VIGYAN 2047 Volume 1 No. 1 October 2024 Pages 28–32

Careers in Science & Technology

Science Communication Popularization and its Extension

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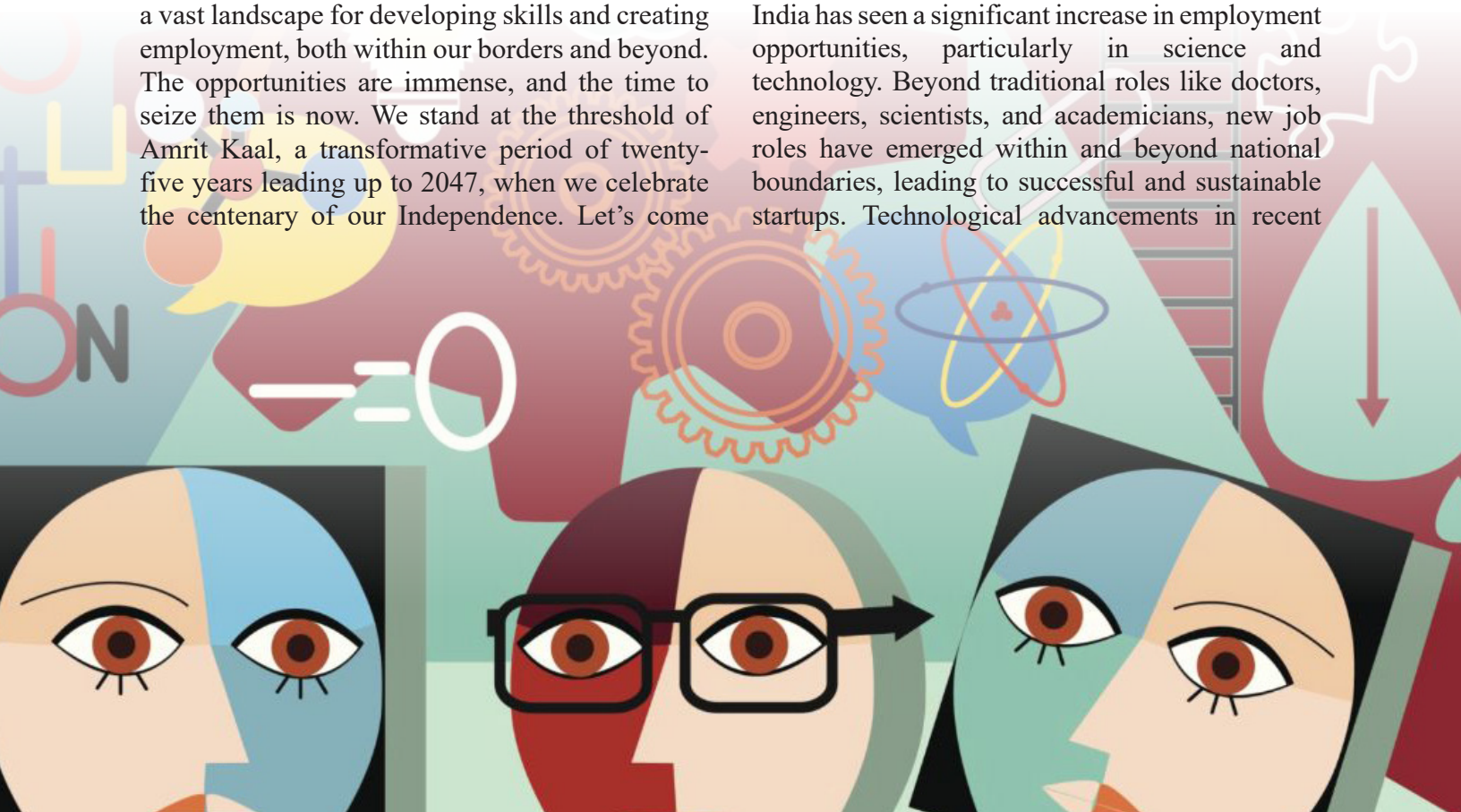
It is true that the career opportunities in science and technology have experienced a decline over the past two decades due to fewer students choosing STEM subjects after school? In this series, ***Nakul Parashar*** *delves into various fields of science and technology, analyzing the evolving landscape of career prospects, emerging opportunities, and the skills required to thrive in this dynamic sector. By exploring trends and future possibilities, this series aims to provide insights for students, educators, and professionals alike on the potential of a career in science & technology.*

We are huge. According to the latest UN report on population released on July 11th, 2024, India's population has soared to 145 crore, making us the most populous country in the world. Covering an area of approximately 33 lakh square kilometres, we rank seventh globally in size. Our economic growth is astounding, positioning us as the fifth-largest economy and one of the fastest-growing in the world. This trajectory highlights India as a land of unparalleled opportunities.

