

Impact of National Education Policy 2020 in Pharmacy

Biplab De

Professor, Regional Institute of Pharmaceutical Science and Technology, Abhoynagar, Agartala, Tripura – 799005, India

Abstract

Pharmacy Education is an example of multidisciplinary knowledge approaching education system with broad opportunity of research work, which is supported by the principle of National Education Policy 2020. In this article the Pharmacy practice in India as well as the pharmacy education in India are briefly discussed. The impact of National Educational Policy in Pharmacy is also focussed and critically discussed.

Keywords: Pharmacy Practice, Pharmacy Education in India, National Educational Policy

Introduction

National Education policy 2020 will be enriching the Pharmacy Education system and research surely. Pharmacy Education is an example of multidisciplinary knowledge approaching education system with broad opportunity of research work, which is supported by the principle of National Education Policy 2020. To realize the fact, brief about Pharmacy development in India and national education policy may be revisited first separately.

Pharmacy in India

Pharmacy in India can be known in brief by the following issues / events:

- a. Hindustani versions of the Pharmacopoeia became available as early as 1824; these were in Devnagari and Persian scripts. Revised translations were made in 1840s. Even a translation in Bengali was prepared.
- b. The Pharmacopoeia of India, 1868, was published under the authority of Secretary of State of India.
- c. There was a chemists and druggists' class run at the Madras Medical College from 1870s; in 1937, the chemists and druggists' class was also started at Medical College, Vishakhapatnam. Compounders received no formalized training till for the first time the process of education started in Bengal in 1881. Later, the training schemes also started operating in Madras.
- d. By the mid 1940s there were 7702 hospitals and dispensaries in British India. Professionally qualified chemists and druggists organised themselves into the Pharmaceutical Society of India at Madras, in early part of the twentieth century. In 1949, when the society stood dissolved its membership was 56 only.
- e. The Drugs Enquiry Committee (1930-31) made several worthwhile recommendations. The committee recommended that there should be central legislation to control drugs and pharmacy. The legislation might consist of either a combined drugs and pharmacy act, or a separate drugs act and a

separate pharmacy act. To advise in making rules to carry out the objects of the act, creation of an advisory board was recommended. A central laboratory was required to be established. Compilation of Indian Pharmacopoeia was recommended.

- f. Government of India decided to introduce a comprehensive bill pertaining to control of drugs. In February 1940 Drugs Bill was moved before the Legislative Assembly, to regulate the import, manufacture, distribution and sale of drugs. In November 1940, the house was informed of the Governor General having given his assent to the Bill.
- g. The institution of the Drugs Act 1940 was an important event. As per provisions of the Act, the Drugs Technical Advisory Board was constituted in 1941. The Board held its first meeting in November 1942, and the process of drafting the Drugs Rules under the Act started. In due course the Drugs Rules 1945 were published. As a prelude to the passage of drugs control legislation the Government of India had established Bio-Chemical Standardisation Laboratory at Calcutta in 1937. In February 1947, this laboratory was converted to the Central Drugs Laboratory to carry out statutory functions under the Drugs Act and the Rules.
- h. The actual operation of the Drugs Act 1940 started on India becoming independent. The Drugs Act 1940 has been amended more than a dozen times. A brief mention is made here to two of them. To provide for regulation of manufacture of cosmetics and prohibition of import and sale of substandard and misbranded cosmetics, the Drugs Act was amended in 1962 and the act now got to be known as the Drugs and Cosmetics Act 1940.
- i. Drugs and Magic Remedies (Objectionable Advertisements) Act 1954, to provide for control on the advertisement of drugs in certain cases, prohibition on advertisement for certain purposes of remedies alleged to possess magic qualities and for dealing with matters connected therewith.
- j. A new Drugs Technical Advisory Board was constituted for drugs and substances belonging to Ayurvedic and Unani systems of medicine. In this context certain modifications were carried out in the 1982 amendment.
- k. The Drugs Rules 1945, now designated as Drugs and Cosmetics Rules 1945, which came into force in early 1947, have been amended over hundred times since then.
- l. The Pharmacy Act became a reality in 1948. The Act provides for regulation and practice of pharmacy. The Pharmacy Council of India constituted under the Act held its meeting in May 1949.
- m. Education Regulation 1953 was framed by the PCI. The course contents were revised but overall structural pattern of 10+2 and 10+2+1 continued in the 1972 and 1981 revisions of the Education Regulations. The Education Regulations 1991 required a total schooling of 10+2+2 years. Efforts were made during 1990s for making a degree course in pharmacy as the minimum qualification for practice of pharmacy as the minimum qualification for practice of pharmacy. Then the Pharmacy Council of India had shifted its focus to Pharm. D. study course.
- n. Indian Pharmacopoeia Committee was constituted in November 1948. The Indian Pharmacopoeia (I.P.) referred to as the first edition was published in 1955, followed by a supplement in 1960. The second edition of I.P. appeared in 1966 with a supplement in 1975. The third edition of I.P. came in 1985 in two volumes. Two addenda, one each in 1989 and 1991, were published. The fourth edition of I.P. 1996 gave up the practice of dual naming in the title and serial enumeration was also given up. It contained no indigenous drugs. The addenda to the 1996 pharmacopoeia appeared in 2000, 2002 and 2005.

