

## Multi disciplinary Approach in Education in the Context of AI Invasion

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*"We may forego material benefits, we may forego material benefits of civilization, but we cannot forego our right and opportunity to reap the benefit of the highest education to the fullest extent"*

– B.R. Ambedkar

Education as a process of teaching and learning in a formal institutional structure in India is a modern concept. It was the East India Company and the British India educational policy under the pressure of Joti Rao Phule in a memorandum to the Hunter Commission in 1882 that education was democratised. However, a large section of the former untouchables, service castes, and converts from socially and educationally deprived sections have remained outside the portals of school education. After independence, activist groups waged protracted struggles for the universalisation of education in the name of 'education for all'. Social and political pressure from these groups led to the constitutional guarantee of free and compulsory elementary education in 2009. Education up to the age of 14 became a Right under Article 21A. This has revolutionised education policy and enabled the government to approve the National Policy 2020 in the twenty-first century. It has rightly addressed the issues of school education and drafted a new structure to facilitate the state's implementation of the mandate of Article 21A of the Constitution of India. Simultaneously, the UNO directed all member states to achieve Sustainable Development goals, particularly Goal 4, relating to education. This has placed moral compulsion on the government to formulate policies to attain the universalisation of elementary education and increase GER in higher education.

We are concerned here about the NPE 2020 in relation to school education and also about the Faculty of Teaching, popularly known as Education, to revitalise the course to meet the challenges of the time. We all know how the structure at the school level has been modified and how the Teacher Training programmes have been revamped both at the undergraduate and at the PG and research levels. Given this policy background and the emerging issues of universalisation of school education to meet the challenges of international standards and to address the competition from advanced countries in offering higher-education courses, native educational institutions are under great obligation to improve and enhance their skills to impart education at all levels. Naturally, policymakers look at universities and institutes of education for support and sharing the burden of emerging challenges in the era of not only ICT but also artificial

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intelligence (AI). The circumstances now necessitate a multidisciplinary approach to understand, analyse, and apply the principles of teaching and learning to address the issues that keep emerging.

Education faculties are considered part of higher education and are a source of teaching skills. Higher education has a seed value in supplying not only teachers but also academic guidance on how skills and competencies should be imparted. Higher education as a source of knowledge and skill development is considered a universal and democratic right of every human being. The Universal Declaration of Human Rights also recognises this as a right. Researchers have established that the rate of economic growth is positively correlated with the rate of literacy and education growth. It is proven beyond doubt that advancements in science and technology can be passed on from one generation to another and from one group to another only through education. Therefore, it is assumed that without education, particularly higher education, it is difficult to survive in a modern technological society. Furthermore, the human development paradigm has highlighted the importance of education, longevity, and income as crucial elements that expand people's choices. In its 2004 report, the UNDP recognised the importance of cultural diversity and emphasised the need to address injustices that are historically rooted and socially entrenched so that all groups can actively participate in the development process. Education is an important factor that makes socioeconomic exclusion more visible. Economic opportunities are related to the educational attainment of people in modern society. The knowledge society has now matured. Therefore, addressing this exclusion requires a combination of policies. The UNDP has indicated the following:

1. Addressing unequal social investments to achieve equality of opportunity.
2. Recognizing legitimate collective claims to land and livelihoods, and
3. Taking affirmative action in favour of disadvantaged groups.

The Human Development Report 2004 devoted a substantial part of its argument to affirmative action policies pursued in India, Malaysia, the USA, and South Africa. "Educational and occupational reservations have also made a lasting impact on India's political system. The entire structure of political power has changed since independence, beginning with the South Indian States. New political leadership has emerged from the Scheduled Castes, Scheduled Tribes, and other backward classes. In almost all states, the beneficiaries of reservations occupy important positions in government and lower levels of bureaucracy" (UNDP-2004 P.71). This was the first time that the issue of reservations had been referred to in an international debate by a UN agency. This recognises the positive aspects of affirmative action in education and services being followed by the Government of India for the last few decades.

However, the opportunities created through affirmative action in education and employment in India were limited to the public sector. The little progress that Dalits and Adivasis made during the seven decades of the post-independence period has started dwindling during the liberalisation period of the last few decades. Several policy changes have affected the educational opportunities of weaker sections of society. Post-independent public education was almost a continuation of the colonial liberal education. The government has realised the lacunae and corrective measures such as

