

Albert P'Rayan

“M adam, are you a robotic teacher or a reflective teacher?” the principal asked the applicant, who had a decade of teaching experience. “I am a reflective teacher,” came the confident reply. Asked to elaborate, the explanation was: “I raise questions and constantly reflect on why I became a teacher and why I choose to stay in this profession. I also review what I’ve taught in class regularly. Based on my reflections and student feedback, I strive to become a better teacher. Reflection, an integral part of my teaching philosophy, helps me check whether I am on the right path.”

The principal’s next question was more probing. “Why did you leave your previous school?”

“The school wanted me to be a mechanical, or rather, ‘robotic’ teacher,” was the candid reply. “I didn’t feel comfortable working in that environment, so I decided to move.”

When asked about the characteristics of a good teacher, educators, students and others may offer varying answers based on their perspectives. Qualities and skills such as the ability to build rapport with students, understanding, empathy, encouragement, effective communication, and subject knowledge are common but few consider that a good teacher is also a re-

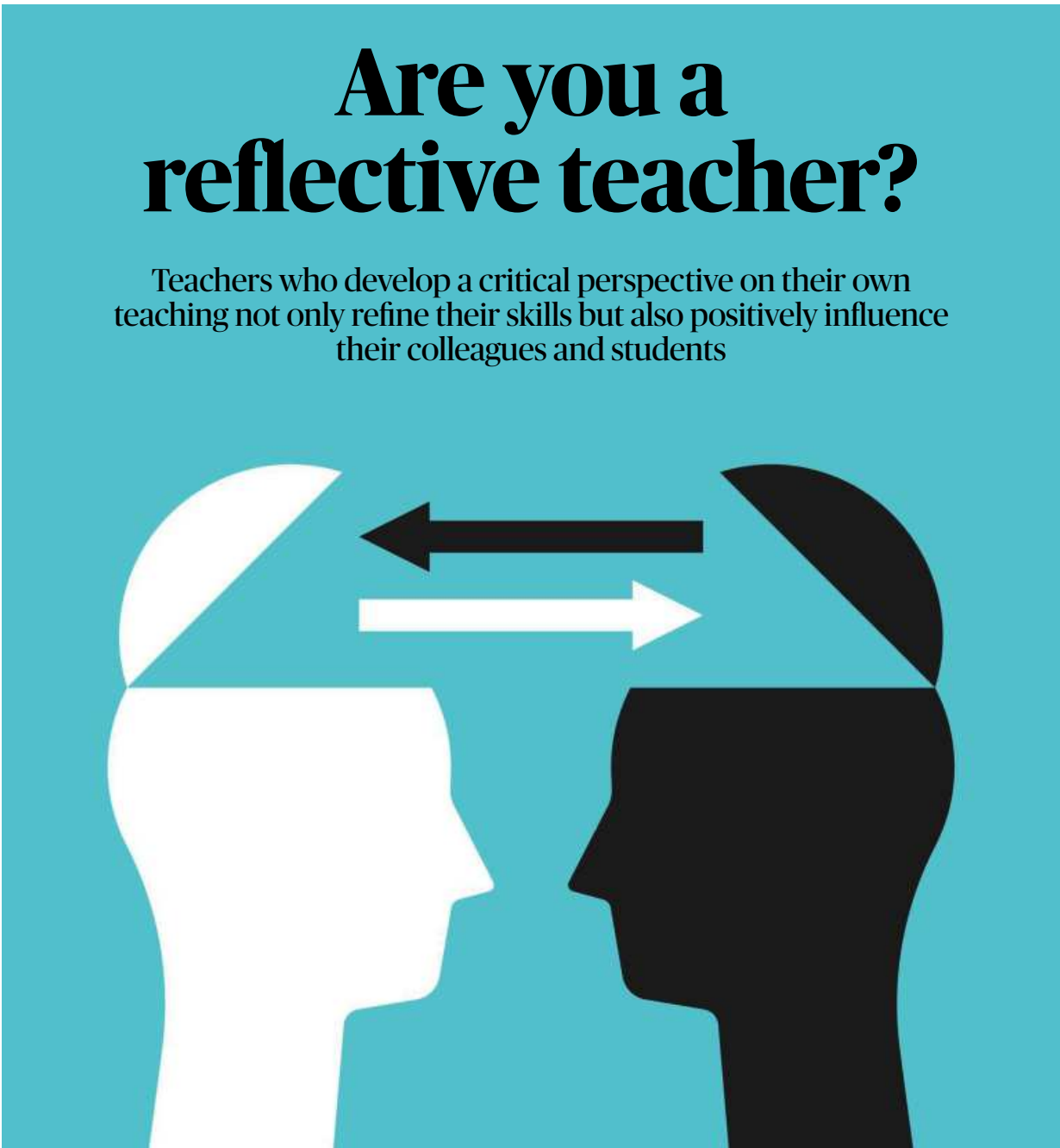
flective one with a sound teaching philosophy.

