H. Kalpana Rao

Writing that impacts

A single well-researched article in a reputable journal can be far more valuable than numerous low-quality publications

Many scholars believe that writing articles should be a facile process, but this is a misconception. Communication of ideas is a vital aspect of the academic world. Despite its significance, many researchers struggle to convey their research effectively due to a lack of training in academic communication.

Even highly skilled researchers may find it challenging to explain their findings. Authoring a well-structured article requires significant patience and a disciplined approach and involves shaping ideas and organising them in a logical sequence to produce a coherent and meaningful essay.

Writing, in the Humanities, is a nuanced task that necessitates careful thought and structure. A single idea can inspire a multitude of thoughts, but the writing process requires these ideas to be arranged logically.

For example, drafting an article on Nature involves more than simply describing flora and fauna. It must also consider Nature's connections to society, religion, and culture, among other themes.

While we may hold diverse personal beliefs about these connections, articulating all of them may detract from the focus of the piece. A successful article must engage its target audience, anticipate its expectations, and present a balanced, well-supported argument.

Unfortunately, many scholars rush to publish their work, driven by the publish-or-perish mentality. This pressure can lead to a willingness to compromise on quality, often resulting in subpar publications. It is crucial to remember that quality outweighs quantity; a single well-researched article in a reputable journal can be far more valuable than numerous low-quality publications.

Choosing the topic
A common trend among Indian scholars is to focus on thematic or generalised research. Incorporating theory and valid critical perspectives can enhance a paper. Yet another issue is a lack of deep reading and research in a specific field. For instance, scholars may be drawn to the works of writers, but they often overlook the importance of selecting a suitable topic. Instead of conducting a thorough background study, scholars frequently choose topics that are familiar rather than trying a new critical approach. A closer examination of the extensive body of research often reveals numerous publications with similar themes, differing in stylistic approach. Therefore, reviewing existing research before selecting a topic is required to ensure originality and depth in scholarly work.

An effective research question should be original, specific, and relevant to the academic community, allowing for in-depth exploration rather than superficial coverage. Importantly, while not every study needs to break new ground, it should demonstrate how existing knowledge in a field can be expanded or reinterpreted. Once the research question is clearly defined, the writing process becomes significantly more manageable.

Structure
A well-structured research article typically follows a format akin to a traditional essay: an introduction, a body, and a conclusion. The introduction should highlight the topic's importance, outline the study's aims, and provide a roadmap for the paper. The body should present the analysis, while the conclusion summarises the key findings and reflects on their significance and implications. In the Humanities, where subjective interpretation is prevalent, maintaining a balanced tone is crucial. Scholars should present their findings with academic rigour while avoiding extreme disagreements or dismissals of alternative viewpoints.

Beyond structural considerations, style is also vital. Scholars should take ownership of their work, but it is important to do so subtly. Excessive use of personal pronouns can make the writing feel overly subjective. Clarity plays a key role; hence, papers should be free of jargon and accessible to a broader audience. Adhering to the citation format required by the relevant journal is essential, as this helps avoid plagiarism, which can damage a scholar's reputation. No paper is perfect in its first draft. Thorough revision is essential before submission. Utilising notes, whether as footnotes or endnotes, can enhance the quality of the paper while adhering to the journal's style guidelines.

Finally, before submitting an article, scholars should meticulously review the submission guidelines of their targeted journal. By keeping these principles in mind, scholars can enhance the quality of their writing and improve their chances of being published in reputable academic journals.

The writer is a Fulbright awardee and former professor and coordinator (SIP), Department of English, Silver Jubilee Campus, Pondicherry University, Puducherry.

