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AIU Invites Proposals for Collaboration for Organizing ANVESHAN- Student Research Conventions – 2023-24

Association of Indian Universities (AIU) organizes ***Anveshan*-Student Research Convention** every year to identify and nurture the young talents and budding researchers in the Indian Universities. In these Conventions, Innovative Research Projects are invited from the students (Undergraduate to Ph. D level), and assessed by a group of experts of the field on a well laid criteria. The best Research Projects are conferred with certificates and awards. The Projects are invited from the disciplines of Basic Sciences and Applied Sciences, Engineering and Technology, Agriculture and Allied Fields, Health Sciences and Allied Fields, Social Sciences; Humanities; Commerce; Business Management; and Law. The Conventions are to be held at two levels i.e. **Zonal and National**. The duration of each convention is of two days. These events are to be conducted in the current Financial Year i.e. before **March 31, 2024**.

AIU invites proposals from member universities/institutions for hosting these Conventions in Five Zones - East, West, North, South, Central and One National Level Convention. Interested Member universities/institutions may send their Expression of Interest (EoI) along with proposal duly endorsed by the Head of the Institutions to AIU at the address given below:

Dr Amarendra Pani
Joint Director & Head (Research)
Association of Indian Universities
AIU House, 16 Comd. Indrajit Gupta Marg
New Delhi – 110 002
E-mail: researchaiu@gmail.com

The proposals are required to be submitted latest by May 30, 2023. The Event will be finalized on mutually convenient dates and terms and conditions laid down by AIU. For any further query please contact on: 011-23230059, Extn-202/209, **E-mail:** ***researchaiu@gmail.com***. The details can also be downloaded from AIU Website: ***www.aiu.ac.in.***

N.B.: AIU is not a Funding Organization. All these events are AIU activities for which Collaboration from member Universities/Institutions are solicited. Primarily, the events will be conducted under the banner of AIU. The details of terms and conditions will be communicated on selection of the Proposal.

Proposal must be sent to AIU with the Approval /Endorsement of Vice Chancellor/ Head of the Institution.

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Are We Ready for the Educational Paradigm Shift towards Quality Due to Entry of Foreign Universities?

Suresh Garg* and Sanjay Gupta**

On 6th January 2023, The Indian Express, citing the Chairman UGC Prof. Kumar, reported the decision of UGC to allow world-class foreign universities to set up campuses in India. This decision essentially stemmed from National Education Policy-2020 (GoI, 2020), which highlighted that we are sailing in the vast sea of mediocrity and something ought to be done to get out of this rut. It envisaged that to develop well-rounded individuals, a legislative framework be developed to allow select universities to operate in the country to raise the quality of education, create an era of excellence and improve the probability of employment of learners by creating work-ready graduates. Before we react to this issue, it is more important to ask: Are we ready for the educational paradigm towards quality likely to arise due to the entry of reputed Foreign Universities and correct our deficiencies raised from time to time by educationists as well as researchers (Powar, 2002; Gupta, 2002, 2004 and Garg, 2015) and challenges (Garg and Panda, 2019). Though inputs to NEP-2020 were discussed in detail in various forums from academic conferences to Indian Parliament, it seems that the decision on its recommendation about the entry of FUs was taken by the GOI.

In the 1990s, the issue of inviting FUs remained pending in the Indian Parliament and surprisingly it met with stiff opposition for some genuine and some not-so-valid reasons from our (progressive) lawmakers. In 1995, a bill was introduced in Parliament but could not go very far. When the UPA was in power in the period 2004-14, many failed attempts were made. In 2005-06, the draft law was considered by the Cabinet but did not move beyond. Again, the bill introduced in 2010 lapsed in 2014 due to opposition by the Left, BJP, and SP largely for fear of exclusion of a huge population because of the likely rise in the cost of higher education. (This argument is valid even now when despite the pandemic shattering the Indian economy,800 million people are being fed free of cost by GOI.)

The Regulations developed by AICTE earlier to establish a framework for collaboration and partnership discouraged the entry of Foreign Education Providers (FEPs), particularly in respect of the transfer of funds, levying of fees and adherence to national quality assurance and accreditation systems. Also, the nature of programmes that could be offered by Foreign Education Providers (FEPs) was

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to be regulated by the national regulating agencies. These issues ensured that no Foreign University approached the central government with a concrete proposal to set up its campus in the country. As a result, the flight of human and financial resources out of the country continued, particularly to the universities in the West, in general, and US, in particular. As per current estimates, the number of Indian students pursuing higher education abroad will be about 1.8 million by 2024.

Entry of Foreign Universities: Likely Benefits

We are living in challenging times as knowledge acquisition is being fueled by innovations based on emerging Information and Communication technologies. Geography is now History and the half-life of the progression of knowledge now is in single digits, which throws newer challenges of availability of requisite expertise and continuous professional development for groups of available human resources. For a country of the size and diversity of India, it is a huge challenge. However, the National Education Policy-2020 accepted by the Government of India in July 2020 is a transformative document. It has recommended that select global foreign universities from among the top 100 universities in the world be allowed entry in the country initially for ten years with the provision of renewal subject to fulfillment of laid down conditions so as to:

- offer a wide variety of programmes ranging from digital technology, data analytics, cyber security, Generative AI and ChatGPT, ML, entrepreneurship, urban design, health and allied sciences, fashion design, climate change and sustainability and conflict resolution to traditional programmes including computer science and engineering so that our curriculum and certification are accredited at par with, if not better than, those available in mother campuses;
- produce graduates of highest quality acceptable globally and who can compete with the best in the job market as they will have access to the best quality education;
- create the highest quality of institutional infrastructure for learner support so that facilities such as LMS, e-library and flip class rooms become available to every learner;
- help retain talent (and minimize expenditure on education, i.e. cut down outflow of Indian money; the estimated overseas spending is expected to grow to 80 billion USD annually by 2024 due to rise in enrollment of Indian students to 1.8 million and-a huge majority of those taking education abroad tend to settle abroad for varied reasons ranging from "academic recognition" to "quality of life";
- enhance access to all with equitable opportunities leading to increase in GER from current 27% to 50 % by 2030;
- help foster cultural exchange between India and other countries;
- encourage healthy competition between indigenous and foreign universities to offer quality services, infrastructure and education by minimizing politico-bureaucratic interference;
- do away with 'low performance syndrome' and promotion by connection;
- promote merit and competitiveness so that the best gets what he/she deserves;
- undertake cutting-edge integrated research in front-ended fields, file IPRs and put India in unique position; and
- be action-oriented so that there is an increase in brand value of our graduates and India is counted in the front row of educationally advanced countries.

However, it is not clear whether or not the National Education Policy -2020 and its recommendation for entry of foreign universities were discussed at length in the Indian Parliament.

Regulation of Foreign Universities

Though Draft Regulations on Foreign universities released after UGC announcement offer considerable academic, administrative, and financial freedom to Foreign Universities (FUs) in terms of the nature of programmes, faculty recruitment (from India or abroad), fee structure, salary structure, repatriation of funds, etc., it remains to be seen how global universities respond to the matter in small print. As far as fee structure is concerned, Govt. of India expects FUs to be reasonable and practice transparency in transactions. According to the UGC Chief, the "regulations underline that foreign faculty appointed to each at the Indian campus shall stay for

a reasonable time to ensure that they do not serve as guest faculty". Moreover, it is expected that FUs shall treat the creation of knowledge, i.e. research, which is the best creation of human intellect, with due emphasis and highly rated professors who can give direction to research shall also be made available on Indian campuses of FUs.

Some Concerns

The FUs operating their campuses in India would be required to:

- constrain not to offer academic programmes in contravention of national interests, i.e., due to the extremely critical nature of academic issues, the detailed curriculum would have to be relevant to domestic interests as determined by market surveys;
- refrain from influencing the sovereignty, integrity, and security of the country, honor decency and public order, apart from forging friendly relations with other countries;
- file for renewal of approval after ten years;
- submit an audit report annually to UGC clearly stating that all financial transactions were made under FEMA Act-1999 and its rules;
- meet Continuous Professional Development requirement at all levels regularly and with the seriousness it deserves; and
- create their own campuses with necessary physical infrastructure on their own since GOI has not promised them financial support like China and the Gulf countries

Though UGC Chief highlighted that FUs shall not be subject to regulation by Indian authorities, some of these concerns may ultimately discourage highly rated foreign universities and make them decide to stay away from our higher education system. This is in spite of the fact that the Indian higher education sector is a very lucrative market because of vast numbers. Moreover, despite several advantages and benefits, the acceptance of FUs by society would be governed by their social, political, and economic interests and human resource development strategies (Kumar, 2006). In the last few decades, growth in higher education in India has occurred due to the private sector mainly. But is sad that most of the indigenous providers have been guided invariably by 'For Profit' considerations with minimum concern for quality. In fact, for them education is business and newer institutions have been cloned in connivance with bureaucracy and political bosses to generate more funds with less investment in human capital and infrastructure. That is probably why higher education is in such a dire state and ridiculed by all.