If we take a moment to reflect, we will uncover a vast landscape for developing skills and creating employment, both within our borders and beyond. The opportunities are immense, and the time to seize them is now. We stand at the threshold of Amrit Kaal, a transformative period of twenty-five years leading up to 2047, when we celebrate the centenary of our Independence. Let's come together and harness this momentum. Together, we have achieved greatness in the past, and we firmly believe that India can do it again.

Recognizing this potential, we are launching a series focused on various domains within science and technology. This series by Nakul Parashar will explore avenues of research, skill development, and employment opportunities. Join us on this journey to unlock the immense potential that lies ahead.

Over the past 77 years since independence, India has seen a significant increase in employment opportunities, particularly in science and technology. Beyond traditional roles like doctors, engineers, scientists, and academicians, new job roles have emerged within and beyond national boundaries, leading to successful and sustainable startups. Technological advancements in recent



decades have expanded the variety and quality of opportunities, yet many remain underutilized. Science and technology communication in India is crucial for bridging the gap between scientific advancements and societal understanding. Effective communication in these fields is paramount as the nation progresses, encompassing organized and unorganized sectors, demand versus supply dynamics, and avenues in research, education, media, entertainment, and development.

The vast market for science and technology communication in India caters to over 145 crore people. With a literacy rate of 77.7% as of 2023, over 1.12 billion people can read and write, indicating a tremendous need for readable content. For the remaining 330 million, audio-visual content is essential. India's diversity in languages and dialects—over 19,000 dialects and 121 languages, with 22 official ones—highlights the appetite for science and technology communication.

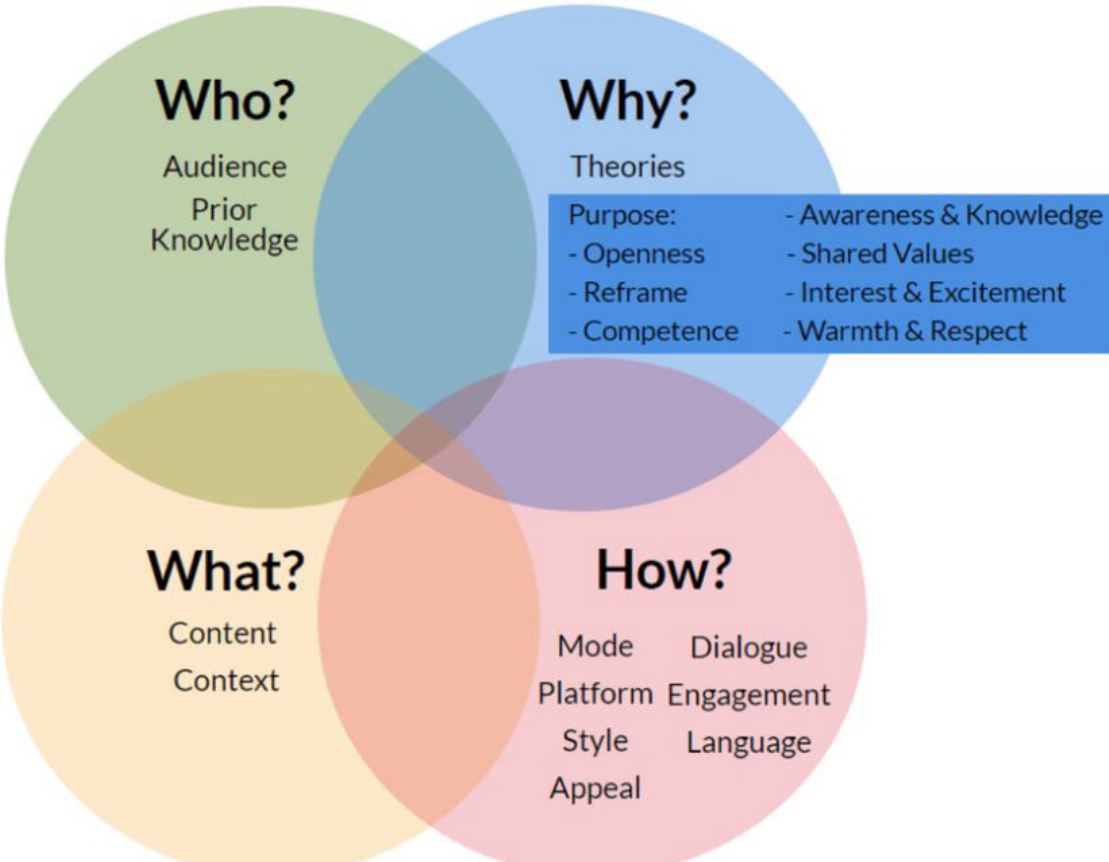
The landscape of science and technology communication in India is marked by vast potential and significant challenges. The diverse linguistic and cultural fabric requires a multifaceted approach to effectively disseminate scientific knowledge. Despite a high literacy rate, a considerable portion of the population relies on audio-visual media, necessitating diverse content formats. Historical analysis reveals a pattern of initial enthusiasm followed by sustainability issues. The closure of popular science magazines and dedicated science pages in newspapers underscores the need for a more resilient and adaptive communication strategy. Despite numerous efforts to bring science and technology to the masses, sustainability has been an issue. Many initiatives, both governmental and non-governmental, were project-based and thus short-lived. Popular science magazines and television channels also faced similar fates. However, new means of mass communication, such as OTT media, have shown promise. Channels like Discovery and National Geographic have successfully adopted OTT platforms, and in India, the IndiaScience OTT channel, although closed in March 2023, demonstrated the potential of such platforms.

