New Education Policy -2020 and Research in State Universities and Colleges

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Abstract

Higher education starts with the imbibing thinking process to the students. The role of educators and available infrastructure become important in higher education. To keep up with the research and innovation process Universities/Institutes guidelines become the important principle for teacher, students. This paper discusses the New Education Policy (NEP) -2020 for its motivation and relevance for promoting the research and innovation culture in traditional higher education system in India.

Keywords: Higher Education Institutes, Research, Innovation, NEP-2020

1.Introduction

Education is a platform in which young generations are trained and make them ready for future challenges. Education provides knowledge and skills which help the person to be employable as per their choice field. The Indian education system is very popular and diversified among other countries**.**The first universities in the world were started in India at Nalanda, Taxila, Vikramshila etc. These were the very first organized large institutes of higher learning which were established and well patronized by the rulers of that time. The universities made India as 'Vishwaguru' and many foreign students from China, Central Asia, South-East Asia etc. were enrolled. The advancement of higher education at ancient time included the study of mathematics, physics, astronomy, medical science along with the religious studies. The golden period of Indian education system was disrupted in medieval period due to political instability but contemporary knowledge from outside world were included in education

system and well patronized by the rulers of the time. With the arrival of European powers, education system was formalized and institutionalized in present form. The famous 'Macaulay Minutes' in 1935 changed the Indian education system for long time to come. In subsequent commissions and committees established by the government, education was divided in primary, middle and higher compartments. The first modern universities at Bombay, Madras, Calcutta were established in 1857. With the start of twentieth century, renaissance and nationalism spread throughout India and many schools of thought and universities were also established by native Indian such as Banaras Hindu University (BHU), Aligarh Muslim University (AMU), Shanti Nitetan etc. But the overall system in Indian education remained based on European principle which excluded most of the population and higher education largely remained the affairs of the rich and elite. The independence movement of India was moving fast in twentieth century and it was clear that sooner or later India will be freed from British empire thus new education system was needed by the leaders to make education more inclusive and connect with society. Gandhiji, who was the greatest leader of the independence movement proposed education system based on the community service known as 'Sarvodays' system. After the independence 'Radakrishan Aayog' was set up and its recommendation were enforced in coming years. In continuation, the University Grants Commission (UGC) was established by the central government act 1956. The formulation of UGC was modelled on the British system and it was made responsible for the recognizing, maintaining of standards in higher education with the addition responsibility of maintaining the grants.

The 'Kothari Commission' was set up in 1964–1966 and based upon the recommendation of commission, the government headed by Prime Minister Indira Gandhi announced the first National Policy on Education (NEP-I) in 1968. The NEP-I proposed equal educational opportunities to all in order to achieve national integration and greater cultural and economic development. The policy called for the fulfilling compulsory education for all children up to the age of 14 and introduced 10+2+3 formula and also formalized specialized training and qualification of the teachers. The three-language formula was implemented by NEP-I to promote regional integration. With a view to accelerating growth of the national economy, science education and research also receive high priority. Science and mathematics made an integral part of general education till the end of the school stage. The expansion of university system happened in coming years. The progress of research in universities remained steady but overall it was lagging behind the expectation due to crunch of funding in research caused by

weaker economic status of India. The medium of higher education was still in English and available good manuscripts were also in English hence the access of higher education was still limited to the elite section of the society.

The need of reform in NEP-I was felt and in 1986 the restructured happened with the new policy was brought. The New Education policy (NEP) - II was released by then Prime Minister Rajiv Gandhi. The NEP-II targeted to spend 6% of GDP on education. The new policy called for "special emphasis on the removal of disparities and to equalize educational opportunity,"[1] especially for Indian women, Scheduled Tribes (ST) and the Scheduled Caste (SC) communities. The NEP-II called for a 'child-centred approach' in primary education, and launched 'Operation Blackboard' to improve primary schools nationwide. The policy expanded the open university system with the Indira Gandhi National Open University (IGNOU), which had been created in 1985. The policy also called for the creation of the 'rural university' model, based on the philosophy of Mahatma Gandhi, to promote economic and social development at the grassroots level in rural India[2].