Two types

There are two distinct types of teachers: robotic and reflective. They differ significantly in several key ways. The first views reflection as a burden and adhere strictly to predetermined procedures and lesson plans. The teaching style is mechanical and predictable, following instructions from supervisors without questioning their relevance or effectiveness. Like machines operating on commands, they perform tasks without engaging in critical thinking.

These teachers show little interest in seeking student feedback on their lessons and fail to recognise that teaching and learning are distinct processes. Consequently, while they may cover the material, actual learning often does not occur. Robotic teachers are unwilling to assess whether there is a gap between what is taught and what is learned. Their rigid adherence to rules and routines stifles their creativity and limits their professional development. Unfortunately, in many educational institutions in India, teachers are required to follow a pre-programmed set of instructions and discouraged from thinking or acting independently. This lack of creativity and flexibility confines them to sticking strictly to textbooks.

In contrast, reflective teachers are thoughtful individuals who recognise



their professional strengths and weaknesses. They prioritise reflection, self-assessment, and ongoing professional growth and continuously evaluate

the content they deliver, analyse their teaching methods based on reflection and student feedback, and are willing to adjust their approaches to better

meet students’ needs. These teachers believe that interactions with students are crucial for effective teaching and encourage student participation.

By fostering an interactive classroom environment and focusing on students’ needs and interests, they create a meaningful educational experience for their

students and themselves. Reflective teachers regularly ask themselves questions such as: Am I doing the right thing in the classroom? Why am I doing what I am doing? What is my teaching philosophy? How effective is my teaching? Does my teaching have a positive impact on students?

Key steps

In today’s era of artificial intelligence and constant connectivity, being reflective can be challenging. Nevertheless, taking time to reflect on teaching practices is crucial to find meaning in one’s work and enhancing effectiveness. Reflective teachers follow three key steps—self-monitoring, self-assessment, and self-adjustment. Becoming a reflective teacher involves several key practices.

First, teachers should cultivate curiosity. Just as curious children ask endless questions, teachers with a strong sense of curiosity remain engaged and thoughtful. This allows them to reflect more deeply on their teaching and become more effective educators.

Developing a well-defined teaching philosophy is also essential. A Teaching Philosophy Statement (TPS) should address several core elements: why you chose to become a teacher, what your teaching goals are, how you strive to be an effective teacher, how you motivate your students, and how you plan to grow professionally. Although writing

a TPS is not yet common practice in India, doing so and periodically reviewing it can be highly beneficial. A TPS helps teachers reflect on their motivations, strengths, limitations, goals, and the need for professional development.

Another valuable practice is maintaining a Reflective Teaching Journal (RTJ). By regularly recording reflections and insights about their teaching practice, teachers can improve their teaching quality and overall professional skills by documenting experiences, tracking growth, and enhancing teaching effectiveness.

Self-assessment is also crucial. Teachers should periodically evaluate their teaching practices by asking questions about their impact on students and their learning.

Reflective teaching practices are vital for professional growth. Teachers who develop a critical perspective on their own teaching not only refine their skills but also positively influence their colleagues and students. It is often said that experience is the best teacher, but research has shown that experience alone doesn’t guarantee learning. Instead, it is reflection on a particular experience that deepens one’s understanding and enables informed decisions. As John Dewey famously said, “We do not learn from experience... we learn from reflecting on experience.”

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

Do your research

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



OFF THE EDGE  
Nandini Raman

I finished B.Tech ECE in 2017. Since I didn’t clear the exams for a government job, I started working in sales and marketing. I want to move to my core strength. How can I do this when I do not have any experience? Praveena

Dear Praveena,

Update your technical skills by enrolling in certifications like embedded systems, IoT, telecommunications, or VLSI design related to ECE on platforms like Coursera, Udemy, edX, and LinkedIn Learning. Leverage and highlight the sales and marketing experience that can be valuable in an engineering role. Network and build alumni and professional connections over LinkedIn and other professional organisations. Look for internships or trainee programmes for individuals transitioning and entering the field. Some junior roles may match your skill level and allow you to gain hands-on experience. Brush up on technical questions and prepare for job interviews to gain confidence. Websites like LeetCode, GeeksforGeeks, and InterviewBit may help. Also explore pursuing a Master’s in ECE or a related field to gain advanced knowledge and improve your job prospects. Look up courses such as Introduction to Electronics by Georgia Tech; Internet of Things

specialisation by University of California, Irvine; Embedded Systems: Shape the World by UT Austin; MicroMasters in Power Electronics by University of Colorado Boulder and others on Coursera and Udemy to bridge the gap.