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Develop your potential

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

OFF THE EDGE
Nandini Raman

I am doing Class 12 via NIOS and my subjects are Sociology, Psychology, Home Science and Early Childhood Care and Education (ECCE). My primary interest is in ECCE. What options do I have after school? Meera

Dear Meera,
Your options include B.A. in Early Childhood Education, B.Sc. in Home Science or a B.A. in Psychology. You could also consider Diploma and Certificate courses in Early Childhood Care and Education or a B.Ed. in Early Childhood Education if you wish to become a certified teacher. Career options are being an early childhood educator, a child development specialist, a childcare centre manager, a special educator, a child welfare advocate, and a parent educator. Gain experience via internships and volunteering opportunities in schools, childcare centres, or organisations that work with young children. Attend workshops, seminars, and conferences related to early childhood education to learn about latest trends and to connect with professionals in the field. Network via social media, professional associations, and local community groups to learn about potential opportunities. Finally, think about a Master's degree or additional certifications for advanced career opportunities.

I have completed the DNV approved three-year Diploma in Shipbuilding and Repair. What are the career opportunities? How can I get jobs in the public sector shipyards? Shyam

Dear Shyam,
You could look at being a shipbuilding and repair technician, a marine surveyor, or a technical support specialist. Work on building a strong resume and highlight relevant skills and any practical experience by showcasing your projects or work. Visit the official websites of public sector shipyards such as Hindustan Shipyard Limited (HSL), Cochin Shipyard Limited (CSL), and Mazgaon Dock Shipbuilders Limited (MDL) and government job portals for notifications of openings. You will have to prepare to take the written exams and interviews. Apply for apprenticeships and trainee programmes for on-the-job training. Finally, network with industry professionals and enhance your skills in areas like welding, project management, or quality assurance to improve your employability.
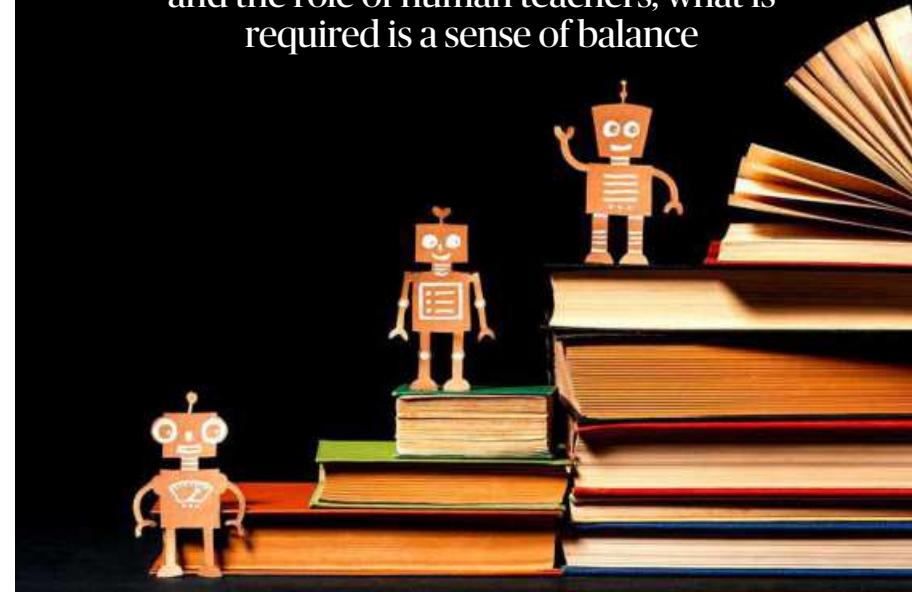
My daughter is in Class 5 and is doing well in academics and sports (basketball). Her ambition is to be a doctor but she is interested in sports, painting and art. We live in a Tier-3 town and do not have options for homeschooling nor can we leave the town because our work is here. How can we encourage her to grow into her potential? Kathir

Dear Kathir,
Encourage her to explore and develop her potential. Support and feed her academic ambitions by providing her with age-appropriate resources, like online courses, study materials, educational YouTube videos, TED Talks, podcasts, and documentaries. A deep love for Science and Math will be beneficial for her medical aspirations. Can she be placed under a trainer or be a part of a community centre or sports training facility to pursue her love for basketball? Motivate her to pursue painting through online tutorials local art classes and virtual art workshops and competitions. Websites like Khan Academy, Coursera, and Udemy offer courses in a variety of subjects.