With changing priorities and aspirations of the nation on move in twenty first century NEP-I and II felt inadequate and modification were again needed. Thus, the government decided to reform the education system. A committee under the former cabinet secretary T. S. R. Subramanian started the consultation process for the new education policy in 2015[3]. A panel led by former Indian Space Research Organization (ISRO) chief K. Kasturirangan issued the New Education Policy (NEP-III) in 2020[4]. The NEP-III target to bring the education system of India more inclusive and at par with the developed nations. The setup in the higher education system is completely restructured in NEP-III. The role of UGC is examined and research in to made the integral part of higher education system. With the target to spend the 6% of GDP on education, the funding for research is emphasized. Also, as focus is put on the innovation, new start-up for generating the self-employed society, the role of teacher and the technologies become ever important.

This paper discusses the provisions in NEP-III regarding higher education and research and their impact including its implementation in colleges and universities.

2.Research in Historical Context in Indian Universities

Even though the organized set up of universities has come to India in later stage, the 'gurukul' system had been there from 'Vedic' era. The research in literature, science, medicine had been promoted by the kings and rulers of the time. Ancient education resulted vast knowledge and research in Indian society. The pillar of Ashok standing in the Qutub Minar complex is living example of metallurgical industries, Charak is known as the first surgeon of the world who carried out the first plastic surgery. Panini is considered as the father of linguistics and it is said that he taught in Taxila. Chanakya who was also teaching at Taxila wrote important book on state-craft 'Arthshashtra'. The given examples may not be the exhaustive list of important work carried out by Indian but it is sufficient to say that in addition to the system of 'shurti' and 'smiriti' innovation and research indeed existed in Indian society.

In medieval period, the growth of research in India slowed down due to the political instability. The university and college with centralized structure in present form were introduced by the Britisher. The growth of universities in India had been slow and as the emphasis on government was to produce workers for the state hence they were never well-funded for the research ecosystem in India. However, many Indian scientists such as J. C. Bose, C. V. Raman, Ramanujan etc. made their contribution known to the world. Many philanthropists such as J.R.D. Tata established the Tata Institute (Indian Institute of Science, Bengaluru), Tata Institute of Fundamental Research, Mumbai. With the rising sun of independence, the government of India understood the importance of science and research in nation development and thus established the many scientific institutes focused on specialized research such as Council of Scientific & Industrial Research (C.S.I.R), Department of Atomic Energy (D.A.E.), All India Institute of Medical Science (A.I.I.M.S) etc in different field of science.

3.Transforming to Knowledge Economy

The world has seen many revolutions. The first was the 'agriculture revolution' which sustained the society and provided people to have extra food so they could devote their extra time to the advancement of the society. The 'industrial revolution' came with the knowledge of modern science and technology. Large machines and development process made production at mass scale. Nations who were at the forefront of the industrial revolution developed fast. In the industrial revolution the role of universities and higher education system was very important.

The new technologies which were efficient in production were invented and western countries dominated the world for long. While western nation remained place to produce new ideas but due to the globalization in recent years developing nations became place to mass produced and sell the goods. In twenty first century a new type of revolution is taking place and this is known as Industrial Revolution 4.0 (I.R. 4.0). This revolution is based upon the big data analysis, artificial intelligence, quantum computing. Now economies are aspiring to become knowledge economies. All nations are in the race to beat each other thus the knowledge base and research system would become ever important.

