and inspire in the ever-evolving culinary landscape.

The Indian food and beverage industry is currently valued at over $50 billion and projected to grow exponentially in the next 5 to 10 years. This is fuelled by a burgeoning middle class, increased urbanisation, and a youthful population eager to explore diverse culinary experiences. In this context, the role of culinary education becomes pivotal. By 2030, as more Indians ascend into higher income brackets, their culinary preferences will evolve, seeking not just quality and variety but also innovation and sustainability. The demand for culinary professionals who can cater to these sophisticated tastes will skyrocket.

To meet this demand, our culinary institutions must evolve to create chefs who are entrepreneurial, innovative, and adept in the art of cooking and the science of business and can steer the industry towards a future marked by creativity, sustainability, and global recognition.

The writer is Founder and Managing Director, Indian School of Hospitality (ISH).

GREEN CAREERS HUB

Through Nature's lens

Wildlife photographer Dhritiman Mukherjee explains how he uses photography as a tool to raise awareness and connect people with Nature

The second in the 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.*

My journey as a photographer began in 1997 when I purchased my first camera. Initially, I shot anything and everything I could. But it wasn't until 1999 that I truly delved into wildlife photography, a decision that would shape the rest of my life. In fact, I sold my first photograph, of a swamp deer or barasingha, to WWF-India!

When I came to this field, I knew I would have to do something that set me apart. I chose places that not many photographers used to work in and that allowed me to explore species and ecosystems that have rarely been photographed before. While the success rate was low and it was difficult to get results, being able to contribute to science through photography is what kept me content. In a field like this, we must be patient; the impact is not immediately visible. We'll see it only years later.

Collaborations

Today, I have successfully explored every corner, habitat, and ecosystem of India and have been to 42 countries! This journey was gradual and involved a lot of collaborations with researchers, scientists, and organisations. It was never just about me and my camera, but about the countless individuals who continue to inspire me. From porters to drivers to field guides, their contributions have been invaluable in shaping my career.

There is no set route or model that one can follow to become a photographer. But if someone asks me, my mantra is simple: step out of your comfort zone.

A challenge has been achieving financial stability. But I refuse to have a Plan B and have fully committed myself to the field of photography for conservation. I lead a minimalist lifestyle, prioritising my passion for photography over material possessions.

In the last 27 years, I have witnessed some of Nature's most breathtaking moments, from diving in front of an active volcano in the Andamans to trekking in the snow-capped Himalayas. What inspires me the most is the unpredictability of my work. Every day presents a new challenge and new opportunity to capture something extraordinary. Whether photographing lions in Gir or waiting patiently in a hide for the elusive Western tragopan, I never know what to expect. It is this element of surprise that keeps me coming back for more.

With every photograph I capture, I try leveraging it as a tool to raise awareness and connect people with nature. Photography for conservation is more than just taking pictures; it's about telling stories that resonate with people on a deep and emotional level. I know I have achieved this when people come and share their positive stories with me. In 2020, I was in Spiti, a high-altitude region in the Himalayas, when a few porters thanked me for photographing the snow leopard, probably for the first time in the wild. Such photographs led to the area being marked on the world map, ecotourism being established, and earning them their livelihood.

Looking ahead, I'm excited to continue pushing the boundaries of wildlife photography and exploring new ways to engage and inspire audiences globally. Whether it's capturing rare and endangered species or documenting the effects of climate change on our planet, I'm dedicated to using my camera as a tool for conservation. My advice to aspiring photographers is simple: strive not to be the best but to connect the disconnected and be a contributor to science and society.

WIDE ANGLE
Albert P' Rayan

Read, reflect, share

With World Books and Copyright Day tomorrow, let's look at how reading empowers individuals to become agents of positive change


FREEPIK

Many educational institutions and organisations host summer camps and workshops to foster students' reading habits. While some prove successful, others may not achieve the desired results for various reasons. #IndiaReads, a reading movement initiated by the English Language Teachers' Association of India (ELTAI), also arranges such camps and, during discussions about the modules, several key questions arose: What should be the theme? What kinds of books truly engage readers? How can one become an engaged reader?

While the phrase "Read, Reflect, Share" provides a clear insight into the theme and purpose, it also serves as a formula for students to become engaged readers.

During a recent reading workshop, I distributed copies of an anecdote on happiness to kickstart a discussion on the factors that contribute to it. The ensuing conversation was engaging and enlightening, marked by diverse perspectives and constructive exchanges of ideas. In essence, content that touches the heart, evokes emotions, and motivates the reader can help them become engaged readers. If a simple anecdote can prompt individuals to reflect, relate it to their own experiences, and share their insights with others, then surely good books have the potential to catalyse transformative change in their lives and that of others.

Reading

The purpose of reading extends beyond mere pleasure; it is a journey towards personal growth and societal betterment. It is often said that the most profound learning experiences occur when one transitions from ignorance to knowledge. Similarly, a book's worth transcends mere information dissemination; it lies in its ability to empower readers to apply that knowledge for the betterment of society.

Reading, whether fiction or non-fiction, offers a multitude of benefits tailored to individual interests. Fiction enthusiasts find themselves transported to imaginative realms, encountering diverse characters and gaining profound insights into the human condition and society. On the other hand, readers of non-fiction engage in mental gymnastics, pondering over content, raising questions, and seeking answers, thereby exercising their cognitive faculties.

What distinguishes a truly remarkable read is its ability to resonate deeply with the reader, elicit emotions and facilitate introspection. Research conducted at Lund University in Sweden has shown that reading books in a foreign language can even lead to an enlargement of the hippocampus, a brain region associated with learning and memory, underscoring the cognitive benefits. Reading serves as a potent stress-reliever, expands one's knowledge base, and enriches thought processes.