A balance of academics, sports and artistic pursuits will ensure that she develops holistically. Let her participate in activities that build life skills like problem-solving for academics, teamwork for sports, and creativity for art. Look out for local age-appropriate community involvement and volunteering opportunities that provide practical experience and a sense of contribution. Join online forums and groups to seek inspiration, network and seek opportunities to showcase her talents and skills. Explore other schools and options that she could choose after Class 10, if she is keen to move to a bigger place. Encourage her to part take in competitive exams to get a real-time taste of her intelligence and skills and the competition she will face.

After finishing Class 12 in 2016, I gave NEET twice but got low scores. So I did B.Sc. (Botany, Zoology, Chemistry) and an MBA and got an entry-level job in the private sector. I am not happy with the work culture and have changed three jobs in 18 months. Will quitting and preparing for the Civil Services be a wise decision? Amisha

Dear Amisha,
What is the cause of your dissatisfaction beyond work culture? What will make you feel comfortable in these offices? Have you considered all aspects of your current situation and career goals before opting for the Civil Services? What are your long-term career goals? Meet a career counsellor and get some clarity on the cause of your distress and to find out what you are passionate about. After this, if you still want to take the Civil Services exam, you need a well-structured preparation plan. It involves a substantial commitment of time, consistency and effort and intensive studying, staying updated on current affairs, and developing a deep understanding of various subjects. Explore other areas such as those related to your MBA or fields that you find engaging and might align better with your personality, interests and skills. Speak to serving civil servants to gain insights into their challenges and rewards.

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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Tech versus tradition

With the AI revolution raising questions about the nature of knowledge acquisition and the role of human teachers, what is required is a sense of balance

FREEPIK

Anthony Fernandes

From the advent of the printing press to the introduction of personal computers, education has long been shaped by technological revolutions. Today, as Artificial Intelligence (AI) stands poised to transform learning in ways previously unimaginable, the education sector finds itself at the cusp of another revolution. However, unlike previous technological shifts, the AI revolution raises questions about the nature of knowledge acquisition and the role of human teachers. As schools rush to integrate AI tools, a crucial question emerges: are we at risk of over-digitising education at the expense of vital traditional learning methods?

Problem areas
Recognising that technological advancements are most effective when complementing rather than replacing traditional learning methods is crucial. Consider the art of note-taking. While AI can transcribe lectures with perfect accuracy, the cognitive process of listening, synthesising, and manually recording information engages multiple areas of the brain, enhancing retention and understanding. The need for writing, especially for school students, cannot be replaced. Similarly, in subjects like Maths, the tactile experience of solving problems on paper alongside AI-powered problem-solving tools can provide a more comprehensive understanding of concepts. This blended approach ensures that students develop both foundational skills and the ability to leverage modern tools effectively.

Another aspect is getting the information according to one's requirements. When a Class 8 student seeks an answer, the answer and the level of explanation that AI provides can range from Class 5 level to Ph.D. A current limitation of AI systems in education is that they don't automatically adjust to a student's level or provide built-in verification mechanisms. Providing appropriate detail and complexity based on the learner's background is crucial for effective communication and education. Responses should be based on the user's grade level or educational background. AI tries to provide accurate information, but the level of detail and complexity can vary. This means that, without specific guidance, a young student might receive a very technical answer and someone with advanced knowledge might get too simple an explanation.

As a student, how will you know if the answer is right or not? You need to cross-check the answer with a textbook or other solution sources, which are made with your grade and subject in mind.

Students often face challenges in verifying the accuracy of information they receive, especially from AI systems or other sources that aren't specifically tailored to their educational level. Students need reliable ways to cross-check information.

Textbooks and grade-appropriate educational resources are indeed valuable for this purpose. This situation underscores the importance of teaching students to critically evaluate information sources and not blindly trust a single source, even if it seems authoritative.