It is said that an idea is only as good as it is implemented. The planners and administrators of Indian higher education created national regulators like UGC, NCTE, AICTE, BCI, PCI, and INC, among others to improve the quality of education. Sadly, these national institutions have failed to give the necessary impetus. The inspectors, who are invariably highly acknowledged senior professors, should advise the private stakeholders about the benefits of the creation of high quality facilities, the appointment of quality staff rooted in Indian ethos and values so as to improve standard of education to the international level. But it is ironic that they are reportedly "managed" and an excellent opportunity to improve quality is being lost.

The entry of FUs is expected to cater particularly to quality deficit and usher in far-reaching reforms to develop well-rounded individuals, as argued in NEP-2020 report. That is, FUs will be required to:

- promote inclusive education by extending access to the rural poor, isolated, marginalized, and disadvantaged sections of society;
- practice flexibility;
- appoint and retain technology-savvy individuals;
- periodically upgrade curriculum and conduct staff, including faculty, development programmes regularly so as to create an informed group and keep them informed about the latest developments in their respective field; and
- charge a reasonable fee.

Since India is a relatively young nation with a large fast growing young population, FUs should find it easier to establish themselves in spite of incurring initial costs to create physical infrastructure. In fact, the intent of interest has been received from Australian universities in response to the offer of GIFT city in Gujarat and it is hoped to be followed in other states soon.

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The Association of Indian Universities

The Association of Indian Universities (AIU), is one of the premier apex higher education institutions of the Country established in 1925. It is a research-based policy advice institution to the Government of India in the field of Higher Education, Sports, and Culture. Since its inception, it has been playing a vital role in shaping Indian higher education. Most importantly, AIU is vested with the power of according equivalence to Degrees/Qualifications offered by the universities across the world with those offered in India. AIU has also been mandated by the Department of School Education, Ministry of Education, Government of India to accord equivalence to the Indian Boards for the Secondary/Senior Secondary Examination vide Gazette Notification. AIU is a think tank body with the responsibility of undertaking academic activities such as: conducting Research Studies in higher education; acting as the bureau of information on higher education; liaising with international bodies and universities for the internationalisation of Indian higher education among many others. AIU conducts inter-university sports and cultural events at national and international levels. As a National Sports Promotion Organization (NSPO) it promotes sports among Member-Universities and maintains the standards in sports.

Being an apex advisory institution, it constitutes an integral part of all major decision-making committees and commissions in the country. As a representative body of Indian universities, it facilitates cooperation and coordination among Indian universities and liaises between the universities and the Government (Central as well as the State Governments) and also National and International bodies of higher education in other countries in matters of common interest. Whereas all the Indian universities benefit from its contribution, at present it has a membership of about 898 universities including 14 overseas universities from other countries viz. Bhutan, UAE, Kazakhstan, Mauritius, Malaysia Nepal, as Associate Members.

Some of the legends among many, who served AIU as its Presidents are Dr. Sarvepalli Radhakrishnan, Dr Zakir Hussain, Dr. Syama Prasad Mukherjee, Dr K L Shrimali A.L Mudaliar, Dr Akbar Hydary, Prof A C Woolner, Pandit Amarnath Jha, Sir Maurice Gwyer, Dr K L Shrimali, Prof Shiv Mangal Singh 'Suman', Prof M S Gore, Prof M S Adiseshiah, Prof M S Valiathan.

A Comparative Analysis of National Policy on Education–1986/92 and National Education Policy–2020 Part-I[#]

Sunil Behari Mohanty*

After independence from British rule, the first national education policy on education was formulated in 1968. After eleven years of this policy document, in 1979 a draft policy document was brought out, which could not be presented to parliament. In 1985, initiatives were taken for formulating a new policy. A document of 119 pages "Challenge of Education - A Policy Perspective" was brought out which discussed pros and cons of various strategies that could be formulated to tackle various issues. For instance, it stated that:"Efforts made in the past for examination reforms have not made much progress chiefly because the system of internal evaluation is resisted by the teachers as well as students. Teachers oppose it because the periodical evaluation envisaged would force them to work much harder and students oppose it, not merely because they do not trust the objectivity of all the teachers but also because this would mean working the year round to maintain a reasonable level of performance." (ME 1985, p.49).

After eighteen years, a new policy was formulated in 1986. A review of this policy was made in 1990 by Acharya Ramamurti. Again this review was reviewed by another committee of the CABE (Reddy 1992) which was modified in 1992. After 34 years of this policy, a new education policy was formulated in 2020. During nearly three decades of the gap between these two policies, there have been many developments in the field of educational technology, teaching-learning techniques, new interpretations of old knowledge, modifications in provision related to education in changes in the constitution, and formulation of new acts and rules and regulations and several commissions and committees, a few of which are presented here period-wise.

***Documents/Programmes After Publication of 1986 Policy and Before 1992 Modific*ation**

- Operation Blackboard Scheme 1986 of MHRD
- Programme of Action 1986 of MHRD
- Academic Staff College Scheme of UGC 1987
- Centrally Sponsored Scheme of Teacher Education (IASE,CTE, DIET) of MHRD 1987
- National Literacy Mission 1988 of MHRD
- National Policy on Education1986- Implementation Report 1988 of MHRD
- Acharya Ramamurti Committee 1990 of MHRD
- Janardan Reddy Committee 1992 of MHRD
- Programme of Action 1992 of MHRD

Documents/Programmes After Publication of 1992 Modification of 1986 Policy

- RCI Act 1992 of MLJ
- NCTE Act 1993 of MLJ
- Learning without Burden: Report of the National Advisory Committee 1993 of MHRD
- District Primary Education Programme 1994 of MHRD
- National Assessment and Accreditation Council (NAAC) 1994 of UGC
- AIU-UGC Roundtable on 'University Management' for Vice Chancellors- 1995
- National Curriculum Framework for Teacher Education 1998 of NCTE
- National Curriculum Framework for School Education 2000 of NCERT
- Sarva Shiksha Aviyan 2001 of MHRD
- 86th Amendment of Constitution 2002 of MLJ
- Kasturba Gandhi Balika Vidyalaya scheme 2004
- National Curriculum Framework 2005 of NCERT
- CABE Committee on Universalisation of Secondary Education 2005 of MHRD

[#] *An Article in Two Parts. The next Part will appear in the forthcoming Issue.*

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- National Policy for Persons with Disabilities 2006 of MSJE
- Rashtriya Madhyamik Shiksha Abhiyan (RMSA) 2009 of MHRD
- Commissions for Protection of Child Rights (Amendment) Act, 2006, 2007
- Review of the Centrally Sponsored Scheme of Teacher Education 2008 of NCTE.
- Comprehensive Evaluation of Centrally Sponsored Scheme on Restructuring and Reorganization of Teacher Education 2009 by NCERT
- Report of the Committee to Advise on Renovation and Rejuvenation of HE 2009 of MHRD
- National Knowledge Commission 2006-2009 of MHRD of MLJ
- Right to Education Act 2009 of MHRD
- National Curriculum Framework for Teacher Education 2009 of NCTE
- Restructuring and Reorganization of the Centrally Sponsored Scheme on Teacher Education 2012 of MHRD
- Minimum Qualifications for Teachers for classes I-VIII, 2010. of NCTE
- Guidelines for Conducting Teacher Eligibility Test, 2011of NCTE.
- Draft National Early Childhood Care and Education (ECCE) Policy 2012 of MWCD
- Draft National Policy on ICT in School Education 2012, MHRD
- Training and Research in Frontier Areas (FAST) 2012 of MHRD
- National Early Childhood Care and Education Curriculum Framework 2013 of MWCD
- Rashtriya Uchchatar Shiksha Abhiyan (RUSA) 2013 of MHRD
- Towards a New National Education Policy (Proposals by CBSE) 2014.
- National Institutional Ranking Framework (NIRF) 2015 of MHRD
- Global Initiative of Academic Network (GIAN) 2015 of MHRD
- Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching 2015 of MHRD
- Some Inputs for Draft National Education Policy 2016 of MHRD
- National Policy on Education 2016 - Report of the Committee for Evolution of the New Education Policy (Chairman- Subramanian, T. S. R.) 2016 of MHRD
- Impactful Policy Research in Social Sciences (IMPRESS) 2018 of MHRD
- Draft Higher Education Commission of India (Repeal of University Grants Commission Act) Act 2018 of MHRD
- Samagra Shiksha Aviyan 2018 of MHRD
- Scheme for Promotion of Academic and Research Collaboration (SPARC) 2018 of MHRD
- Scheme for Transdisciplinary Research for India's Developing Economy (STRIDE) 2019 of MHRD
- Draft National Education Policy 2019 (Chairman - Kasturirangan, K.) of MHRD

The process of formulation of NEP–2020 started with the publication of a government document "*Some* Inputs for Draft National Education Policy 2016". This was followed by Reports of two committees- Subramanian (2016) and Kasturirangan (2019).