I am in Class 10 and my academic performance is above average. I am considering a career in law. What are the job prospects? How do I get into reputed colleges? Also, which academic stream presents fewer risks? Ananya

Dear Ananya

You could join a law firm and handle anything from corporate law to litigation, or join the corporate sector and manage a company’s in-house legal affairs, or go into government legal departments or the judiciary. By passing the judicial services exams, you could become a judge or a magistrate. You can also teach at law schools or join an NGO and work in legal advocacy. Any stream in Class 11 and 12 can lead to a career in law. However, a foundational understanding of Economics, Political Science, Legal Studies and Business Studies is useful. You can explore specialised fields like intellectual property law, environmental law, and technology law. For admission to National Law Universities you have to take the Common Law Admission Test (CLAT). The All India Law Entrance Test is for the National Law University, Delhi. Law School Admission Test (LSAT India) is for various private law colleges. Some have their own entrance exams. Use official study

material and past question papers to prepare or join coaching classes for structured preparation.

I am in Class 11 (Humanities) and a Civil Services aspirant. I want to do a B.A. (Hons) in Political Science from DU. I am being pressurised into taking Economics because it has more scope. Which subject will be better to prepare for the UPSC exams? Krishna

Dear Krishna,

A B.A. (Hons) in Political Science can provide solid job prospects and is also beneficial for the UPSC exam. You can get into academia and research or pursue a career in research in think tanks and academic institutions, or work with government agencies, NGOs, and international organisations, or become a political journalist or join international organisations such as UN, World Bank or IMF. Join professional networks, attend seminars, and engage with professionals in your field of interest. Gain practical experience via internships and volunteering in relevant organisations, political parties, NGOs, and media houses. Develop research, writing, public speaking, and data analysis skills through coursework, workshops, and extracurricular activities. Also, consider doing a Master’s to enhance your qualifications. In the UPSC exam, Political Science is highly relevant for subjects like Indian Polity, Governance, and International Relations and will help in General Studies, Essay Writing, and interview stages. However, Economics is also useful to understand

economic policies, budgeting, and Indian Economy in General Studies papers. Both have good prospects, but your interest, passion and dedication will determine your eventual success.

I have finished Electronics Engineering and am preparing for the UPSC exam. I would like to do an online course on Public Health or empowerment of underprivileged children. Are there any short-term online courses offered by reputed Indian universities? Rohit

Dear Rohit, There are many short-term online certifications available under Indian Institute of Public Health’s (IIPH) academic institutions established by the Public Health Foundation of India (PHFI) such as Introduction to Public Health, Epidemiology, Health management, and Health systems, These range from four weeks to six months. Other options include Indira Gandhi National Open University (IGNOU), Tata Institute of Social Sciences (TISS), Azim Premji University, National Institute of Rural Development and Panchayati Raj (NIRDPR). Visit their websites and look for prerequisites and eligibility criteria and then apply online.

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

Learning without limits

By enabling unrestricted access to knowledge, open science can shape the future of research and education.

Kapil Juvele

Open science includes a set of principles and practices, such as free access to publications, free availability of data sets, use of open-source software, and involvement of society in research through citizen science. The main idea is to make scientific research and findings from all fields available to everyone without any restrictions. Open science encourages transparency and collaboration in research through sharing of information and making it accessible to everyone and strives to solve the limitations of traditional methods of research outreach, including restricted access to publications, research data and tools.



ers that do not offer rigorous and unbiased peer reviews, thus lowering the quality of publications. As more journals adopt open-access publications, all parties should adhere to ethical publication principles to maintain the standards.

**Impact of AI** Artificial intelligence (AI) is influencing different technical and non-technical fields with advances in automation. It will have an impact on open science by aiding in rapid data mining and data analysis. As most of the current AI tools depend on the vast databases created from the data pooled from different sources, it can further encourage data sharing through collaborations. By doing this, open science benefits AI by providing much-needed data through participative research and inclusive practices. On the other hand, AI poses challenges for open science due to its closed nature, which can affect reliability, reproducibility, and bias. Open science principles, especially transparency in data, need to be applied to AI to address these issues.