- o. In 2004, there was a newer development with the establishment of the Indian Pharmacopoeia Commission (IPC) and henceforth the preparation and publication of the Pharmacopoeia became the responsibility of this body. The fifth edition of I.P. 2007 has been published by IPC. IPC then published the sixth edition in 2010 and seventh edition in 2014. Subsequently, eighth edition was published in 2018 and ninth edition in 2022.
- p. The first National Formulary of India (NFI) appeared in 1960, followed by the second (1966) and third (1979) editions.
- q. First 10 Pharmacy Colleges/Universities Offering Degree Programs in India

Year of Inception	Colleges/Universities	Category	Current Degrees Offered
1937	Department of Pharmaceutical Engineering, Institute of Technology, Banaras Hindu University, Varanasi	Central University	BPharm, MPharm (introduced as early as 1940), PhD
1944	University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh	State University	BPharm, MPharm, PhD
1947	L. M. College of Pharmacy, Ahmedabad	Private College	BPharm, MPharm, PhD
1950	Department of Pharmacy, Madras Medical College, Chennai	Medical College	BPharm, MPharm
1950	Birla Institute of Science and Technology, Pilani	Private University	BPharm, MPharm, PhD
1951	College of Pharmaceutical Sciences, Andhra University, Visakhapatnam	State University	BPharm, MPharm, PhD
1952	Department of Pharmaceutical Sciences, Dr. H.S. Gour University, Sagaur	Central University	BPharm, MPharm, PhD
1956	Department of Pharmaceutical Sciences, Nagpur University, Nagpur	State University	BPharm, MPharm, PhD
1958	Pharmaceutical Department, University Institute of Chemical Technology, Mumbai University,	State University	BPharm, MPharm, PhD (Tech)

	Mumbai		
1963	Department of Pharmaceutical Technology, Jadavpur University, Kolkata	State University	BPharm, MPharm, PhD

- r. The studies for the graduate level and above in pharmacy fall under the purview of the All India Council for Technical Education (AICTE) constituted according to the AICTE Act 1987; the Pharmacy Council of India determining the standard of the course contents for the purpose of registration as a pharmacist.
- s. The pharmacy profession struggled for decades to have a national level institution for pharmaceutical studies. The dream was realized with the establishment of the National Institute of Pharmaceutical Education and Research (NIPER) at SAS Nagar (Mohali), Punjab, under the statue National Institute of Pharmaceutical Education and Research Act 1998 of the Indian Parliament. Later, more NIPER were established at Ahmedabad (Gujrat)- 2007, Hajipur (Bihar) – 2007, Hyderabad (Telangana) – 2007, Kolkata (West Bengal) – 2007, Guwahati (Assam) – 2008 and Raebareli (Uttar Pradesh) – 2008.
- t. Pharmacy Council of India has passed certain Regulations including also for different level of courses in Pharmacy and these are- Pharm. D. Regulation 2008 (Amended 2014 & 2019), The Education Regulation for Diploma course in Pharmacy 2020, The Bachelor of Pharmacy (Practice) Regulations 2014, The Bachelor of Pharmacy (B. Pharm.) course Regulations 2014, The Master of Pharmacy (M. Pharm.) course Regulations 2014, Minimum Qualification for Teachers in Pharmacy Institutions. Regulations, 2014, Diploma in Pharmacy Exit Examination Regulation 2022.