The title of the 1986/1992 policy was "National Policy on Education", whereas the title of the 2020 policy was "National Policy on Education." NPE 1986/92 did not have any problem with "MHRD", NEP 2020 suggested the use of the term "Ministry of Education" instead of "Ministry of Human Resource Development (MHRD)" (25.2, p.60)

NPE 1986/92 did not use the term "public" in place of "government", whereas in NEP 2020, the term "public" was used for "government" institutions. The NEP 2020 did not bother about the existence of "Public Schools" as a member of the Indian Public Schools' Conference *(http://www.ipsc.co.in/about),* a private organization, established in 1939 Public Schools conference, which has as its members many private schools functioning from colonial days and also Sainik Schools and Military schools (technically private schools as managed by autonomous bodies).

NPE 1986/92 was 50 Pages (1992 modified printed version), whereas NEP 2020 was 65 Pages (Online version).

NPE 1986/92 had a smaller number of pages devoted to presenting the situation at that time including problems, whereas NEP 2020 had a much larger discussion, most of which are well known.

Copy editing was better in NPE 1986/92 than in NEP–2020. NPE 1986/92 Policy had one chapter "Teacher" that also dealt with teacher training, whereas 2020 had chapter 5 "Teachers" and chapter 15 " Teacher Education" for which the following repetitions were found.

1 yr. B. Ed. - 5.23, p. 23 and also in 15.5. p. 43,

2 Yr. B. Ed. - 5.23, p. 23 and also in 15.5. p. 43,

4 Yr. B. Ed. in all by 2030 - 5.23, p. 23 and also in 15.5. p, 43.

The NPE 1986/92 document started with an introduction, followed by the essence and role of education. The third part of the National system of education, it referred to the need to follow the common school system as recommended by the National Policy on Education of 1968. NEP 2020 suggested no hard separations between arts and sciences, between curricular and extracurricular activities, between vocational and academic streams, etc. in order to eliminate harmful hierarchies, and silos between different areas of learning; and gave stress on multidisciplinary and holistic education across the sciences, social sciences, arts, humanities, and sports for a multidisciplinary world in order to ensure the unity and integrity of all knowledge (p. 5).

Relating India's Ancient Fund of Knowledge to Contemporary Reality

NPE 1986/92 suggested relating India's ancient fund of knowledge to contemporary reality (5.33, p. 26). It suggested bridging the existing schism between the formal system of education and the country's rich and varied cultural traditions and carrying out a fine synthesis between change-oriented technologies and the country's continuity of cultural tradition (8.1, p.35). It also suggested improving cultural development by utilizing resource persons in the community, irrespective of their formal educational qualifications employing both the literate and oral traditions of communication (8.2, p. 35), and strengthening teaching, training,and research in art, archaeology, oriental studies (8.3, p. 36). NEP 2020 referred to the rich heritage of ancient and eternal Indian knowledge and thought and proposed nurturing, preserving, researching, enhancing, and putting to new uses(p.4). It also suggested an engaging course on Indian Knowledge Systems as an elective at the secondary school stage (4.27, p. 16). *Of course, NEP 2020 did not mention the reason for not making it compulsory.*

School Education

Duration

NPE 1986/1992 (MHRD 1992a, 3.3, pp. 5-6) suggested 10 years of school education + 2 years of higher secondary education as part of school / higher education. The stages were:

Primary education – 5 years; Upper Primary education –3 years; and High school-2 years

The NEP-- 2020 (MHRD 2020, 4.1, p. 11) suggested 15 years of school education adding 3 years of pre-school education to ongoing 12 years of school education.

- Foundational Stage 5 years (in two parts of that is, 3 years Anganwadi / pre-school
- + 2 years in primary school in Grades 1-2; both together covering ages 3-8),
- Preparatory Stage- 3 years (Grades 3-5, covering ages 8-11),
- Middle Stage- 3 years (Grades 6-8, covering ages 11-14), and
- Secondary Stage- 4 years (Grades 9-12 in two phases, i.e., 9 and 10 in the first and 11 and 12 in the second, covering ages 14-18).

Stages of School Education

As per NPE 1986/92, there were four stages of school education- Primary (classes I-v), Upper Primary (Classes VI-VIII), Lower secondary (classes IX-X), and Higher Secondaryy (Classes XI-XII). In the case of NEP 2020, the Foundational stage (3 years of ECCE and first two years of primary school), the preparatory stage, last three years of primary school. The middlee stage of NEP 2020 corresponds to the upper primary stage of NPE 1986/92. NPE 1986/92 was not sure of 11th and 12th became part of school education. It stated, "Efforts will also be made to have the +2-stage accepted as a part of school education throughout the country" (Art 3.3, p. 5). Because of such a strategy, a few states had

the +2 stage of school education as part of higher education, and such teachers were no expected to have possessed any B.Ed. degree. However, NEP 2020 suggested o Option for students to leave after grade 10 (4.2, pp.11-12).

Early Childhood Care and Education

NPE 1986/92 (p.17) talked about integrating ECCE with Anganwadis, whereas NEP 2020 talked about ECCE in Anganwadis and even suggested two types of teacher training programmes for Anganwadis workers – (a) 6-month certificate programme in ECCE for Anganwadi workers/teachers with qualifications of 10+2 and above and (b) one-year diploma programme for Anganwadi workers/teachers with lower educational qualifications (MHRD 2020, 1.7, p.8). The Programme of Action 1992 on NEP 1986/92 suggested a two-year vocational course in ECCE at +2 level with the objective to create basic skills which can later be adopted through job training for specific situations (MHRD 1992b,11.1, p.13). This recommendation was not found in NEP 2020.

Integration of Anganwadis into School Complexes

NEP–2020 also went for full integration of Anganwadis into school complexes/clusters (1.5, p.7). This recommendation was not found in NPE 1986/92.

Universalisation of ECCE

NPE 1986/92 had no target or intention of universalisation of ECCE, whereas the NEP 2020 envisaged universal provisioning of quality early childhood development, care, and education by 2030 (1.1, p.7) and suggested one year of preschool education in Kendriya Vidyalaya and in other primary schools, particularly in disadvantaged areas (6.9, p.26). NPE 1986/92 envisaged daycare centres as a support service to help girls in taking care of younger ones and helping care of children of working mothers to promote universalisation of primary education (5.2, p.17). This provision was not found in NEP–2020.

National Curricular and Pedagogical Framework for Early Childhood Care and Education (NCPFECCE)

NEP 2020 proposed a National Curricular and Pedagogical Framework for Early Childhood Care and Education (NCPFECCE) for children up to the age of 8, to be developed by NCERT in two parts, namely, a sub-framework for 0-3 year-olds, and a sub-framework for 3-8 year-olds (1.3, p.7). This provision was not found in NPE 1986/92.

Special Joint Task Force

NEP–2020 proposed a Special joint task force of ministries of education, health, and tribal affairs for the smooth integration of early childhood care and education into school education (1.9, p. 8). This provision was not found in NPE 1986/92.

Preparatory Class

NEP 2020 envisaged that prior to the age of 5, every child will move to a "Preparatory Class" or "Balavatika" (that is, before Class 1), which has an ECCE-qualified teacher (1,6, p.7). It also suggested health check-ups and growth monitoring and mid-day meal programme for Preparatory Classes in primary schools (1.6, p.8). *This* provision was not found in NPE 1986/92.

Mid-day Meal Programme for Preparatory Classes

It also suggested health check-ups and growth monitoring and mid-day meal programmes for Preparatory Classes in primary schools (1.6, p.8). This provision was not found in NPE 1986/92.

Bal Bhavans

NEP–2020 suggested strengthening of existing or establishing "Bal Bhavans" where children of all ages can visit once a week (e.g., on weekends) or more often, as a special daytime boarding school, to partake in art-related, career-related, and play-related activities (7.11, p. 30). This provision was not found in NPE 1986/92.