4.Issues with Research in Indian Universities and Colleges

As per census estimates India is a big country with 1.4 billion people. There are ~1100 universities and about ~30000 colleges of higher education. The universities and colleges also known as Higher Education Institutes (HIE). In addition to this many dedicated research centers, institutes which are run by the specialized agencies in India. The universities and colleges are considered important due to their reach to the village level in comparison to the specialized agencies. But the education and research in university and colleges is not perfect as per present demand of the society. Indian HIEs are not known as producing innovation and research but just degree awarding places. Very few of the academic institutes have shown potential to research despite thousands of students studying. The trend is very evident from recent world university ranking from different agencies [5,6]. The problems in colleges and universities can be classified in different levels. First, the funding is inadequate. A government think-tank NITI Aayog and Institute for Competitiveness found that India's spending on Research & Development is among the lowest [7]. The expenditure as proportional to GDP data released by the UNESCO Institute for Statistics (UIS) in year 2018 show that India lacks far behind in funding [8]. The comparative chart of funding to HIE in different countries is shown in Figure 1. India spends the lowest amount among BRICS country and also in major economies (Figure 1). Research in present time need greater resources and investment, thus, it is very important that we spent greater amount of money at grass root level. The NEP-III target spending of 6% on education[4]. Not only the government contribution but also the contribution to research from private agencies is very small. In-fact the maximum government amount spent on the research in India goes to the specialized agencies such as DAE, ISRO, DRDO etc and very less is spent on the colleges and universities [9].

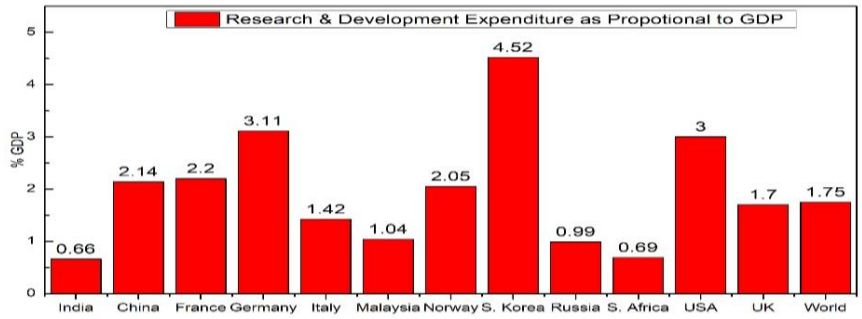

Figure 1**:** The UNESCO Institute for Statistics (UIS) in year 2018, Research & Development Expenditure as proportional to GDP

The aspiring nation such as India needs to have greater number of researchers. India also lacks in the number of researchers per million. This indicates less funding in the universities and colleges as well as the number of jobs suited for the innovations. The number of researchers per million [8] in major economies is given in Figure 2.

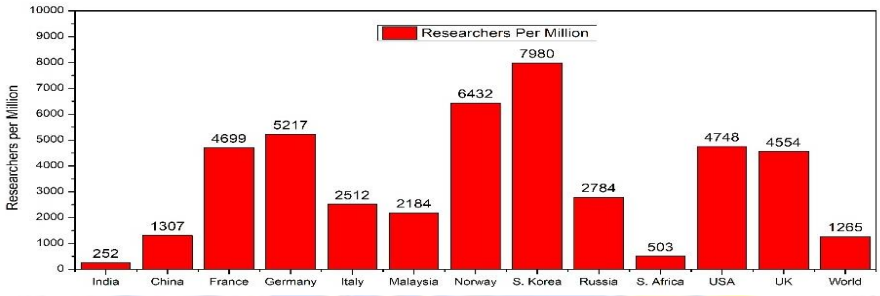

Figure 2: Researchers per million populations [8]

5.Curriculum of the subjects

The curriculum in Indian universities is not updated and also not in synchronized with the current job requirements. Indian education focuses on rote learning and not on innovation and research where student can develop ideas. Almost ~80% of student after engineering graduates have been termed as non-employable [10]. This is very complex situation, at one end, young population in India is termed as demographic dividend however unemployed and unskilled young population may turn out as demographic curse if proper guidance and skills are not transferred to youth.