In essence, reading is not merely a pastime; it is a transformative endeavour that nourishes the mind, nurtures empathy, and empowers individuals to become agents of positive change in their communities and beyond.

Reflecting

In today's world, we come across a multitude of interesting, inspirational, and thought-provoking content on social media, in books, and in magazines. Some individuals simply skim through what they read without truly engaging with the material. Engaged readers or reflective readers, on the other hand genuinely enjoy the act of reading and actively participate in the process. They appreciate text in all its forms, critically analyse the text, language, symbols, and more. They pause, reflect, pose questions, and seek hidden meanings. As Keene and Zimmerman explain in *Mosaic of Thought*, engaged readers make connections between the text and other texts, the world around them, and their own experiences.

Sharing

By reflecting on their readings and exchanging thoughts with others, reflective readers enrich their reading experiences. This exchange of viewpoints, active listening, and response also broadens their minds and fosters greater openness. Essentially, reading facilitates the absorption of knowledge, while sharing it with others fosters wisdom.

There are several benefits to sharing what one reads. One significant advantage is the enhancement of their critical thinking skills. For example, when readers articulate their perspectives on a book, they develop the ability to be discerning readers. They anticipate questions that others might pose and consider potential responses. Reading with reflection and sharing these reflections with others can maximise the rewards of reading.

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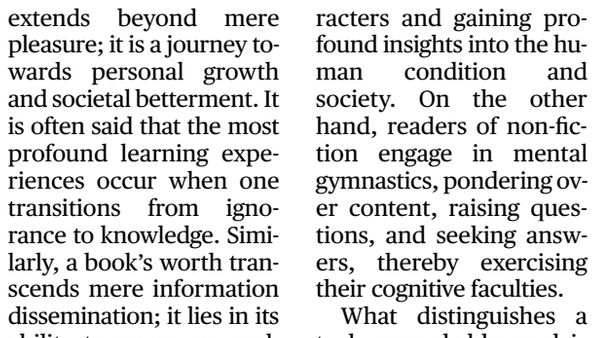
All that glitters

Gemology offers aspirants a chance to learn about and work with rare gemstones and a range of career options in a niche field

Apoorva Deshingkar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Jewellery in India is as steeped in tradition and culture as everything else. The country has a rich history of gem trade and was the original home of renowned gemstones such as the Hope Diamond and Koh-i-noor which were mined from Golconda in today's Andhra Pradesh and Telangana. History records the presence of gem traders and gemologists in royal courts who looked after precious stones, estimated their value and identified fakes and imitations. Today, this is known as Gemology.

What is gemology?

This is a scientific discipline that involves a comprehensive analysis and understanding of various facets related to gemstones, ranging from chemical composition to physical characteristics. A gemologist employs specialised equipment to examine and analyse these properties to determine a gemstone's type, origin, treatments, and authenticity.

For example, an untrained individual might mistake a red stone for a ruby, but a gemologist will observe how light interacts with it to identify it as such. Through the phenomenon of double refraction in rubies, where light splits into distinct orangey-red and purplish-red colours, gemologists can distinguish them from red spinels and garnets, which maintain a consistent colour.

Over time, there has been a notable surge in treatments and laboratory-grown gems, especially from the mid-1970s. From heat-treated sapphires to laser-drilled diamonds and laboratory-grown rubies, the variety expanded as demand soared. Therefore, the need to identify genuine gemstones also increased. This requires powerful tools to examine the material at high magnification, documenting properties, chemical composition, spectral features and more. A gemologist does not have room to make mistakes, just like a pilot of an aeroplane has no margin for an error.

Education

To become a gemologist, an aspirant must choose the right course and institute, with curriculum that keeps up with the latest research. Premiere institutes adopt the latest pedagogical practices and updated information about the various techniques and instruments essential for the trade. There are a variety of courses tailored to different facets of the field:

Grading and identifying stones: Diploma programmes and short-term lab classes aid students in learning about coloured stones and their market, understanding how gems are mined, fashioned, and sold, and efficiently using the correct tools to identify gemstones.

Diamond Grading: Specialised diploma and short-term courses delve into the characteristics that determine a diamond's value, including the Cut, Colour, Clarity, and Carat Weight also known as the 4Cs, how to grade diamonds in the D-to-Z colour range, identify laboratory-grown diamonds, treatments, and simulants, and determine when advanced testing is necessary.

In addition to professional qualifications, gemologists also need specific skills such strong analytical skills to meticulously examine and identifying unique features of gemstones. Attention to detail is crucial to accurately evaluate various aspects like colour, clarity, and cut. Good communication skills are necessary to convey grading information effectively to clients or colleagues. Patience is indispensable, as the grading process can be time-consuming.

Career options

Gemologists have a range of job roles to venture into. As appraisers, they assess the value of gemstones with precision. Alternatively, they could specialise as auction house jewellery specialists or a jewellery retailer to interact directly with clients. For those aspiring to build their careers as entrepreneurs, starting a business in gemstones will allow them to seek out rare gems and jewellery pieces and sell them. They can also delve into the intricate world of diamond grading and gem identification, and evaluate these precious stones with meticulous detail.

The journey doesn't end with the initial career choice. With experience and commitment to continuous learning, specialising in rare or unique gemstones can lead to opportunities in niche markets, increasing demand for expertise.

The writer is senior director, Education and Market Development, Gemological Institute of America (GIA).


SPECIAL ARRANGEMENT AND DHRITIMAN MUKHERJEE