Equitable and Quality Education

NEP–2020 envisaged equitable and quality education from the Foundational Stage through Grade 12 to all children up to the age of 18 (3.3, p. 10). This provision was not found in NPE 1986/92.

Enrolment in Schools

NPE 1986 (MHRD 1986, 5.12, p. 12) hoped that by 1990, all children up to 11 years, and by 1995 all children up to 14 years. The 1992 modification of the 1986 policy document removed the target years of 1990 and 1995 and set the target for 2000 (MHRD 1992a, 5.12, p. 20). NEP 2020 envisaged achieving a 100% Gross Enrolment Ratio in preschool to secondary level by 2030 (3.1, p.10).

Education for Dropouts

NPE 1986/92 suggested a non-formal education programme for school dropouts (5.8-11, p.19). NEP–2020 envisaged alternative and innovative education in collaboration with civil society for dropouts (3.2, p. 10), multiple pathways to learning in formal and non-formal education modes (3.5, pp. 10-11), encouraging alternative models (3.6, p. 11)

Utilisation of Open Schools

NEP–2020 suggested facilitating school education including adult literacy and life-enrichment programmes through Open schools . (3.5, p. 11). This provision was not found in NPE 1986/92.

Foundational Literacy and Numeracy

NEP 2020 envisaged foundational literacy and numeracy in primary school by 2025 (2.2, p.8) and National Mission on Foundational Literacy and Numeracy (2.2, p.8). It also suggested Online Resources Repository for on foundational literacy and numeracy to be placed on the Digital Infrastructure for Knowledge Sharing (Diksha) (2.6, p. 9). This provision was not found in NPE 1986/92.

School Preparation Module for Grade 1 Students

NEP–2020 suggested three-month School Preparation Module for Grade 1 students (2.5, p. 9). This provision was not found in NPE 1986/92.

National Curricular Framework for School Education

NPE 1986/92 suggested a National System of Education and a national curricular framework having common core along with other components that are flexible (3.4, p.6). NCERT brought out one curricular framework in 2000 and another in 2005. NEP 2020 suggested a new and comprehensive National Curricular Framework for School Education, NCFSE 2020-21, to be developed by the NCERT and once formulated, this document will get revisited and updated once every 5-10 years (4.30, p.17). According to NEP 2020, national and state curricula will not go for parallel changes to the physical infrastructure (4.3, p. 12), and give stress on learning how to learn (4.4, p. 12), having increased flexibility in choice of subjects and innovation in implementation (4.9,p. 13), and greater flexibility and exposure to large numbers of subjects (4.10, p. 13).

Reducing Curriculum Content

NEP–2020 stated that "Curriculum content will be reduced in each subject to its core essentials, to make space for critical thinking and more holistic, inquiry-based, discovery-based, discussion-based, and analysis based learning" (4.5, p. 12). It also suggested reducing the weight of school bags and textbooks (4.33, p. 17).

A Fun Course for Grades 6-8

NEP–2020 recommended a fun course, during Grades 6-8, that gives a survey and hands-on experience of a sampling of important vocational crafts, such as carpentry, electric work, metal work, gardening, pottery making, etc., as decided by States and local communities and as mapped by local skilling needs (4.26, p. 16). This provision was not found in NPE 1986/92.

A Practice-Based Curriculum for Grades 6-8

NEP–2020 recommended a practice-based curriculum for Grades 6-8 will be appropriately designed by NCERT while framing the NCFSE 2020-21(4.26, p. 16). This provision was not found in NPE 1986/92.

Multidisciplinary Study

NEP–2020 recommended four years of "multidisciplinary study," at secondary stage (4.2, p. 11). This provision was not found in NPE 1986/92.

Minimum Levels of Learning at School Stage

NPE 1986/92 suggested Minimum Levels of Learning for each stage of education (3.7, p.7). This provision was not found in NEP 2020.

Breakfast in addition to Mid-Day Meals

NEP 2020 suggested a simple but energising breakfast in addition to midday meals (2.9. p. 9). This provision was not found in NPE 1986/92.

Health Check-up

NPE 1986/92 proposed strengthening of school health programme (5.4, p. 13). It also said that health education at the primary and middle levels will ensure the commitment of the individual to family and community health (5.18, p. 17). NEP 2020 suggested regular health check-up for all school children (2.9, pp. 9-10).

Non Detention at Primary Stage

NPE 1986/92 endorsed the policy of non-detention at the primary stage, making evaluation as disaggregated as feasible (5.6, p. 18). This provision was not found in NEP 2020.

Flexibility in School Timings, Year-round School and Full Day School

NPE 1986/92 suggested adjusting school timings as well as vacations to the convenience of children (5.6, p. 18). This provision was not found in NEP 2020. Both the policies were silent about year-round schools and full day schools in locations, having high illiteracy,

Pupil-teacher Ratio

NEP–2020 suggested 30:1 pupil-teacher ratio (PTR) norm in normal situations and 25:1 in demanding situations (2.3, p. 9). This provision was not found in NPE 1986/92.

Filling up Teacher Vacancies

NEP 2020 suggested filling up teacher vacancies (2. 3, p. 8). This provision was not found in NPE 1986/92.

Improving Teaching and Learning Strategies

NPE 1986/92 suggested a child-centred and activity-based process of learning at the primary stage and make first generation learners set their own pace and have supplementary remedial instruction and cognitive learning get increased and skills organised through practice (5.6, p. 18). NEP 2020 stated that "Pedagogy must evolve to make education more experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centred, discussion-based, flexible, and, of course, enjoyable" (p.3). It also suggested teaching and learning conducted in a more interactive manner; encouraging questions, and classroom sessions having more fun, and becoming creative, collaborative and having exploratory activities for deeper and more experiential learning (4.5, p.12). It also recommended more interactive teaching learning strategies (4.5,p.12), and encouragements for experiential learning (4. 6, 7 & 8, pp.12-13).

Use of Online Strategies and AI

NEP–2020 suggested downloadable and printable versions of all textbooks (4.32, p. 17). It also suggested the development of AI-based Software for school students and using them for getting valuable information on their strengths, areas of interest, and needed areas of focus, and also using in career choices (4.35, p. 18) and use of online apps with quizzes, competitions, assessments, enrichment materials, and online communities for shared interests (4.46, p.20); and smart classrooms in the school in a phased manner (4.46, p.20). This provision was not found in NPE 1986/92.

Improving Human and Material Resources in Schools

Operation Blackboard

NPE 1986/92 suggested enlarging the scope of Operation Blackboard to provide three reasonably large rooms that are usable in all weather, and black boards, maps, charts, toys, other necessary learning aids and school library (5.7, p. 18) and having at least three teachers work in every school, the number increasing, as early as possible, to one teacher per class (5.7, pp. 18-19). This provision was not found in NEP–2020.

NEP–2020 suggested provision of adequate and safe infrastructure, including working toilets, clean drinking water, clean and attractive spaces, electricity, computing devices, internet, libraries, and sports and recreational resources to all schools (5.9, p.21). It also suggested taking care of problems faced for quality of improving school education by 2025 by ensuring adequate human and material resources in schools ranging from the foundational stage through the secondary stage, as an integrated semi-autonomous unit (7.5, p. 29). These strategies were not found in NPE 1986/92.

Secondary Education

NPE 1986/92 proposed continuing he Navodaya Vidyalaya Programme to serve the objective of excellence coupled with equity and social justice (5.15, p.21-22). This was also continued in NEP–2020, which suggested additional Jawahar Navodaya Vidyalayas and Kendriya Vidyalayas, especially in aspirational districts, Special Education Zones, and other disadvantaged areas (6.9, p.26)

School Curricula

NPE 1986/92 suggested a common core covering the history of India's freedom movement, the constitutional obligations, and other content

essential to nurture national identity, cutting across subject areas and promoting values such as India's common cultural heritage, egalitarianism, democrac,y and secularism, equality of the sexes, protection of the environment, removal of social barriers, observance of the small family norm and inculcation of the scientific temper in strict conformity with secular values (3.4, p. 6). NEP 2020 suggested school curriculum to foster human values such as respect for all persons, empathy, tolerance, human rights, gender equality, non-violence, global citizenship, inclusion, and equity and provide knowledge of various cultures, religions, languages, gender identities, etc. to sensitize and develop respect for diversity.(6.20, p. 28).

Work Experience

NPE 1986/92 suggested treating Work experience as an essential component at all stages of education (8.14, p. 39). NEP 2020 did not cover work experience.