Revitalizing science and technology communication requires embracing digital transformation while ensuring content is engaging, accessible, and sustainable. Collaborative efforts between government, non-government organizations, and private sectors can create a robust ecosystem for science communication. Leveraging social media and interactive platforms can capture the fleeting attention spans of modern audiences. While the challenges are significant, the potential for impactful science communication in India is immense. By learning from past experiences and embracing new technologies, it

is possible to foster a scientifically informed and curious society, ready to engage with and benefit from scientific advancements.

Specialists identify several reasons why science and technology communication has not yet become a leading job and market opportunity in the country. One major factor is the lack of engaging content that resonates with the audience. Effective communication must connect with the average Indian audience by providing relatable examples. The quality and quantity of content are also crucial, requiring a significant number of trained human resources. The question arises: where will these resources come from, and how will they be trained? Establishing a network of well-trained and certified science communicators is essential.

Historically, the early 1990s witnessed a significant surge in science communication activities. Science communicators came together, forming active user groups and movements, with substantial government support. Nationwide yatras and jathas were organized, effectively dispelling numerous myths through hands-on demonstrations. Science fairs became commonplace, videos were produced, and national TV channels featured weekly science programs. The radio buzzed with science serials broadcast in more than 20 languages from over 100 stations simultaneously throughout the year. Monthly science magazines saw a surge in subscriptions, and the history of science became a crucial subject for civil services exam preparation. Various universities introduced UGC-approved postgraduate courses in science communication. Major publishers began to publish science books, and TV programs like Cosmos,



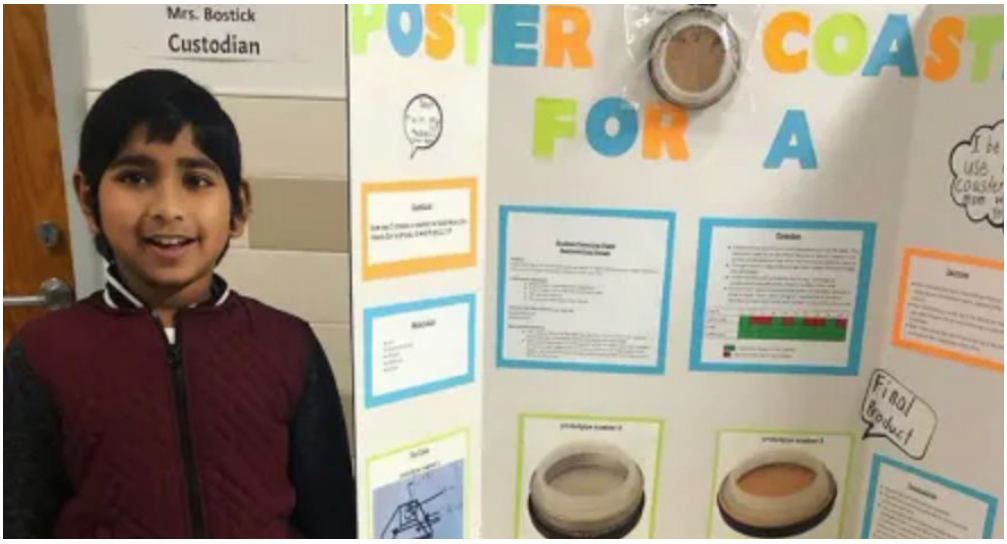
STEAMM (Science Technology Engineering Agriculture Mathematics Medicine) Communication Channels			
Streams	**Deliverables**	**Job Opportunities**	**Stakeholders**
Print	Popular STEAMM Monthly Magazines in Indian Languages	Content Writers/Journalists/ Aggregators, Editors, Graphic Designers	Media Groups, Govt & NGOs
	Dedicated page per week on popu-lar STEAMM topics	Content Writers/Journalists/ Aggregators, Editors	Media Groups
	Popular STEAMM Books	Authors, Editors, Graphic Designers	Publishers, Govt & NGOs
Audio	Popular STEAMM Serials for Radio	Content Aggregators, Editors, Producers	Radio Channels, Community Radio
	Popular STEAMM Podcasts	Content Aggregators, Editors, Producers	Community Radio Channels
	Popular STEAMM Audio Books	Content Aggregators, Editors, Producers	Publishers, Govt & NGOs
Video	Popular STEAMM Videos & Short Films	Content Aggregators, Editors, Producers, Film Pro-duction Crew	Media Groups, Film Makers, Govt & NGOs
	Popular STEAMM News & Features	Content Aggregators, Editors, Producers, Film Pro-duction Crew	Media Groups, OTT Chan-nels
Events	Popular STEAMM Webinars	Subject Matter Experts, Editors, Producers	Govt & NGOs
	Popular STEAMM Hands-on-Experi-ments	Subject Matter Experts	Schools & Colleges, NGOs
	Popular STEAMM Fairs & Conferences	Subject Matter Experts, Event Organizers	Govt & NGOs, Schools & Colleges
Social	Popular Media Posts	Subject Matter Experts, Content Agregators, Editors	Individuals, Media Groups, Govt & NGOs