**Benefits** The most important aspect of open science is un-

restricted access to the knowledge created, including research articles, data sets, educational resources, and so on. It enables students and researchers to enhance their knowledge and research capacity. Further, for researchers, visibility of their work is important and is provided through publishing in open-access journals. Students and researchers get the opportunity to work on collaborative research projects involving researchers from different institutes and countries.

The future of open science is exciting, and set to play a crucial role in shaping research and education in the future. It enables better research outputs, transparency in research, inclusivity and better utilisation of research funds.

Open science makes research outputs easily findable, accessible, interoperable and reusable (FAIR). Implementing it poses a few technological, political, organisational, economic, and legal challenges. The research community can solve these issues by having will, collaborating, and finding funding opportunities.

The writer is Assistant Professor, School of Pharmacy and Technology Management, NMIMS, Mumbai.

SCHOLARSHIPS

**NICE Foundation’s National Scholarship Exam** An annual exam conducted by the NICE Foundation. **Eligibility:** Open to school students from Class 5 to Class 12 or those in a diploma and degree programme (regardless of field of study or year). **Rewards:** Up to ₹25,000 and other benefits **Application:** Online **Deadline:** September 30 [www.b4s.in/edge/NITE21](http://www.b4s.in/edge/NITE21)

**Big Dream Scholarship** An opportunity offered by StockGro. **Eligibility:** Open to Indian nationals who are enrolled in or have accepted an offer for a UG or PG degree at a UGC-accredited college in India. **Rewards:** Up to ₹50,000 and other benefits **Application:** Online **Deadline:** October 31 [www.b4s.in/edge/BDSG1](http://www.b4s.in/edge/BDSG1)

**National Scholarship for Post Graduate Studies** An initiative from the Ministry of Education, Government of India. **Eligibility:** Open to Indian nationals below 30 years in the first year of a PG programme at a recognised Indian institution and an annual family income of less than ₹2.5 lakhs. **Rewards:** ₹15,000 a month **Application:** Online **Deadline:** October 31 [www.b4s.in/edge/NSPG2](http://www.b4s.in/edge/NSPG2)

Courtesy: buddy4study.com

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**The U.S. Boston University Trustee Scholarship**  
**Who can apply?** High-achieving students who are leaders in communities  
**Covers:** Full tuition for four years, plus the mandatory undergraduate fees  
**Deadline:** December 1st  
**Learn more:** [tinyurl.com/bdej4jen](http://tinyurl.com/bdej4jen)  
**Clark University Global Scholars Programme**  
**What:** Includes the International Trina Scholarship, the International Achievement Scholarship, the International Jonas Clark Scholarship, the Presidential LEEP Scholarship and the Global Scholars Scholarship.  
**Who can apply?** International students with exceptional academic performance and personal qualities who want to make a difference.  
**Covers:** Between \$15,000 and \$25,000 per year to help with tuition

**Deadline:** Along with application round; both early and regular decision cycle (mid January)  
**Learn more:**  
[tinyurl.com/mw44muh6](http://tinyurl.com/mw44muh6)  
**Amherst College, Harvard University, Stanford University, Yale University**  
**Financial Aid**

**Who can apply?** International students who demonstrate financial need  
**Covers:** Full financial aid based on demonstrated need, covering tuition, room, and board  
**Deadline:** Typically around January 1  
**Harvard:**

tinyurl.com/3ndpyx3a  
**Yale:** tinyurl.com/444w98ny  
**Amherst:** tinyurl.com/4jzrss6v  
**Stanford:**  
 tinyurl.com/mpm9y9uf  
**Illinois Wesleyan University**  
**International Student**  
**Scholarships**  
**Who can apply?** International  
 students with strong academic

records and extracurriculars  
**Covers:** Between \$16,000 and \$30,000 per year  
**Deadline:** Typically November 15 (Early Action), March 15 (Regular Decision)  
**Learn more:**  
[tinyurl.com/2p8miph59](http://tinyurl.com/2p8miph59)  
**University of Miami Stamps Scholarship**  
**Who can apply?** High-achieving international students who show leadership  
**Covers:** Full tuition, room, board, textbooks, and even a \$12,000 fund for enrichment activities  
**Deadline:** Typically November 1 (Early Decision & Early Action)  
**Learn more:**  
[tinyurl.com/vf774rup](http://tinyurl.com/vf774rup)  
**American University Emerging Global Leader Scholarship**  
**Who can apply?** High-achieving students who show leadership, a commitment to civic engagement and want to inspire change  
**Covers:** Full tuition, room, and board  
**Deadline:** December 1  
**Learn more:**  
[tinyurl.com/2dpms348](http://tinyurl.com/2dpms348)  
**Colby-Sawyer College Merit-Based Scholarships**  
**Who can apply?** Students with strong academic performance  
**Covers:** Up to \$8,000 per year  
**Deadline:** Typically February 1  
**Learn more:**  
[tinyurl.com/3r2rvczy](http://tinyurl.com/3r2rvczy)  
**UMass Amherst**

