

Revolutionizing Pedagogy: Tech-Savvy Generation is Redefining Professional Paradigms

Shaikh Fahemeeda
Assistant professor, Department of Zoology
Khaja Bandanawaz University, Kalaburagi, Karnataka, India.

Abstract

This article aims to provide some insight into how scientific students view critical thinking, creativity, teamwork, communication, and technical literacy. The study employs a mixed approaches strategy that emphasizes observation and group discussion in addition to a questionnaire. It emphasizes how well-aware students are of these abilities, how important they are seen to be, and how well they may be incorporated by professionals into their academic and personal settings.

The need of the hour is that the teachers should be EdTech lovers, innovative teaching champions, e-learning evangelists, and pedagogy innovators who are committed to transforming traditional teaching methods and learning experiences by integrating cutting-edge technologies. The role emphasizes the importance of adapting to new technologies and continually reimagining how education can empower these ‘Alpha’ and ‘Z’ Generation learners.

Keywords: innovative, collaborative, critical thinking, creativity, communication, collaboration, teamwork, effectiveness

Introduction

Jawaharlal Nehru, India's first prime minister, stated that “the goal of IITS is to provide scientists and technologists of the highest caliber.” To support the country’s transition to technical independence. Building a strong foundation of scientific and technological knowledge to train capable and motivated students in all industries is the main goal of both IITs and

NEP2020. NEP 2020 calls on all institutions to foster an atmosphere that encourages free thought, develops vision, cultivates self-discipline and personality for the pursuit of excellence, and ignites an entrepreneurial spirit. Council for National Research (2012) Notes from the National Academic Press: Creating transferable knowledge and skill in the twenty-first century is known as “Education for life and work.”

Over the years, technology has been breaking new barriers, offering newer and newer new-age opportunities. Indeed, technology is ever-changing, and the related career paths are evolving with it. The 21st century has brought rapid technological advancements and globalization, necessitating a new set of skills for students to thrive in both academic and professional environments. Science students, in particular, are expected to harness these skills to innovate and address global challenges. This paper investigates how science students perceive these skills, their relevance to their studies, and their preparedness to apply them in real-world scenarios.

Emerging Educational Policies and Experts

The goal of all five-year educational plans and committees established by the government is to make the country better. As the Yashpal Committee correctly notes, a university is a location where new ideas are born, take root, and develop into strong, tall structures. It is a special place that encompasses all of our knowledge. It is a location where imaginative minds come together, engage with one another, and create new worlds. The quest for knowledge presents challenges to the establishment of the concept of truth.

When we compare the Yashpal Committee (2009) and the National Education Policy (NEP2020), they share similarities in their vision for education reform in India. Here are the key areas of convergence:

- Comprehensive and Interdisciplinary Education: Championed the dismantling of strict disciplinary confines and the encouragement of an integrative learning approach.
- Reduces fragmentation of Higher Education: Proposed a holistic higher education structure by merging different institutions and promoting multidisciplinary universities.
- Emphases on Research and Innovation: The Yashpal Committee stressed the importance of research-oriented universities and innovation-driven learning in only IIT sector. Where NEP2020 established the National Research Foundation (NERF) to promote research and innovation in all the sectors of education.
- Integration of Technologies: The Yashpal committee highlighted the need for technology-enabled while ensuring it complements traditional learning. Progressive National Education Policy focuses on digital education, online learning, and integrated technology through initiatives like the National Educational Technology Forum (NETF).
- Regulatory Reforms can be observed in the educational policies previously Yashpal Committee proposed forming a single, overarching body, where the new policy recommended the Higher Education Commission of India (HECI) as the regulatory body of all higher education.
- Promoting Liberal Arts and Critical Thinking in all sectors of education giving the freedom to students to gain multidisciplinary knowledge at their undergraduate, four-year integrated degree with multiple exit options.
- National Education Policy emphasizes holistic, transdisciplinary, and skill-based education and recognizes teachers as key change agents in the development of India's education system. Teachers are expected to go beyond studying and become mentors, facilitators, and innovators.

Challenges for Professionals

Teachers' Role in “Alpha and Gen Z” Generation Education

Alpha Generation and Z (Gen Z) are the first true digital natives, growing up in an era dominated by the internet, smartphones, and social media. Some of the common characteristics observed are as follows.

- Students of both generations are comfortable with AI, AR/VR, and digital platforms.
- They prefer visual content like videos, memes, and reels over text-heavy formats.
- Short attention Span and Quick Information Processing
- Entrepreneurial and Independent
- Socially Conscious and Value Driven
- Students Preference for personalization and authenticity
- Students prefer supportive and flexible work or learning environments.
- Students prefer interactive, hands-on, and gamification in learning.