Turning Point, and Quest gained unexpected TRPs. Initiatives like Science on Wheels, with trains carrying science experiments, traversed the country. However, this momentum eventually waned. Although there were sporadic efforts to revive these activities in later years, they too gradually ceased. The reasons for this decline are manifold.

India's vast and diverse canvas for science communication, with 28 states, 8 union territories, 22 official languages, and a population of 145 crores, presents significant potential. To establish an effective science communication network, a substantial workforce is needed. This responsibility lies equally with the government, non-government organizations, and motivated individuals. Historical archives and past initiatives can guide the development of a nationwide science communication workforce, involving extensive hands-on, field-based exposure and iterative exercises.

Established institutions, government agencies, educational institutions, and large media houses need to develop and promote structured programs, trained personnel, and dedicated resources for science and technology communication. State-government-run science and technology councils should coordinate with every district and organize continuous activities. Corporates, media, and entertainment companies need to transform science and technology communication into a self-sustainable sector. Innovative means like short videos on careers in science and talk shows with successful entrepreneurs can help adults create new business avenues.

Creating awareness and interest in science and technology communication can develop business



opportunities in this domain. Similar to how IT-enabled services (ITES) scientific publishing and scientific learning and edtech services emerged in the nineties and continue to grow, there is immense job potential for people who can create, edit, and produce relevant scientific content for a large audience. Universities should organize popular science writing and science filmmaking workshops regularly. Engaging communities through science fairs, public lectures, and interactive science museums can foster a culture of curiosity and innovation. Mobile science labs and rural outreach programs can ensure inclusivity in scientific growth.

Creating platforms for industry-academia collaboration can facilitate practical research and development. Leveraging digital platforms and social media can amplify the reach of science communication. Inspiring the younger generation to pursue careers in science and technology is crucial. Competitions, hackathons, and innovation challenges can stimulate interest. Strong policy advocacy is needed to ensure sustained support and funding for science communication initiatives.

Creating avenues for science and technology to grow in India involves a multi-faceted approach requiring collaboration between government, academia, industry, media, and the community. By fostering an environment that values science communication and innovation, India can achieve significant advancements in science and technology, ultimately leading to a more informed and progressive society.

The growing demand for accurate, accessible, and engaging science and technology content is driven by the need for public understanding of science in addressing global challenges like climate change, health crises, and technological disruptions. National campaigns and educational programs can significantly impact public perception and support for science. State-level initiatives can address specific local issues. Indian science communicators have the opportunity to reach global audiences, contributing to international scientific discourse and promoting India's scientific achievements on the world stage.

Solutions and ideas are many. Yet, the growth in this area would certainly be an organic one. Therefore, one such plausible idea would be to establish a central university that serves as a hub for developing resources, training professionals in the field, fostering private-public partnerships nationwide, coordinating nationwide efforts, and acting as an interface between the government and NGOs. This ensures that all initiatives are coordinated and reach every individual in the country. Such a university would serve as a model for similar efforts worldwide.

The opportunities in science and technology communication in India are immense. By effectively leveraging these opportunities, India can cultivate a scientifically literate society and establish itself as a global leader in science and technology communication. Thus, Effective communication strategies can bridge the gap between science and society, leading to informed decision-making, innovation, and sustainable development. ◆

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