Teachers' role
Educators play a crucial part in guiding students to appropriate resources and teaching them how to verify information. One of the most prominent drawbacks of over-reliance on AI in education is the potential loss of human mentorship. Teachers, in addition to bringing subject knowledge to the classroom, offer guidance, emotional support, and personalised attention that no algorithm can replicate. These mentors often see potential where others don't, encourage during challenging times, and offer tailored advice that shapes careers and lives.

AI, despite its vast knowledge base, lacks the nuanced understanding of human emotions and the ability to provide the kind of individualised support that can make a difference in a student's life. Moreover, building relationships with teachers and peers is essential to social and emotional development. These interactions teach students valuable lessons in communication, empathy, and collaboration; all skills that are crucial in both personal and professional spheres. In today's information age, students need skills to navigate and assess online resources, distinguishing between credible and unreliable sources.

Thus, the challenge for educators, policymakers, and students alike is to remain open to technological advances while preserving the irreplaceable elements of traditional education so that we can harness the power of AI to enhance learning without losing the human touch.

The writer is Founder of Shaalaa.com

YOUNG ACHIEVERS

Testing the waters

Featuring two winners of the Samsung Solve for Tomorrow 2024 competition who focused on cleaning up arsenic contamination in water to provide their community with a safe source of drinking water

Arpit Kumar

Arsenic contamination of groundwater in India has long been a critical topic of research due to the dire impact it has on communities. It has uprooted livelihoods, caused debilitating health conditions and a lifetime of suffering. In India arsenic is found in certain pockets of 152 districts in 21 states. According to data from the Ministry of Drinking Water and Sanitation, around 1,800 rural habitations, home to nearly 2.4 million people, are at risk.

Growing up in Bihar, my team mates Shambhavi Sinha, Abhijeet Kumar and I saw our communities suffer due to the lack of regular monitoring and water treatment facilities. We wanted to take on this challenge head on. While our school helped us shape the initial idea, Samsung's Solve for Tomorrow (SFT) gave us a platform to refine our concept and bring it to the people truly affected by this crisis.

Eco-friendly solution

Our journey was a powerful lesson in resilience, collaboration, and the art of innovation. Our project, which filters arsenic from groundwater using magnetic properties, earned us the title of Environment Champion on the Youth Track. In the pilot phase, it treated over 300,000 litres of water, benefiting 2,300 children. Our solution works by leveraging the magnetic properties of specific materials to repel arsenic molecules, filtering the water in a way that's eco-friendly and free of chemical waste.

We started with 3D-printed parts, gradually refining our approach until we had a prototype capable of bringing arsenic levels down to a fraction of the WHO's safety limit. The entire process was a mix of excitement and nerves, especially when we discovered we needed a rare earth magnet to complete our filtration system. With just one day left before the main pitch event in New Delhi, the magnet was nowhere to be found. Tension was high as we scrambled through calls, emails, and every possible lead, while balancing college exams and project deadlines. Our mentors at SFT, however, reminded us that innovation is as much about determination as it is about ideas. In that frantic search for the magnet, I learned a lesson that would stay with me: resilience and faith in our mission. Our work with Samsung took us to research centres in Bengaluru and Delhi, where we engaged in workshops on design thinking and pitch refinement that helped us to think like a designer, focusing not just on what we could build but on whom we were building it for.

Each of us brought something unique to the project. Abhijeet's expertise in CAD and engineering was important for prototype development, Shambhavi's data analysis skills ensured our research remained precise, and my focus on heavy metal contamination and water chemistry grounded our project. Together, we learned to rely on each other's strengths, solving last-minute challenges and pushing through intense deadlines. Today, we are preparing to commercialise our solution, with the goal of providing arsenic-free water across India and to the world, as this problem extends to many countries. We envision a future where safe drinking water is a universal right, not a privilege. Looking back, I'm reminded that while innovation demands a great idea, it also demands a practical vision that is driven by empathy. Finally, nothing can be achieved without collaboration.

The writer is a second-year student of B.Sc. Physics, Dept. of Atomic and Molecular Physics, Manipal Academy of Higher Education (MAHE).