National Education Policy

Consideration of few lines of **National Education Policy 2020** (NEP) will be helpful for understanding and discussing the impact of it on Pharmacy:

1. The rich heritage of ancient and eternal Indian knowledge and thought has been a guiding light for this Policy. The pursuit of knowledge (*Jnan*), wisdom (*Pragyaa*), and truth (*Satya*) was always considered in Indian thought and philosophy as the highest human goal.
2. The implementation of previous policies on education has focused largely on issues of access and equity. The unfinished agenda of the National Policy on Education 1986, modified in 1992 (NPE 1986/92), is appropriately dealt with in this Policy. A major development since the last Policy of 1986/92 has been the Right of Children to Free and Compulsory Education Act 2009 which laid down legal underpinnings for achieving universal elementary education.
3. The fundamental principles (e.g.3 points):
 - a. teachers and faculty as the heart of the learning process – their recruitment, continuous professional development, positive working environments and service conditions;
 - b. outstanding research as a corequisite for outstanding education and development;
 - c. continuous review of progress based on sustained research and regular assessment by educational experts;
4. This policy envisages that the extant 10+2 structure in school education will be modified with a new pedagogical and curricular restructuring of 5+3+3+4 covering ages 3-18

5. “Knowledge of India” will include knowledge from ancient India and its contributions to modern India and its successes and challenges, and a clear sense of India’s future aspirations with regard to education, health, environment, etc.
6. Students will be taught at a young age the importance of “doing what's right”, and will be given a logical framework for making ethical decisions.
7. Some of the major problems currently faced by the higher education system:
 1. limited teacher and institutional autonomy;
 2. inadequate mechanisms for merit-based career management and progression of faculty and institutional leaders;
 3. lesser emphasis on research at most universities and colleges, and lack of competitive peer-reviewed research funding across disciplines;
 4. suboptimal governance and leadership of HEIs;
 5. an ineffective regulatory system; and
 6. large affiliating universities resulting in low standards of undergraduate education.
8. This policy envisions a complete overhaul and re-energising of the higher education system to overcome these challenges and thereby deliver high-quality higher education, with equity and inclusion. The policy’s vision includes the following key changes to the current system:
 1. moving towards a higher educational system consisting of large, multidisciplinary universities and colleges, with at least one in or near every district, and with more HEIs across India that offer medium of instruction or programmes in local/Indian languages;
 2. moving towards a more multidisciplinary undergraduate education;
 3. moving towards faculty and institutional autonomy;
 4. revamping curriculum, pedagogy, assessment, and student support for enhanced student experiences;
 5. reaffirming the integrity of faculty and institutional leadership positions through merit-appointments and career progression based on teaching, research, and service;
 6. establishment of a National Research Foundation to fund outstanding peer-reviewed research and to actively seed research in universities and colleges;
 7. governance of HEIs by high qualified independent boards having academic and administrative autonomy;
 8. “light but tight” regulation by a single regulator for higher education;
 9. increased access, equity, and inclusion through a range of measures, including greater opportunities for outstanding public education; scholarships by private/philanthropic universities for disadvantaged and underprivileged students; online education, and Open Distance Learning (ODL); and all infrastructure and learning materials accessible and available to learners with disabilities.
9. The main thrust of this policy regarding higher education is to end the fragmentation of higher education by transforming higher education institutions into large multidisciplinary universities, colleges, and HEI clusters/Knowledge Hubs, each of which will aim to have 3,000 or more students.
10. The ancient Indian universities Takshashila, Nalanda, Vallabhi, and Vikramshila, which had thousands of students from India and the world studying in vibrant multidisciplinary environments, amply demonstrated the type of great success that large multidisciplinary research and teaching universities could bring. India urgently needs to bring back this great Indian tradition to create well-

rounded and innovative individuals, and which is already transforming other countries educationally and economically.

11. A university will mean a multidisciplinary institution of higher learning that offers undergraduate and graduate programmes, with high quality teaching, research, and community engagement.
12. An Autonomous degree-granting College (AC) will refer to a large multidisciplinary institution of higher learning that grants undergraduate degrees and is primarily focused on undergraduate teaching though it would not be restricted to that and it need not be restricted to that and it would generally be smaller than a typical university.
13. More HEIs shall be established and developed in underserved regions to ensure full access, equity, and inclusion.
14. University, worldwide, means a multidisciplinary institution of higher learning that offers undergraduate, graduate, and Ph.D programmes, and engages in high-quality teaching and research. The present complex nomenclature of HEIs in the country such as 'deemed to be university', 'affiliating university', 'affiliating technical university', 'unitary university' shall be replaced simply by 'university' on fulfilling the criteria as per norms.
15. Research is also improved and enhanced through a holistic and multidisciplinary education approach.
16. A holistic and multidisciplinary education would aim to develop all capacities of human beings - intellectual, aesthetic, social, physical, emotional, and moral in an integrated manner.
17. Large multidisciplinary universities and colleges will facilitate the move towards high-quality holistic and multidisciplinary education.
18.participation in community service programmes will be considered an integral part of a holistic education.
19.students at all HEIs will be provided with opportunities for internships with local industry, businesses, artists, crafts persons, etc., as well as research internships with faculty and researchers at their own or other HEIs/research institutions
20.it is critical that HEIs take the lead to undertake research in areas of infectious diseases, epidemiology, virology, diagnostics, instrumentation, vaccinology and other relevant areas.
21. The Choice Based Credit System (CBCS) will be revised for instilling innovation and flexibility.
22. Students are the prime stakeholders in the education system. Vibrant campus life is essential for high-quality teaching-learning processes. Towards this end, students will be given plenty of opportunities for participation in sports, culture/arts clubs, eco-clubs, activity clubs, community service projects, etc. In every education institution, there shall be counselling systems for handling stress and emotional adjustments.
23. Despite this critical importance of research, the research and innovation investment in India is, at the current time, only 0.69% of GDP as compared to 2.8% in the United States of America, 4.3% in Israel and 4.2% in South Korea.
24. It is effective governance and leadership that enables the creation of a culture of excellence and innovation in higher education institutions. The common feature of all world-class institutions globally including India has indeed been the existence of strong self-governance and outstanding merit-based appointments of institutional leaders.
25.all students of allopathic medical education must have a basic understanding of Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy (AYUSH), and vice versa.