6.Method of learning

The traditional approach is to give lectures in brick and mortar classrooms. Negative perception of teachers regarding online teaching is a big hurdle. There is very less emphasis given on e-learning and use of ICT methods partially due to lack of resources to develop essential infrastructure. The availability of basic internet infrastructure, smart phones to the student in India is very limited as when Covid-19 pandemic struck, schools, colleges and universities were forced to go online, many students could not access the education [11-14]. Also, in classrooms less importance is given to practical aspects of training where students can focus and learn from real world contemporary problems. The disconnect of education from society id evident.

7.Disconnect with jobs/self-employment

Since the days of 'Macaulay minutes', the education given to Indian students is primarily based on theoretical knowledge rather than the practical knowledge. There is almost no innovative thinking or research-oriented projects done at university and colleges. If the research projects are done to involve the society problems, there could be better connection to classrooms and laboratory.

8.Fragmented Regulatory Ecosystem

The Indian research ecosystem is divided into multiple sectors and often these fragments are in non-communication with each other. Universities and colleges are regulated with U.G.C., engineering colleges are regulated with A.I.C.T.E., there is separate regulator for law schools, medicine, accountancy etc. We know that research includes the convergence or interdisciplinary of multiple streams. Thus, due to rigid compartmentalization there is almost no movement of students from one stream to other. This also hamper motivation, of researcher to take up different course and topic if their future is not secure. The rigid classification put obstacle for many eligible motivated candidates and they are left out of competition. No doubt the NEP-III facilitate the multidisciplinary and interdisciplinary education to the learners.

9.Autonomy

The issue of autonomy is very important to adjust the learning and research to the local necessity and changing time and requirement. Few centrally governed institutes such as IITs, NITs, IIMs AIIMS etc are entitled to autonomy where they can define the syllabus, faculty recruitments etc. This type of autonomy is needed to be given to universities and colleges. This would promote competition between colleges and university to attract the students and will promote healthy environment. However, the autonomy should be under broad guidelines and watch to stop mal practice and substandard results. Indian universities are often one university campus along with hundreds of affiliating colleges [15]. This put tremendous stress on the governance and centralizing of power become rigid and often hamper the development of college and academic environment. This is needed to reform and institute autonomy should include the decentralizing powers.

10.Recruitment and Promotion of Faculty

The recruitment and promotion of faculty in universities and colleges is based upon the non-flexible parameters. These parameters are set to maintain the standards and remove corruption but unknowingly discourage the innovation in the hiring and promotion. Due to the inflexibility, merit and innovation is not accounted. The number of research papers is often counted but many times quality is compromised. India stands at number three for the publishing scientific papers according the National Science Foundation of the U.S. government report in 2020[16]. The Figure 3 shows that number of research output of some major countries in the world.

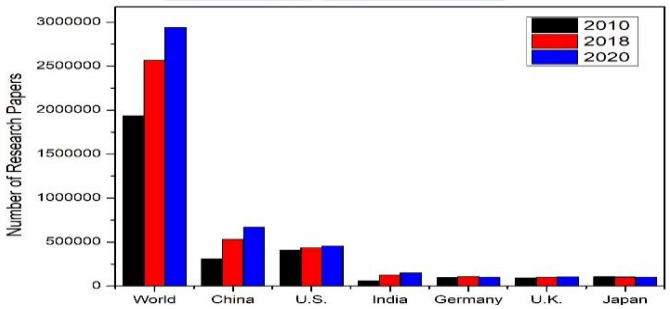

Figure 3: Number of publications per country [16]

11.A Survey

Authors of this article had carried out survey among students of college students. The survey was conducted on-line and responses of students were recorded. The question regarding their qualification, interest, the applicability of current curriculum for employment, their choice for HIE etc. had asked. The responses by the students is shown in Figure 4. Majority of students were interested in pursuing higher education. This is very evident as opportunity for better employment increases with higher education degree. This survey also incorporated the aspiration for professional degree among students. Not surprisingly the desire for professional education is very wide. However, almost 63 percentage of respondent found present education system inadequate for their need. More than two third of respondent desired to join central institutes due to the better funding and infrastructure availability.