Sayed Safrahan Ullah Khabir

Growing up in Assam, arsenic contamination in drinking water is a constant source of worry, as the deadly effects caused irreversible terminal illnesses like cancer and arsenicosis. This is not peculiar to Assam. Millions across the Ganga Basin endure the same problem, with recent studies showing that over 250 million people are at risk from arsenic-laden water.

From a young age, I felt an urge to address this growing threat but I had no roadmap. The scarcity of resources and resistance to new ideas around me often held me back, but my resolve led me to Samsung's CSR initiative Solve for Tomorrow (SFT), which offered a platform to address pressing social issues.

My idea, Eco Tech Innovator, aims to purify arsenic-laden water while producing hydrogen-rich alkaline water as a by-product. Designed as an accessible alternative to costly, wasteful RO systems, it turns harmful contaminants into usable bioproducts. Throughout the journey, mentors helped me shape this vision into a practical device and taught me the importance of making designs user-friendly, especially for communities with limited resources.

Redesigns

A defining moment was during an innovation walk at Samsung's offices in Noida and Delhi, where I got insights into how to craft my solution's narrative, focusing on how it could truly serve people. A memorable session involved a mentor from IIT-Delhi who suggested simplifying my design to fit into a compact, tiffin box-like structure. Though nervous about this last-minute redesign, I worked to incorporate it, learning the resilience required to see an idea through and the impor-

tance flexibility in innovation. I learnt to overcome challenges such as technical setbacks, presentation nerves, and the intricacies of scaling an 11-layer purification system and understand that an idea's value is not just in its originality but also in its practicality and adaptability. I had to simplify, refine, and make my solution something that could integrate seamlessly into real life.

Participating in SFT has been transformative. I walked away with much more than the title of "Community Champion". I found purpose, mentorship, and the technical skills to make an impact. The competition didn't just celebrate ideas, it cultivated them, planted seeds of innovation and connecting us with like-minded change-makers committed to a sustainable future. My SFT journey provided me with life lessons beyond technical know-how. I learned the power of storytelling in making ideas resonate within a market and the strength of collaboration in building solutions that last. Most importantly, it instilled in me the persistence to work through challenges. I entered the competition with a simple vision and came out with a blueprint for change. I believe that innovation should always serve humanity, not the other way around. I'm grateful for the chance to make a meaningful difference, and hope to inspire others to solve the issues they see around them.

The writer is a student of Class 11 in Concept Sr. Sec. School, Golaghat, Assam

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WIDE ANGLE
Albert P' Rayan

Teachers deserve better

When only a few teachers are recognised, does it genuinely celebrate the entire teaching community?

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A week ago, a friend, who has been teaching for over three decades, posed a thought-provoking question: Does India truly value its teachers and honour them for their service to the nation? As I reflected on this, he shared that, in countries like Finland, teaching is a highly respected profession. Teachers are paid well, and the country invests heavily in their professional development. Finland's education system is renowned for its success, largely driven by high job satisfaction and enthusiasm of its teachers.

When I mentioned India's Teachers' Day, he dismissed this as a superficial gesture, arguing that such celebrations are often meaningless, with governments offering only lip service while the real challenges faced by the teaching community remain unaddressed. A valid point.

Each year, the union and state governments, institutions, and organisations honour teachers with awards such as Best Teacher or Teacher of the Year. However, I often wonder why some truly outstanding and amazing teachers who embody all the qualities of a great teacher are not recognised, while others, less deserving, are honoured. Are these awards truly given to exceptional teachers or do some simply lack the ability to market themselves or the desire to play the game? When the government selects a few teachers for recognition, does it genuinely celebrate and do justice to the entire teaching community?

While some great teachers are rightfully acknowledged for their contributions, there are instances where awards go to individuals who excel more at self-promotion than at teaching. A friend of mine, also a teacher, once pointed out how teachers are often selected for awards: those who excel at completing nomination forms, writing persuasive essays stating why they should be considered for certain awards, and securing recommendations from higher-ups are more likely to be considered. In these cases, it's not their teaching excellence that earns them accolades, but their marketability. This practice of glorifying a select few teachers while overlooking many truly exceptional ones can create division within the teaching community.