26. Technical education includes degree and diploma programmes in, engineering, technology, management, architecture, town planning, pharmacy, hotel management, catering technology etc., which are critical to India's overall development. There will not only be a greater demand for well-qualified manpower in these sectors, it will also require closer collaborations between industry and higher education institutions to drive innovation and research in these fields.

NEP and Pharmacy

By following the status of Pharmacy in India and National Education Policy, it is crystal clear that any professional technical course of multidisciplinary approach like pharmacy will be enriched surely in regard to education and research. Knowledge in Pharmacy is already in blood of Indian since long long back and NEP is supporting and respecting this kind of knowledge carry forwarded to modern era. One can easily observe that the PCI framed syllabus for D. Pharm., B. Pharm and M. Pharm are already supported by the basic demand of NEP. Therefore, in compliance of NEP, Pharmacy Education already touched the principle and advanced in the same pathway as per requirement of NEP. It is therefore a time demand to have a multidisciplinary research laboratory in each pharmacy institute in addition and PCI should think to include in the respective regulation. Now a proposal may be initiated to introduce more courses in pharmaceutical institutes to enlist them under the title of HEIs (Higher Education Institutions) with more students' capacity i.e. to get the higher nomenclature of multidisciplinary university. The other courses may be introduced such as,- Food Science related, Toxicology related, Health Science related, Management related, Infection related, Business and accountancy related, community awareness related, ayurvedic related etc. and many more depending on the needs of the society and country. In this aspect, PCI may take appropriate initiatives by discussing with experts of different field and government to implement this without any delay.

To realize the impact of NEP on Pharmacy, an initiative may be taken here by considering all facts of NEP, i.e. in designing of the guidelines and **syllabus for "Practice School"** of B. Pharm. seventh semester in PCI framed B. Pharm. course with well accepted topics as follows:

1. Know all instruments available at your institute and designing of standard operating procedure
2. Basic concept of Research Methodology and knowledge for preparation of Dissertation & presentation
3. Care your health and serve to community to make conscious about their health
4. Steps to be an entrepreneur
5. Increasing ability to present self in different sector of the pharmacy profession
6. Concept of laboratory designing
7. Knowledge on balance diet, nutrition, food safety and drug-food interaction
8. Importance of Pharmacovigilence
9. Awareness on national health programmes.
10. Service in Hospital and nosocomial infection

A group of teachers or a teacher having expertise may be engaged to teach those topics. Institute may arrange to visit any industry, hospital, research laboratory, rural or urban areas or any suitable place / organisation to provide practical knowledge to young learners. By this time institute shall arrange to provide project supervisor to the students, so that they can be able to start the project work of 8th semester in due time without any delay.

Accordingly, students will be appearing sessional and semester examination for this subject and syllabus for each sessional examination will be decided by the teacher concern of the institute based on the topics taught in a particular tenure and practical experiences provided to students. The pattern of question paper will be as like as the rules adopted already by examination authority for other subjects.

In conclusion, it is only reiterated that National Education policy 2020 will be enriching the Pharmacy Education system and research very fast surely.

References:

1. Harkishan Singh, Modern Pharmacy I India – A Historical Perspective, First published, 2009, Association of Pharmaceutical Teachers of India, Bangalore.
2. Subal C Basak, Dondeti Sathyanarayan, Pharmacy Education in India, American Journal of Pharmaceutical Education, 74(4), 2010, (Article 68)1-8.
3. Website of Pharmacy Council of India
4. Website of MHRD, Govt of India
5. Website of Indian Pharmacopoeia Commission (NB: Many portion of this article is written directly from references without any change of sentences or content to maintain authenticity and originality.)