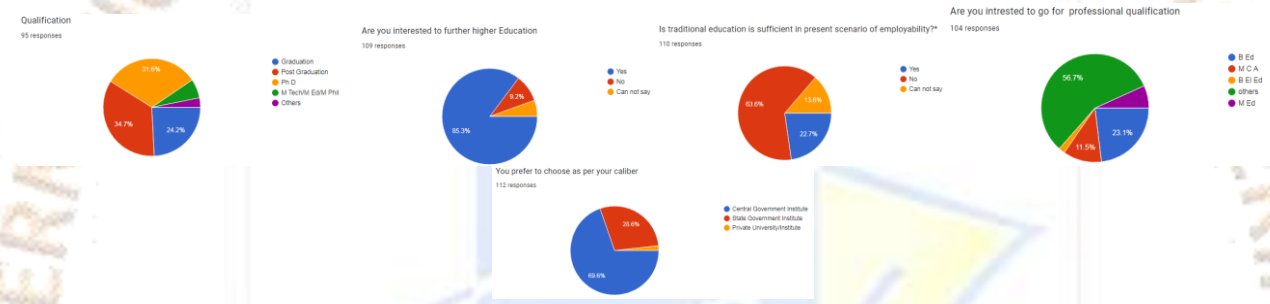

Figure 4. Responses recorded in survey conducted by the authors

12.New Education Policy (NEP)- 2020

The NEP-2020 is fundamental shift in Indian education system. This policy extends the facility of holistic development of the learner as it facilitates interdisciplinary and multidisciplinary approach of learning which are the essential components of research [4]. The Policy has placed priority on research in higher educational institutions. It has admitted that the academic research is an integral part of the higher education system. The Gross Enrolment Ratio is to be targeted to 50 percentages by 2035 which is now stands as 27.3 in 2023 according to the Ministry of Education report of All India Survey (AISHE)[4, 17]. The NEP-III has also suggested the shift in higher education system. The autonomy of institute will be concurrent with the autonomy of faculty and the promotion criteria of faculty will be more inclusive with teaching, research and their service will be counted for these parameters. The institute would be given autonomy to decide the curriculum. This would encourage the

competition between higher educational institutes for better faculty and students. One multidisciplinary institute is to be opened in every district. The multiple regulators will be unified in single regulator. A 'National Research Foundation'(NRF) is to be set to promote the research culture in higher education [18]. The establishment of NRF would solve the multiplicity of funding agencies and the focused research grants can be administrated easily.

For students, the rigid separation of discipline will be done away in multi-disciplinary institutes. The choice-based credit system is being implemented across the country. The Academic Bank for Credits (ABC), a student-centric academic service portal is established. The ABC provides the way for seamless student mobility amongst and within degree-granting higher education institutions. It establishes a formal system of credit recognition, accumulation, transfer and redemption, with the aim to promote flexible teaching-learning. Now students would have freedom to choose. Now student can take arts subjects as minor while doing major in science discipline. This would enhance the overall understanding of the student and students may be able to relate the scientific problems in research with social understanding, vice-versa.

Overall, the impact of NEP-III on research and innovation in Indian institutes is to be seen in near future. The outcome of this policy will certainly decode that if Indian indeed become knowledge economy in future to come.

13.Conclusion

Research is an essential component in higher education system. Good research enhances the gross domestic product of a nation. Group of developed countries have significant contribution in their economy through the research and innovation carried out their research institutes. India has shown to the world during Covid-19 pandemic that it can lead in innovations and research. But the lack of basic infrastructure, fund and quality of research need to be improved. The research project undertaken by the HIE should have societal implications and their remedies for problems should be sought through research and innovation. The highlighted the drawbacks in research and innovation at various levels of HIE specifically in college and state universities need to be solved to attract and motivate the young mind in research field.

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