Environment Education

NPE 1986/92 suggested making environmental consciousness inform teaching in schools and colleges and integrating the concept in the entire education process (8.15, p. 39). NEP–2020 stated that "Environment education will include areas such as climate change, pollution, waste management, sanitation, conservation of biological diversity, management of biological resources and biodiversity, forest and wildlife conservation, and sustainable development and living" (11.8, p. 37).

Value Education

NPE 1986/92 suggested carrying out readjustments in the curriculum to foster universal and eternal values, oriented towards the unity and integration of our people that help eliminate obscurantism, religious fanaticism, violence, superstition and fatalism (8.4-5, p. 36), based on our heritage, national and universal goals and perceptions (8.6, p.36). NEP–2020 suggested that **"**Value-based education will include the development of humanistic, ethical, Constitutional, and universal human values of truth (satya), righteous conduct (dharma), peace (shanti), love (prem), nonviolence (ahimsa), scientific temper, citizenship values, and also life-skills; lessons in seva/service and participation in community service programmes will be considered an integral part of a holistic education." (11.8, p. 37)

Global Citizenship Education

NPE 1986/92 gave stress on the Indian concept of treating the whole world as one family and the role of education in motivating the younger generations for international co-operation and peaceful co-existence (3.5, p. 6). NEP 2020 suggested "Global Citizenship Education (GCED), a response to contemporary global challenges, will be provided to empower learners to become aware of and understand global issues and to become active promoters of more peaceful, tolerant, inclusive, secure, and sustainable societies" (11.8, p. 37).

Population Education

NPE 1986/92 suggested viewing population education as an important part of the nation's strategy to contain the growth of population (8.16, p. 39). There was no mention of this topic in NEP 2020.

Mathematics and Science Education

NPE 1986/92 suggested redesigning mathematics education programmes to bring it in line with modern technological devices (8.17, p. 40) and science education programmes to enable the learner to acquire problem solving and decision making skills and to discover the relationship of science with health, agriculture, industry and other aspects of daily life (8.19, p. 40). NEP 2020 suggested high-quality bilingual textbooks for teaching-learning materials for science and mathematics (4.14, p. 14).

Sports and Physical Education

NPE 1986/92 suggested building a nation-wide infrastructure for physical education, sports and games into the educational edifice (8.20, p. 41). NEP 2020 suggested sports-integration as a cross-curricular pedagogical approach fostering skills of collaboration, self-initiative, self-direction, self-discipline, teamwork, responsibility, citizenship, etc. and make the learner become an active participant of Fit India Movement. (4.8, p. 12).

Yoga Exercise Education

Two old documents-Draft Education Policy 1979 (MESW 1979) and Approach paper on new policy (NCERT 1985) used the term yoga exercises, perhaps considering the fact that teaching yoga requires real yogis, and it may be more appropriate to use "yoga exercise education" in place of "yoga education." NPE 1986/92 stated that "As a system, which promotes

an integrated development of body and mind, Yoga will receive special attention. Efforts will be made to introduce Yoga in all schools. To this end, it will be introduced in teacher training courses"(8.21, p. 41). NEP–2020 did not endorse the strategy on yoga mentioned in NPE 1986/92. However, it suggested a course on yoga as one of the various courses for the purpose of promoting internationalisation in education (12.7, p. 39) and making the healthcare education system integrative by making all students of allopathic medical education have a basic understanding of yoga, Ayurveda, and Naturopathy, Unani, Siddha, and Homeopathy (AYUSH), and vice versa (20.5, p. 50).

Open School System

NPE 1986/92 suggested strengthening of National Open School and open learning facilities(5.37, p. 27). NEP 2020 envisaged utilising NIOS and State Open Schools to offer programmes at A, B and C levels that are equivalent to Grades 3, 5, and 8 of the formal school system; secondary education programmes that are equivalent to Grades 10 and 12; vocational education courses/ programmes; and adult literacy and life-enrichment programmes (3.5, p.11).

Utilisation of Community Members

Many developed nations utilise community members in improving school programmes. In 1979, the author had witnessed community members managing club activities in the second half of the school that allowed teachers to have their meeting. (Mohanty 1980a). NPE 1986/92 had suggested involvement of local communities through appropriate bodies (10.8, p. 47). NEP 2020 envisaged Trained volunteers from the local community and beyond (2.7, p. 9), involving community and alumni for enhancing learning by providing at schools: one-on-one tutoring; the teaching of literacy and holding of extra help sessions; teaching support and guidance for educators; career guidance and mentoring to students; etc. (3.7, p.11) and making schools celebrate annual day, alumni day etc. along with the community (7.12, p. 30).

Utilisation of School Resources by the Community

Utilisation of school resources by the community is an accepted policy in many countries/ . In 1979, the author visited a single teacher school in Scotland, UK (Mohanty 1980b) , in which, after school hours, once a week, the teacher used to give time for community members to borrow and return books. During 1979, the author had visited a community School (Mohanty 1079) in Edinburgh, where community members used to avail school facilities including swimming pool, of course on payment basis. "The community schools strategy transforms a school into a place where educators, local community members, families, and students work together to strengthen conditions for student learning and healthy development" (Germain, Oakes, & Maier 2023, p.1). NEP–2020 suggested making school libraries in villages serve the community during non-school hours and having meetings of book clubs in public/school libraries to further facilitate and promote widespread reading (2.8, p. 9). It also suggested functioning of schools as social awareness centres and allowing un-utilised capacity of school infrastructure to be used to promote social, intellectual, and volunteer activities for the community and to promote social cohesion during non-teaching / schooling hours (7.12, p. 30). These strategies were not found in NPE 1986/92.

Learning Support at School stage- Peer tutoring

During early days of British rule, a Scottish missionary, Andrew Bell had introduced practice class monitor taking charge of the class in the absence of the teacher. Later, he introduced this practice in Scotland. Testimony of this practice is a school named "Madras College" located in St. Andrews that the author visited in 1979 (Mohanty 1981). Peer tutoring is a common practice in rural areas, where students live in adjacent houses. NEP 2020 recommended peer tutoring as a voluntary and joyful activity for fellow students under the supervision of trained teachers and by taking due care of safety aspects (2.7, p. 9). NEP 2020 gave stress on giving students supplementary enrichment material, guidance, and encouragement (4.44, p. 19). These strategies were not found in NPE 1986/92.

National Mission for Universalisation of School Education - Free and compulsory education

NPE 1986/92 made a resolve to provide free and compulsory education of satisfactory quality to all children up to 14 years of age before entering the 21st century and launching a national mission for the achievement of this goal (5.12, p. 20). This proposal led to the formulation of District Primary Education Programme 1994, Sarva Shiksha Aviyan

2001, Rastriya Madhyamika Shiksha Aviyan 2009, and Samagra Siksha Aviyan 2018. There were also 86th amendment of the constitution 2002 and Right to Education Act 2009. NEP–2020 did not suggest a National Mission for Universalisation of School Education

Improving Functioning of School Complexes

NEP–2020 suggested that a complex to have one secondary school together with all other schools offering lower grades in its neighbourhood including Anganwadis, in a radius of five to ten kilometres (7.6, p. 29). Other suggestions of NEP 2020 included making school complex/cluster act as a semi-autonomous unit (7.8, p. 29) and developing school Complex/Cluster plans on the basis of school development plans (7.9, pp. 29-30), encouraging schools/school complexes to hire local eminent persons or experts as 'master instructors' in various subjects, such as in traditional local arts, vocational crafts, entrepreneurship, agriculture, or any other subject where local expertise exists (5.6, p.21) and school complex specific hiring of teachers and sharing of counsellors, trained social workers, technical and maintenance staff (5.10, p.21). These strategies were not found in NPE 1986/92 and gave a general suggestion for improving the quality of programmes through school complexes and hoped that in due course it may have much of the inspection functions (10.7, p. 47).

Stress on Books and Improving Library Facilities

NPE 1986/92 pointed out the need for availability of books including text books and work books at low prices and to improve the quality of books, promote the reading habit and encourage creative writing and supporting good translations of foreign books into Indian languages (8.8, p. 37). NEP 2020 suggested expansion of public and school libraries and bringing out enjoyable and inspirational books for students at all levels including through high-quality translation (technology assisted as needed) in all local and Indian languages and making these available extensively in both school and local public libraries (2.8, p. 9).

Promotion of Innovation in School Education

NPE 1986/92 referred to experimentation and innovation in Navodaya Vidyalaya (5.15, p. 21). NEP 2020 suggested encouragement for alternative forms of schools to preserve their traditions or alternative pedagogical styles (6.15, p. 27).