**International Scholarships**  
**Who can apply?** International students with strong academic performance or financial need  
**Covers:** Varies but can include partial tuition waivers and merit scholarships  
**Deadline:** November 1  
**Learn more:**  
[tinyurl.com/4ksesywv](https://tinyurl.com/4ksesywv)  
**Syracuse University Merit Scholarships**  
**Who can apply?** High-achieving international students with exceptional academic performance  
**Covers:** Amount varies but can significantly reduce tuition costs  
**Deadline:** January 5  
**Learn more:**  
[tinyurl.com/2x5fpae5](https://tinyurl.com/2x5fpae5)  
**University of Southern California (USC) Merit Scholarships**  
**What:** Merit-based scholarships including the Trustee Scholarship, which covers full tuition.  
**Who can apply?** High-achieving international students  
**Covers:** From partial to full tuition  
**Deadline:** November 1 or December 1 (for courses requiring portfolio)  
**Learn more:**  
[tinyurl.com/wnw7bmz4](https://tinyurl.com/wnw7bmz4)  
**The U.K.**  
**University of St Andrews International Undergraduate Scholarships:**  
**Who can apply?** International

undergraduate students with strong academic records  
**Covers:** Partial tuition fees and, in some cases, living expenses  
**Deadline:** Typically March 31  
**Learn more:**  
[tinyurl.com/4cnv9vez](http://tinyurl.com/4cnv9vez)

**Canada**

**Lester B. Pearson International Scholarship at the University of Toronto**  
**Who can apply?** International students who demonstrate academic achievement and creativity  
**Covers:** Full tuition, books, incidental fees, and full residence support for four years  
**Deadline:** November 8  
**Learn more:**  
[tinyurl.com/4jzh2pst](http://tinyurl.com/4jzh2pst)

**International Leader of Tomorrow Award at the University of British Columbia (UBC)**  
**Who can apply?** High-achieving international students who demonstrate superior academic achievement, leadership skills and involvement in student affairs and community service.  
**Covers:** Needs cum merit based awards that cover tuition  
**Deadline:** November 15  
**Learn more:**  
[tinyurl.com/5hd3zhum](http://tinyurl.com/5hd3zhum)

*With inputs and research from  
Anjana Anand*

The writer is Founder and CEO, Inomi Learning, a Gurugram-based career and college guidance firm. [info@inomi.in](mailto:info@inomi.in)

**B**efore embarking on my academic journey at Strathclyde Business School in 2022, I spent five years running a digital transformation company helping clients in hospitality, fashion, and non-profit sectors to implement digital solutions. However, I encountered challenges with timelines and scope and realised the need to enhance my project management skills. After a year of research, I chose the M.Sc. International Master Project Management (IMPM) programme, jointly offered by Strathclyde Business School in Glasgow and Polimi Graduate School of Management in Milan, Italy.

- **Name:**  
Gaytri Kale
- **Course:**  
M.Sc. International Master  
Project Management
- **University:**  
University of Strathclyde,  
Glasgow, the U.K.

me with essential skills in project management. This foundation, combined with my passion for sustainability, led me to focus my dissertation on the Circular Economy. Through my research, I connected with a community dedicated to sustainability and net zero practices and attended conferences hosted by Circular Glasgow, the Glasgow Chamber of Commerce, and Scottish Universities Insight Congress.

I also participated in the Universities UK International's #WeAreInternational: Transforming Lives campaign and represented the University of Strathclyde in a video campaign sponsored by the Universities and Colleges Admissions Service, the British Council, and the UK Council for International Student Affairs.

While the the Dean's Excellence Scholarship from Strathclyde Business School was instrumental in supporting my academic journey, a fully funded opportunity would have allowed me to focus on my academic and professional goals without financial stress. The high cost of living in the U.K. makes it crucial for students to seek fully funded scholarships to ensure their focus remains solely on their studies.