the creation of institutes of excellence like IITs and IIMs, new course structures, and vocationalization of education have been initiated. However, these courses and opportunities were confined to elite forward castes. The Dalits did not realise the importance of these courses and therefore remained outside the purview of vocational education, except for Engineering and Medical Courses. The post-liberalisation period witnessed tremendous changes in the higher education sector. There has been a revolution in science and technology, which has influenced communication and information networks. They have also affected the educational system. The creation of the WTO and GATS has created new opportunities for the free mobility of resources and technology. This has facilitated the expansion of the educational market in response to the needs of the global market. The public sector started to shrink, and opportunities for employment in secure jobs disappeared. The Dalits and educationally backward groups have not perceived the danger of dwindling opportunities in the public sector and the opening up of ever-expanding possibilities in the globalised private sector. The global labour market has begun to influence educational programmes, particularly courses in electronics, computer science, and related fields. Practically, hundreds of thousands of courses are created to meet every small skill requirement in the job market. In fact, the course structures have changed. There are now two categories of courses: short- and long-term courses. Long life courses require a long period of time, resources, and knowledge to enter the market, and the market is not yet mature. They are very expensive, and their benefits are lifelong and useful for society. The short life courses are very short in duration. They meet the immediate requirements of any minute skill. Therefore, the cost is borne by the individual as it directly benefits them. However, its durability is limited. It runs the risk of short duration, and therefore, the state does not take the responsibility of providing it. Here, the private sector is expanding to meet the requirements of the growing manufacturing and services sectors. The private sector is creative in its approach to designing courses that can meet any demand with a tailor-made curriculum. This has not been grasped by the socially marginalised who do not have global social networks. However, groups with a historical advantage in education have transformed themselves and are now entrenched in the global market. This has an impact on higher-education institutions. It is now clear that very few forward caste persons will enter liberal Arts and Science courses. On the other hand, all the liberal courses in government and aided colleges are filled by the so-called reserved categories, and the private colleges are left out for the so-called merit students. However, this comes at a price. Self-financing courses are related to emerging skill areas in the job market. The state is funding educational loans to go abroad to obtain advanced skills, knowledge, and important positions to manage the economy. They have networks, and the marginalised have remained neglected or thrown into courses that confer degrees without knowledge so that they can fill the private sector as gig workers with advanced qualifications.

### **AI and the Danger of Marginalisation of Socially Deprived**

While the NPE 2020 and SDG 4 focus on how to make education reach all households irrespective of caste, gender, religion, and place of birth, as enshrined in our Constitution, the world, particularly advanced countries, are abounding with Machine Learning and are introducing innovative methods of imparting knowledge with hybrid models of man and machine in the classroom. It is noted by UNESCO that, “AI is said

to be a key enabler of the Fourth Industrial Revolution (Industry 4.0): Of the many diverse and fascinating challenges we face today, the most intense and important is how to understand and shape the new technology revolution, which entails nothing less than a transformation of humankind.” (Schwab, 2017, p 1). Industry 4.0 technologies include 3D printing, autonomous vehicles, biotechnology, nanotechnology, quantum computing, robotics, and the Internet of Things, all underpinned by AI. AI is already ubiquitous in the modern workplace, from manufacturing to banking, construction to transport, and beyond, with implications that require a system-wide response. Inevitably, there will be an increase in both unemployment and the emergence of new occupations. A recent global estimate suggests that 30% of work activities will be automated by 2030. Up to 375 million workers worldwide may be affected by this trend. Both blue-collar workers and white-collar employees will be impacted, and it is not necessarily the former who will bear the brunt of the impact. All of them will pass through educational processes in formal and informal settings.

In this context, the UNESCO noted that ‘since those beginnings, the application of AI in education has developed in multiple directions, beginning with student-facing AI (tools designed to support learning and assessment) to also include teacher-facing AI (designed to support teaching) and system-facing AI (designed to support the management of educational institutions) (Baker et al., 2019). In fact, the interaction between AI and education goes beyond the *application* of AI within classrooms (i.e. learning *with* AI) to teaching its techniques (i.e. learning *about* AI) and preparing citizens to live in the AI era (i.e. learning *for* human-AI collaboration). We also need to question what the introduction of AI into education might achieve.

1. What are the real benefits that AI might bring? How can we ensure that AI meets real needs and is not just the latest Ed Tech fad?
2. What should we allow AI to do? To fully unleash the opportunities and mitigate the potential risks, system-wide responses to the following key policy questions are needed:
  1. How can AI be leveraged to enhance education?
  2. How can we ensure the ethical, inclusive, and equitable use of AI in education?
  3. How can education prepare humans to live and work with AI

‘The attention of educationists is drawn to the warning given to policymakers while discussing AI in Education at a Beijing Conference organised by UNESCO is worth noting here.

### **Beijing Consensus on Artificial Intelligence and Education**

1. Dynamically reviewing and defining teachers’ roles and required competencies in the context of teacher policies, strengthening teacher training institutions, and developing appropriate capacity-building programs to prepare teachers to work effectively in AI-rich educational settings are recommended.
2. Be cognizant of trends regarding the potential of AI to support learning and learning

assessments, and review and adjust curricula to promote the in-depth integration of AI and transform learning methodologies. Consider applying available AI tools or developing innovative AI solutions, where the benefits of AI use clearly outweigh the risks, to facilitate well-defined learning tasks in different subject areas and support the development of AI tools for interdisciplinary skills and competencies in the future.

**3.** AI tools can be applied or developed to support adaptive learning processes, leverage the potential of data to enable the evaluation of multiple dimensions of students' competencies, and support large-scale and remote assessments.

Thus, the distance between the educationally advanced and the marginalised, not only in terms of knowledge but also in utilising the emerging technologies in the twenty-first century in a diversified country like India, is a challenge for educationists to ponder, not in terms of their narrow fields of specialisation but with a broad view of trans-disciplinary understanding and approach. I hope that the deliberations at the conference will shed light on some of the issues that I have raised here and others that may emerge in your deliberations. We wish the conference all the success.