Improving Quality of Assessment of Student Performance

NPE 1986/92 suggested that "Boards of Secondary Education will be reorganised and vested with autonomy so that their ability to improve the quality of secondary education is enhanced (5.13, p. 21). NEP 2020 suggested transforming the assessment system by the 2022-23 (4.39, p. 18)

PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development

NEP 2020 suggested a National Assessment Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development), as a standard-setting body under MHRD (4.41, p.18). It also suggested carrying out the National Achievement Survey (NAS) of student learning by the proposed National Assessment Centre, PARAKH (8.10, p. 32). These strategies were not found in NPE 1986/92

Progress Card

NEP–2020 stated that Progress card "to include self-assessment and peer assessment, and progress of the child in project-based and inquiry-based learning, quizzes, role plays, group work, portfolios, etc., along with teacher assessment." (4.35, pp.17-18). These strategies were not found in NPE 1986/92

NEP–2020 suggested school examinations in Grades 3, 5, and 8 , to be conducted by the appropriate authority, to test achievement of basic learning outcomes, through assessment of core concepts and knowledge from the *national and local curricula,* along with relevant higher-order skills and application of knowledge in real-life situations, rather than rote memorization. (4.40, p. 18).

Other strategies suggested by NEP–2020 were: having two Board Exams during any given school year, one main examination and one for improvement, if desired, and making Board exams test primarily core capacities/competencies (4.37, p. 18), improving Board examinations including strategies such as annual/semester/modular Board Exams, coverage of

less material in each test, providing exams at two levels–covering some subjects at the standard level and some at a higher level; and having two types of questions – objective and descriptive (4.38, p. 18).

Standard-setting and Accreditation for School Education

NEP 2020 suggested improvement in the school education regulatory system so that they do not overly restrict schools, prevent innovation, or demoralise teachers, principals, and students (8.1, p. 30), instituting an effective quality self-regulation or accreditation system for all stages of education including pre-school education - private, public, and philanthropic- State School Standards Authority (SSSA) (8.5c, p. 31), and Assessing and accrediting public (government) and private schools (except the schools that are managed/aided/controlled by the Central government) on the same criteria, benchmarks, and processes, emphasizing online and offline public disclosure and transparency (8.7, p. 32). NPE 1986/92 did not cover standard-setting and accreditation for school education..

NEP–2020 suggested a CBSE developed framework for schools controlled / managed / aided by the Central government (8.7, p. 32). It did not specify the reason for which it has excluded state boards of school education for its affiliated schools, while it has done so in case of Central board affiliated schools. It also has not covered English medium schools affiliated to Council for the Indian School Certificate Examination (CISCE) and schools going for IGCSE and International Baccalaureate examinations.

Sharing of Facilities and Strategies Among Schools - Private and Government

NEP–2020 suggested sharing of teachers in arts, physical education, vocational education etc. across schools (5.5, p.20), and sharing counsellors, trained social workers, technical and maintenance staff, etc. among schools in school complexes (5.10, p.21). It also proposed adopting twinning/pairing of one public school with one private school so that such paired schools may meet/interact with each other, learn from each other, and also share resources and documenting, sharing, and institutionalising best practices of private schools in public schools, and vice versa, where possible (7.10, p. 30). This strategy was not reported in NPE 1986/92.

Increased Role for SCERTs

NPE 1986/92 did not discuss the role of SCERT but suggested upgrading a few training colleges to support SCERT. NEP 2020 suggested g SCERT's leadership in academic matters, including academic standards and curricula in the States (8.5d, p. 31)

District Boards of Education for School Stage

NPE 1986/92 suggested creating District Boards of Education for school stage (10. 6, p. 47). This strategy was not proposed in NEP–2020.

Adult Education

NPE 1986/92 as well as NEP 2020 did not devote a separate section for adult literacy. A few strategies of NPE 1986/92 were:

1. Opportunities for universal literacy and lifelong education for all (3. 11, p. 8),
2. Gearing the National Literacy Mission to the national goals of development (*4.12, p.15),*
3. Facilitating the cultural creativity and participation in development processes (4.12, p.15),
4. Providing comprehensive programmes of post-literacy and continuing education for neo-literates through (a) continuing education centres, (b) workers' education centres, (c) wider promotion of books, libraries and reading rooms; (d) use of radio, TV and films, (e) learners' groups and organisations; and (f) distance mode (4.13, p.16), and
5. Organising employment/self-employment oriented and need and interest based vocational and skill training programmes (4.14, p.16).

NEP–2020 suggested achieving 100% literacy (21.4., p. 51), *but* n*o target year was mentioned).* It also suggested NCERT developed curriculum framework for adult education to include at least five types of programmes, (a) foundational literacy and numeracy; (b) critical life skills (including financial literacy, digital literacy, commercial skills, health care and awareness, child care and education, and family welfare); (c) vocational skills development (with a view towards obtaining local employment); (d) basic education (including preparatory, middle, and secondary stage equivalency); and (e) continuing education (including engaging holistic adult education courses in arts, sciences, technology,

culture, sports, and recreation, as well as other topics of interest or use to local learners, such as more advanced material on critical life skills) (21.5, pp.52-53).

A few other suggestions were : using schools / school complexes for adult education courses and for other community engagement and enrichment activities (21.6, p.52), ensuring the participation of community members (21.8, p.52), enhancing online accessibility of library books and further broad basing of digital libraries, and strengthening all existing libraries, setting up rural libraries, mobile libraries, and reading rooms in disadvantaged regions, providing reading material in Indian languages, establishing social book clubs (21.9, p.52), and developing apps, online courses / modules, satellite based TV channels, online books, and ICT-equipped libraries and Adult Education Centres, etc. (21.10, pp.52-53).

A Few Common Issues Concerning School and Higher Education

Ensuring Equity

NPE 1986/92 envisaged equity along with other parameters in case of Navodaya schools. NPE 1986/92 suggested equal opportunity to all not only in access, but also in the conditions for success and remove prejudices and complexes transmitted through the social environment and the accident of birth (3.6, pp.6-7). It also stated that in higher education in general, and technical education in particular will facilitate inter-regional mobility by providing equal access to all of requisite merit, regardless of their origins and the universal character of universities and other institutions of higher education is to be underscored (3.8, p. 7).

NEP–2020 suggested that regions of the country with large populations from educationally-disadvantaged SEDGs be declared as Special Education Zones (SEZs) (6.6, p.26). It also suggested 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 (9.3i, p. 34). It also suggested making quality higher education opportunities for all (14.1, p. 41), making common approach to equity and inclusion across school and higher education (14.2, p. 41), earmarking of suitable Government funds for the education of SEDGs (14.4.1a, p. 41), having clear targets for higher GER for SEDGs (14.4.1b, p. 41), enhancing gender balance in admissions (14.4.1c, p. 41); making admissions processes more inclusive (14.4.2d, p. 42); and providing socio-emotional and academic support and mentoring (14.4.2j, p. 42).

Education of Girls and Women

NPE 1986/92 gave stress on the removal of women's illiteracy and obstacles inhibiting their access to, and retention in elementary education, through provision of special support services, setting of time targets, and effective monitoring (4.3, p.10) and adequate hostel accommodation, especially for girls(6.15 iii, p.32). In 2004, Kasturba Gandhi Balika Vidyalaya scheme was started by the Central government to provide residential schools for girls in educationally Backward Blocks (EBBs) having low literacy percentage. NEP 2020 suggested strengthening Kasturba Gandhi Balika Vidyalayas and covering 12th Grade (6.9, p. 26). At the time of NPE 1986/92 this scheme was not in existence.

NPE 1986/92 recommended promotion of women's studies as a part of various courses (4,2, p. 13) and called for major emphasis on women's participation in vocational, technical and professional education at different levels, vigorous pursue of the policy of non-discrimination to eliminate sex stereo-typing in vocational and professional courses and to promote women's participation in non-traditional occupations, as well as in existing and emergent technologies (4.3, p.10). NEP 2020 suggested that HEIs ensure sensitisation of faculty, counsellor, and students on gender-identity issues and its inclusion in all aspects of the HEI, including curricula (14.4.2k, p. 42).