My time at Strathclyde Business School has provided me with a global perspective and a network of lifelong connections.

Studying at two campuses was incredibly enriching. Strathclyde's hands-on learning approach, including case studies and group activities, was particularly beneficial. A highlight was my internship at MBM Print, facilitated by my professor at the Hunter Centre for Entrepreneurship, which provided industry insights and positive feedback. Strathclyde's environment, with numerous activities and social clubs, allowed me to engage deeply with local and international students. The supportive campus environment and active participation in student union events enriched my cultural experience and personal development: from participating in Ceilidhs – traditional Scottish dances – at the student union to performing Bollywood dances at Creative Hub events. Discovering Scotland's vibrant Indian community helped me cope with homesickness and allowed me to share my culture with colleagues and friends from the Philippines, Botswana, Korea, the United States, and Scotland. The programme equipped

Public Policy and Advocacy, Biographies of leaders around the world, Global Politics, and Film Appreciation.

Successful political leaders possess skills such as leadership, strategic vision, team management, effective communication, negotiation, analytical thinking, policy-making, and problem-solving. These enable leaders to craft evidence-based solutions to pressing issues. Political leadership and government careers are becoming more formalised. Winning elections can lead to roles as corporators, legislators, or parliamentarians. Beyond elected positions, roles such as advisors, officers on special duty, and subject-matter specialists are available. Becoming a civil servant or diplomat in India requires passing rigorous exams. Behind-the-scenes roles such as campaign managers, political strategists, analysts, and policy analysts are also expanding.

Building a successful political career requires proactive engagement and practical experience. Internships, volunteer work, and grassroots involvement offer valuable

opportunities to understand community needs, develop leadership skills, and build networks. Exposure to diverse perspectives and constructive dialogue fosters empathy and resilience, all of which are crucial for effective leadership. Universities and training programmes provide academic rigour, mentorship, and experiential learning, bridging theory and practice. Partnerships with legislative bodies, government agencies, think-tanks, and non-profits offer practical exposure to policy-making, governance challenges, and real-world issues.

As society evolves, so do the challenges and opportunities for political leaders. Technology and social media have transformed political communication and engagement, creating new avenues for citizen participation and accountability. Emerging fields such as digital governance, environmental policy, and inclusive development offer exciting opportunities for cross-sector collaboration. Careers in political leadership and government offer unique opportunities to impact society meaningfully and shape the nation's future. Aspiring leaders should pursue interdisciplinary education, develop essential skills, and gain practical experience to prepare for upcoming challenges and responsibilities.

The writer is Senior Director, School of Government, MIT World Peace University (MITWPU).

layers of meaning. As a result, industry professionals prefer using Python to manipulate human-generated language data, both speech and text.

## Importance

Python's simplicity enables users to focus on NLP rather than the programming language details, while its efficiency facilitates the swift creation of NLP application prototypes. Backed by a high level of abstraction, and easy-to-read model, Python makes it easy to produce and test codes. In addition, its accessibility, strong community support, libraries and tools are especially useful to address problems specific to NLP projects. The solid integration with other languages and tools to build ML models, a variety of NLP tools and lan-

guages enables students to manage different tasks like sentiment analysis, text summarisation and chatbots to language translation with ease. Apart from enabling seamless interaction between humans and computers,

and powering chatbots, virtual assistants and ML translation systems, NLP helps extract meaningful information from unstructured data via sentiment analysis and text summarisation. Further, NLP algorithms can help derive patterns and insights from analysing textual data, which proves to be valuable to conduct market research, social media analysis, and collect customer feedback.

By understanding user preference and behaviour from language usage, NLP can help curate personalised experiences and targeted advertisements, thereby boosting customer trust and loyalty, especially in a consumer-centric space.

Amid the plethora of NLP libraries offered by Python, Natural Language Toolkit (NLTK) is one of the most powerful supporting operations like classification, tokenisation, parsing, tagging, sentiment analysis, and more, while serving as a strong foundation for developers working on MLP and ML projects. Although spaCy is a relatively new open-source library for NLP tasks, it offers the fastest parsing in the market. Known for its high performance and efficient processing of large text data, it is also poised to support more languages in the future. TextBlob is necessary for students starting their NLP journey in Python, as it offers help to learn basic operations and is useful to design prototypes.

As it continues to drive innovation across diverse industries, students who have knowledge of NLP with Python can boost their career trajectory by foraying into new domains such as Data Science, AI Studies, and Computational Linguistics.

The writer is CEO and Co-Founder of edForce.