To handle these Tech-Savvy and Digital First-era students. Guru should act as a Facilitator of Experiential and Conceptual Learning. He must imbibe VARK learning styles among themselves and always upgrade themselves with advancement.

An Immediate Transformation in Professional Direction is Essential

Techno Savvy Kids and the Educational Policy conveys the urgency of a significant shift in teaching career. The current professional situation is unsustainable or requires improvement, necessitating prompt action.

- EdTech Enthusiasts
- Digital learning Advocates

- Tech Savvy Educators
- AI Powered Teachers
- Smart Learning Pioneers
- Future Ready Educators
- Innovative Teaching Champions
- E-Learning Evangelists
- Pedagogy Innovators
- Tech-Driven Mentors

An EdTech enthusiast means an educator who is passionate about integrating technology into teaching and learning. Educators use artificial intelligence (AI), digital technologies, and cutting-edge platforms to boost student engagement, personalize instruction, and raise academic standards, they might make use of AI-powered adaptive platforms, gamify classes, make use of virtual classrooms and intelligent material, and more.

Educators should be Digital learning advocates who actively promote, support and encourage the use of digital tools and digital literacy among their students.

We need to be tech-savvy Educators. Adept at using technology to improve students' engagement and learning, and they are at ease with digital tools. The notion is that Slack software which are professional collaboration tool to update oneself with innovative ideas and methods.

An artificial intelligence-powered teacher who uses AI to improve students' results, individualized learning, and instruction. Professionals must leverage AI-driven platforms like Mentimeter, Kahoot, WordPress, Drupal, and others to automate activities, give real-time feedback, and build adaptive learning experiences.

Leading innovators in the integration of cutting-edge technology are known as Smart

Learning Pioneers.” To improve instruction, make learning more participatory, and push the limits of conventional education with innovative teaching strategies, we must be ready to use cutting-edge approaches.

To guarantee that students' critical thinking, digital literacy, and problem-solving abilities grow in readiness for future issues, future-ready educators include Modern teaching practices in their lessons. Example Using Trello for project management.

A creative teaching champion who is at the forefront of utilizing technology and creativity to modernize conventional teaching techniques, encouraging teamwork, creativity, and problem-solving while motivating students to embrace progressive practices.

As learning evangelists, we must encourage using digital technologies such as virtual classrooms and learning management systems (LMS). Offers the instruction and materials necessary to assist.

As pedagogy Innovators, we must always strive to enhance and revolutionize teaching strategies using an original, research-based methodology. We must adopt new concepts, tools, and methods to make learning more efficient, interesting, and tailored for each student. We should not be scared to question established teaching theories and investigate fresh approaches to motivating and empowering students.

Tech-driven mentors employ technology to advise and support students as they traverse learning environments, solve challenges, and acquire digital skills. Uses data and analytics to monitor student's progress and provide personalized recommendations

These changes propel education toward a more personalized, engaging, and effective future, with technology playing a vital role in improving teaching and learning. Critical thinking and creativity prepare students to approach issues in both imaginative and analytical ways, which are necessary abilities for scientific research (Birru,2024) (Todorova,2024). Effective

communication is essential in scientific research and cooperation, and students show that students place a high value on it. Participating in collaborative projects improves learning outcomes and prepares students for real-world difficulties (Al Ali,2024). Integrated STEM education, specifically projected-oriented problem-based learning (POPBL), greatly improves 21st-century abilities by immersing students in real-world problem-solving situations (Alali,2024). An Interdisciplinary approach fosters greater comprehension and skill development by connecting many subjects of study (Thana, 2022).

Conclusion

Teachers are the driving factor behind National Education Policy 2020's aim to revolutionize education in India. Their responsibility has evolved beyond simply imparting information to include motivating, guiding, and preparing pupils for a dynamic future. Understanding Alpha and Gen Z students' perspectives on 21st-century abilities is critical for developing instructional technology using techniques that meet the needs of the modern world.

Every professional today acknowledges the need for technical education for the nation's citizens. First, it's now well known that if everyone got a liberal education, there would be more males than there would be a need for them. They should initially obtain basic scientific instruction to benefit from technological education. Regarding the National Education Policy 2020, it has been stated recently that there are positive changes in the education system, but a lot is still unclear to the professionals and the stakeholders. However, based on my research and experience, the national educational movement that has just begun to take shape has rightly determined that the national education movement is not only desirable but also essential.

Professionals are in charge of bridging the gap between lab and classroom work, applying theory to practical problems, and developing technology in their programs that can satisfy global standards to keep students engaged and interested in their courses. We should provide a long-life,

high-quality education that meets worldwide standards so that students can graduate at all levels.

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