Gender-Inclusion Fund

NEP 2020 suggested the constitution of a 'Gender-Inclusion Fund' by the central government to build the nation's capacity to provide equitable quality education for all girls as well as transgender students (6.8, p.26). *Such a fund was not found in NPE 1986/92.*

Education of Scheduled Castes

A few strategies suggested in NPE 1986/92 were:

1. Aiming at equalisation of education of SCs with the non-SC population (4.4, p.11);
2. Providing incentives to indigent families for education of children up to 14 years age (4.5 i, p.11);
3. Providing pre-matric scholarship for children of families engaged in occupations such as scavenging, flaying and tanning starting from Class I (4.5ii, p.11);
4. Ensuring successful completion of courses by SC students, and providing remedial courses for further education and employment (4.5 iii, p.11);
5. Providing hostel facilities at district headquarters (4.5 v, p.11);
6. Utilising Jawahar Rozgar Yojana resources for educational facilities (4.5 vii, p.11), and
7. Carrying out innovative methods of funding(4.5 viii p.11).

NEP–2020 suggested continuation of the process of bridging gap in access, participation, and learning outcomes of children belonging to Scheduled Castes as one of the major goals (6.2.2, p.25).

Education of Scheduled Tribes

A few strategies suggested in NPE 1986/92 were:

1. Giving priority to opening primary schools in tribal areas and constructing school buildings using normal funds and funds under the Jawahar Rozgar Yojana, Tribal Welfare schemes, etc. (4.6 i, p.12);
2. Devising instructional materials in tribal languages at the initial stages (4.6 ii, p.12);
3. Training to educated and promising Scheduled Tribe youths for teaching job in tribal areas (4.6 iii, p.12);
4. Establishing residential schools, including Ashram Schools (4.6 iv, p.12);
5. Providing special remedial courses for removing psycho-social impediments (4.6v, p.13);
6. Opening on a priority basis Anganwadis, Non-formal and Adult Education Centres in ST dominated areas (4.6 vi, p.13); and
7. Designing the curriculum at all stages of education to create an awareness of the rich cultural identity and creativity of the tribal people (4.6 vii, p.13).

NEP 2020 suggested that in addition to continuation of several programmatic interventions to uplift children from tribal communities currently in place, special mechanisms need to be made to ensure that children belonging to tribal communities receive the benefits of these interventions(6.2.3, p.25).

Education of Other Educationally Backward Sections and Education in Other Educationally Backward Areas

NPE 1986/92 suggested suitable incentives to all educationally backward sections of society, particularly in the rural areas and adequate institutional infrastructure in hill and desert districts, remote and inaccessible areas and islands (4.7, p.13). NEP 2020 suggested free boarding facilities in school locations for students, especially girls from socio-economically disadvantaged backgrounds (6.9, p.26).

Education of Minorities

NPE 1986/92 suggested greater attention to education of minority groups in the interests of equality and social justice (4.8, p.13). NEP 2020 suggested interventions to promote education of children belonging to all minority communities, and particularly those communities that are educationally underrepresented (6.2.4, p. 25).

Education of Physically and Mentally Handicapped

NPE 1986/92 suggested: 1. Providing special schools with hostels at district headquarters, for the severely handicapped children (4.9 ii, p.14), and *2.*Reorienting primary school teacher training (4.9 iv, p.14), Central government established the Rehabilitation Council of India (MHRD 1992c). NEP 2020 suggested mechanisms for providing Children With Special Needs (CWSN) or Divyang, the same opportunities of obtaining quality education (6.2.5, p. 25), and suggested modules by NIOS for using Indian Sign Language (6.11, p. 26). It also suggested the same status for home-based special

education as given to school-based education (6.12, p.27) and making teaching special children as part of all teacher education programmes (6.14, p. 27 and 5.21, p. 23). In case of higher education, NEP 2020 suggested that all buildings and facilities are to be wheelchair-accessible and disabled-friendly (14.4.2h, p. 42).

Co-Curricular Activities

NPE 1986/92 suggested participation of higher education students in one or the other of existing schemes, namely, the NSS, NCC, etc. and encouragement for youth to participate in programmes of development, reforms and extension (8.22, pp.41-42). NEP 2020 suggested visits to places/monuments of historical, cultural and tourist importance, meeting local artists and craftsmen and visits to higher educational institutions in their village/Tehsil/District/State (4.26,p.16), competitions on fun based learning and indigenous games and organisation of video documentaries on inspirational luminaries of India, ancient and modern, in science and beyond and organising visits to different States as part of cultural exchange programmes (4.27c p. 16), encouraging participation in activities such as topic-centered and project-based clubs and circles and in high-quality national residential summer programmes for secondary school students (4.44, p. 19), giving stress on conducting Olympiads and competitions in various subjects (4.45, pp. 19 - 20), and stress on opening NCC wings in their secondary and higher secondary schools (6.17, p.28) and mechanisms and providing opportunities for funding of topic-centred clubs (12.3, p. 39).

Stress on Study of Sanskrit Language at School and Higher Education Stages

NEP–2020 suggested mainstreaming Sanskrit with strong offerings in school - including as one of the language options in the three-language formula -as well as in higher education, establishing/ strengthening Departments of Sanskrit across the new multidisciplinary higher education system, and Professionalising Sanskrit teachers through the offering of 4-year integrated multidisciplinary B.Ed. dual degrees in education and Sanskrit. (22.15, p.55). This strategy was not mentioned in NPE 1986/92.

Teachers in School Education and Their Training

Teacher Selection

NEP–2020 stated that "Only the very best and most learned became teachers." (5.1, p. 20). It suggested strengthening of Teacher Eligibility Tests (TETs) to cover teachers across all stages and gauging passion and motivation for teaching and conducting classroom demonstration or interview for teacher hiring at schools and school complexes (5.4, p.20). NPE 1986/92 did not have the concept of teacher eligibility test.

Utilising Experts from Community as Teachers for Certain Subjects

NEP–2020 suggested hiring of local eminent persons or experts as 'master instructors' in subjects, such as traditional local arts, vocational crafts, entrepreneurship, agriculture, or any other subject where local expertise exists (5.6, p.21). NPE 1986/92 did not have this concept of teacher hiring.

Incentives for Rural Teachers

NEP–2020 suggested incentives for rural teachers such as local housing near or on the school premises or increased housing allowances (5.2, p. 20). This strategy was not reported in NPE 1986/92.

Professional Standard for Teachers

NEP 2020 suggested National Professional Standards for Teachers (NPST) by 2022 that covers roles of the teachers and the competencies required for each stage and that stage and also performance appraisal standards (5.20 pp. 22-23). It also proposed revision of professional standards in 2030, and thereafter every ten years (5.20 p. 23). This strategy was not reported in NPE 1986/92.

Improving Quality of Teacher Management

NEP–2020 suggested recruiting teachers for school complexes and sharing of teachers across schools for subjects like art, physical education, vocational education, and languages (5.5, p.20). This strategy was not reported in NPE 1986/92.

Empowering Teachers

NPE 1986/92 stated that "Teachers should have the freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs and capabilities of and the concerns of the community."(9.1, p. 43). NEP 2020 suggested overhauling the service environment and culture of schools to maximize the ability of teachers (5.8 & 9, p. 21), giving autonomy to teachers in choosing

aspects of pedagogy (5.14, p.21) and encouraging teachers for novel approaches to teaching that improve learning outcomes in their classrooms (5.15, p.22), and recognising, promoting, and giving salary raises to teachers doing outstanding work (5.16, p.22).

Evaluation of Teacher Performance

NPE 1986/92 suggested an open, participative, and data-based system of teacher evaluation and incentives for good performance and disincentive for non-performance (9.2, p.44). NEP 2020 suggested a system of multiple parameters for proper assessment of teacher performance based on peer reviews, attendance, commitment, hours of CPD, and other forms of service to the school and the community or based on National Professional Standards for Teachers (5.17, p.22). Teacher evaluation strategies vary from one nation to another, For instance, in the United States, since 2016, teacher evaluation strategies have excluded measures of student academic growth and as part of evaluations and have stopped use of student surveys (Swisher & Saenz-Armstrong 2022, p.2). NEP 2020 did not suggest any strategy.

Recognition of Excellence in School Teachers

NPE 1986/92 suggested strategies to motivate and inspire teachers on constructive and creative lines (9.1, p.43) and incentives for good performance (9.2, p. 44). NEP 2020 recommended recognition of teachers for their novel approaches to teaching (5.9, p. 22).

Support to Teachers to Learn Local Language

NEP 2020 suggested piloting and implementing technological interventions to serve as aids to teachers and to help bridge any language barriers between teachers and students.(2.6, p. 9), and incentives for teachers with knowledge of the local language in areas with high dropout rates (3.4, p. 10). This strategy was not reported in NPE 1986/92.