In the age of social media, teachers who are skilled at self-promotion often garner attention, while those who contribute quietly go unnoticed. The "culture of awards" has gained prominence in recent years but its negative impact on both the teaching community and society has not been suffi-

ciently analysed.

Addressing challenges

Rather than focusing on awards, we should prioritise respecting and valuing teachers by addressing the systemic issues they face. Teaching was once regarded as a noble profession in India, but this reputation has diminished due to widespread injustices within the field. For example, many private school teachers earn significantly less than their counterparts in government schools; sometimes less than a fifth of what the latter make. Despite this, the government has largely failed to address such exploitation, leaving these teachers in difficult conditions for years. Would a teacher who advocates for their fellow educators' rights ever be considered for an award by institutions, organisations, or governments?

Since awards can be discriminatory, we must find alternative ways to celebrate and support the teaching community. A

large section of Indian teachers, especially those in private schools, faces numerous challenges: low salaries, high workloads, long working hours, job insecurity, lack of professional development, meaningless paperwork, and a lack of recognition and academic freedom. Many teachers are underpaid for their knowledge, skills, and experience, and their contributions often go unnoticed.

A 2022 survey revealed that Tamil Nadu is home to approximately 25,000 recognised private unaided schools that employ over 260,000 teachers, many of whom face unfavourable working conditions. For example, prior to the pandemic, a primary school teacher in a private institution typically earned between Rs 12,000 and Rs 20,000 per month, while their counterparts in government schools earned between Rs 35,000 and Rs 70,000.

Teachers also face a range of other challenges, and it is the responsibility of governments to address these issues. Governments should create an environment where teachers can find job satisfaction and have opportunities for professional growth in a supportive and enriching setting.
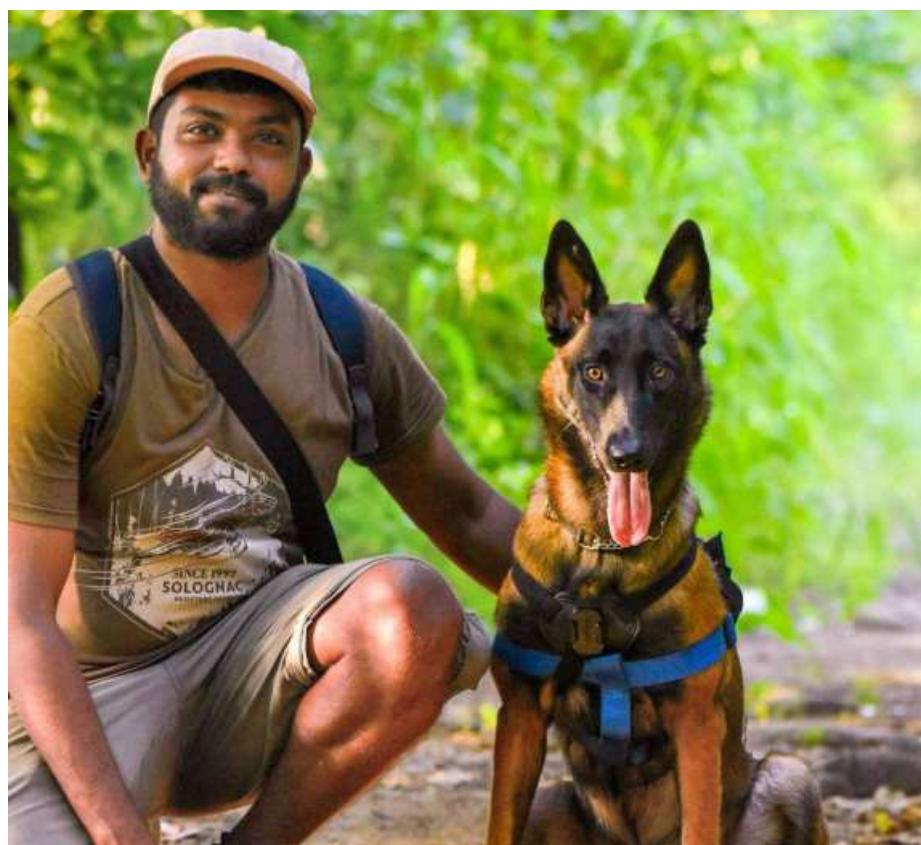
Despite slogans like "teachers are the backbone of society", "teachers are shining stars" or "teaching is a noble profession," the harsh reality is that many talented young people today are reluctant to become teachers due to the numerous challenges faced. Nobility without justice may not have stability. Teachers do not expect to be treated like stars or shining stars or given awards. Instead, they expect their rights to be respected, their contributions to be acknowledged, and justice to be done. That, ultimately, is the true meaning of celebrating teachers.

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

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GREEN CAREERS HUB

With a dog by my side

Zookeeper-turned-conservation cynologist Kartik Arun Thevar on what set his career in motion

The next 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

Growing up, who wasn't inspired by the conservationist Steve Irwin on Animal Planet? Watching his love for animals drove me to study Zoology and, later, wildlife conservation in Mumbai. I would often rescue small animals and birds around my neighbourhood. Soon, I landed my first wildlife job guiding tours at Kanha National Park. Each step of my career path since then has been dedicated to working closely with animals, understanding their needs, and exploring new ways to support their survival.

Volunteering with local forest departments, one memory stands out. I once visited a zoo, where a leopard was pacing and panting. I sat near the enclosure; after a while, the leopard came over and lay close to me in a way that almost felt like trust. It reminded me of a dog's behaviour and got me thinking: could we reduce stress in captive animals through consistent, positive interactions?

This became my research motivation: to explore how to improve the mental well-being of captive and rescued animals and use enrichment techniques to encourage more natural behaviours. This idea turned into my thesis on enrichment practises for rescued snow leopards in Ladakh. After this, I expanded my research to birds of prey like eagles and falcons, tigers, leopards, and even sloth bears! I trained them using olfactory stimulation such as spices, introduced objects, and built trust to reshape human-animal interaction.

Turning point

While in Ladakh, a situation involving wildlife poaching shifted my career focus. Despite our best efforts, we couldn't solve the case due to a lack of evidence. This got me thinking about how trained dogs could help track and detect wildlife articles. I started training Agni, my Belgian Malinois, to work in wildlife detection, and eventually joined WWF-India's Wildlife Sniffer Dog programme.

This is how my journey as a conservation cynolo-

gist – someone specialising in canine training and behaviour for conservation – was set in motion. Conservation cynology leverages dogs for various purposes: tracking wildlife contraband, locating endangered animals, and even biosecurity, preventing invasive species from entering new habitats.

I've found such an incredible partner in Agni; her keen senses and joyful spirit make every discovery a victory. When she finds the article she's trained for, her excitement is boundless, almost as if she's celebrating with me. One project involved detecting the presence of Ganges river dolphin oil, which is used to waterproof boats. We trained her to identify the distinct smell of dolphin oil, even when it was mixed in water. This should help save dolphins from being hunted to extract the oil.

At WWF-India, I often take Agni to training centres across India to conduct workshops focusing on scent work and building obedience to odour to help conserve wildlife. I have also found a way to acquire wildlife articles without getting the whole article; a method we like to call 'Remote Air Sampling through the use of Getxent Odour Impregnation Tubes'.

My dream in the field of conservation is twofold. First, I'd like to see greater involvement of law enforcement agencies in using trained dogs for conservation tasks beyond contraband detection. There's huge potential for dogs in biosecurity and research. Second, I want to elevate the working standards of modern zookeepers, who are often undervalued despite their direct connection with animals.

My advice for young conservationists is simple: keep that spark of curiosity alive and don't hesitate to think out of the box. The work may be challenging, but as biologist E.O. Wilson said, "There is no better high than discovery."