Teacher Education for Schools

NPE 1986/92 suggested creating conditions to motivate and inspire teachers on constructive and creative lines (9.1, p. 43) and uniform emoluments, service conditions and grievance-removal mechanisms (9.2, p. 43). NEP 2020 proposed grounding teachers in Indian values, languages, knowledge, ethos, and traditions including tribal traditions, while also being well-versed in the latest advances in education and pedagogy (15.1, p. 42)

Central Government Scheme for Improving Teacher Education

NPE 1986/92 suggested establishing District Institutes of Education and Training (DIET) for training of elementary school teachers (9.6, p. 44). According to MHRD (1992b, p.178) the head of a DIET would be of the status of a Principal of a Degree College/B.Ed. College and most of the faculty members having a background in elementary education. NPE 1986/92 also suggested upgrading selected training colleges to supplement work of SCERTs (9.6, pp. 44-45). In 1987, central government brought out a scheme for improving quality of teacher education. A number of Institute of Advanced Study in Education (IASE) and College of Teacher Education (CTE) were established by upgrading mostly government institutions. Later IASEs were also located in a few central universities. A review of this scheme (NCERT 2009, p.42) indicated that each IASE was expected to have 1 principal, 2 professors, 6 Readers and 18 lecturers. In a sample of 22 IASEs taken for the study, the number of teachers varied from 2 to 25 (2 teachers /1 institution, 4/2, 6/1. 7/1,9/2,10/1,11/3,12/1,13/1, 14/1, 15/1, 16/2,19/1.20/1,21/1,22/1, 25/1). NEP 2020 did not cover the issue of IASEs and CTEs, most of which are standalone and also single faculty government teacher training colleges, especially when, it suggested bringing all teacher training programmes to multidisciplinary universities and colleges.

Accreditation by NCERT

NPE 1986/92 suggested making NCERT have resources to accredit institutions of teacher education (9.6, p. 45. This did not materialise and was not also found in NEP 2020.

Network of Teacher Education Institutions and University Departments of Education

NPE 1986/92 suggested networking arrangements between institutions of teacher education and university departments of education (9.6, p. 45). This did not materialise and was not also found in NEP 2020.

New Models of Initial Teacher Education Programmes

NPE 1986/92 did not come out with any new models of initial teacher education programmes The courses at that time were: 1. One year B. Ed.

for graduates, 2. 4 year integrated B.A. B.Ed./B. Sc. B.Ed. (offered in not more than 10 colleges), 3. One /two year diploma/certificate courses for elementary/nursery/ pre-school teaching. The NEP 2020 suggested three types of B.Ed. programmes:

1 yr. B. Ed. (5.23, p. 23; 15.5. p. 43),
2 Yr. B. Ed. (5.23, p. 23; 15.5. p. 43),
4 Yr. B. Ed. (5.23, p. 23; 15.5. p, 43).

It was silent about the ongoing 3 year integrated B.Ed. M.Ed. programme. It suggested a 2-year B.Ed., for students who have already received a Bachelor's degree in a specialized subject run by the institution offering the 4-year integrated B.Ed. (15.5, p. 43 Also in 5. 23, p. 23). It also stated that 1-year B.Ed. will be available for candidates who have received a 4-year undergraduate degree in a specialized subject (15.5, p. 43) and also for who have obtained a Master's degree in a specialty and wish to become a subject teacher in that specialty (5.23, p. 23).

Scholarships for Rural Aspirants for Teacher Job

NEP–2020 suggested Providing a large number of merit-based scholarships for students from rural areas, for studying *quality* 4- year integrated B.Ed. programmes (5.2, p.20). This strategy was not reported in NPE 1986/92.

Reorienting Teacher Training to Cover Education of Handicapped Children

NPE 1986/92 suggested reorientation of teachers' training programmes in particular for teachers of primary classes, to cover the special difficulties of the handicapped children (4.9 iv, p. 11). This strategy was not reported in NEP–2020.

Reorienting Teacher Training to Cover Education of Gifted

NEP–2020 suggested specialization in the education of gifted children to be covered in B.Ed. programmes (4.43, p. 19). This strategy was not reported in NPE 1986/92.

Giving More Importance to 4 year Integrated B.Ed. Courses

In the early sixties of the twentieth century, a college in Kurukshetra in Haryana introduced a four year integrated teacher training programme, a United States model of teacher training, on a pilot basis and discontinued it after two batches came out. This was taken up by the NCERT in its newly started four Regional Colleges of Education which operated this United States model for senior secondary passed students along with one year B.Ed. course, a United Kingdom model, for graduates. NPE 1986/92 had not given any importance to 4 year Integrated B.Ed. courses, which were found at that time in less than ten institutions including 4 institutions of NCERT. NEP 2020 gave higher status to this programme and stated that by 2030, a 4-year integrated B.Ed. degree shall be the minimum degree qualification for teaching (5.23, p. 23 and 15.5, p.42, p.43). It stated that proposed 4-year integrated B.Ed. shall be a dual-major holistic Bachelor's degree, in Education as well as a specialized subject (15.5, p.42). This strategy was not reported in NPE 1986/92.

New Locations for Initial Teacher Training - Multidisciplinary Institutions

NPE 1986/92 did not envisage any change in types of institutions providing initial teacher training, whereas NEP 2020 suggested moving teacher education by 2030 into multidisciplinary colleges and universities (5.22, p. 23), only educationally sound, multidisciplinary, and integrated teacher education programmes (15.3, p. 42) and getting teacher education institutions converted to multidisciplinary institutions by 2030 and offer the 4-year integrated course for teacher preparation (15.4, p. 42). This strategy was not reported in NPE 1986/92.

Increasing the minimum qualifications of a primary/pre-primary teacher from Diploma to Degree stage- Availability of Funds

NPE 1986/92 had accepted minimum qualifications of a primary/pre-primary teacher as Diploma in teacher training after a higher secondary certificate. NEP 2020 has proposed that by 2030, 4-year integrated B.Ed. to be minimal degree qualification for school teachers (15.5, p. 42). This strategy was not reported in NPE 1986/92.

Phasing out Substandard Teacher Training Institutions

NPE 1986/92 suggested phasing out substandard elementary teacher training institutions (9.6, p. 44). NEP 2020 proposed stringent action against substandard stand-alone Teacher Education Institutions (5.29, p. 24).

Improving Quality of Teacher Trainees

NPE 1986/92 did not cover the issue of admission. NEP 2020 suggested that admission to pre-service teacher preparation programmes be made through suitable subject and aptitude tests conducted by the National Testing Agency (15.7, p.43).

Continuing Education of Teachers

NPE 1986/92 mentioned teacher education (pre-service and in-service) as a continuous process" (9,4, p.44). It did not mention any specific programme or duration of training. NEP 2020 was more specific in suggesting offering of Continuous Professional Development (CPD) programmes in multiple modes, including in the form of local, regional, state, national, and international workshops as well as online teacher development modules and facilitating sharing of ideas and best practices among teachers through platforms (especially online platforms) and participation of each teacher in at least 50 hours of CPD opportunities every year driven by their own interests (5.15, p. 22). Neither NPE 1986/92 as well as NEP 2020 referred to role of extension services departments attached to many teacher training institutions and university departments of education, in continuing education of teachers.

Training of Local Persons to Teach

NEP 2020 suggested special shorter local teacher education programmes for eminent local persons who can be hired to teach at schools or school complexes as 'master instructors,' for the purpose of promoting local professions, knowledge, and skills, e.g., local art, music, agriculture, business, sports, carpentry, and other vocational crafts (5.25, p. 24). This strategy was not reported in NPE 1986/92.

Training Outstanding teachers for New Opportunities

NEP 2020 suggested training to outstanding teachers with demonstrated leadership and management skills to take on academic leadership positions in schools, school complexes, BRCs, CRCs, BITEs, DIETs as well as relevant government departments (5.19, p.22). This strategy was not reported in NPE 1986/92.

Certificate Courses for Improving Qualifications of Serving Teachers

NEP 2020 suggested certificate courses for subject teachers or generalist teachers for acquiring skill for teaching of handicapped children , in the pre-service as well as in-service mode, either full time or as part-time/blended courses (5.21 p. 23). It also suggested shorter post B.Ed. certification courses for teachers who may wish to move into more specialised areas of teaching, or into leadership and management positions or to move from one stage to another (5.26, p. 24). This strategy was not reported in NPE 1986/92.

Blended or ODL mode for Pre-service and Inservice Teachers

During the last decade of the twentieth century correspondence courses run by a few universities created havoc, One university went to the extent of admitting nearly 39,000 students. This situation was controlled in that decade by the UGC-NCTE agreement that brought norms and standards for distance education programmes and made it a two year course, while face to face mode was of one year duration. NEP 2020 suggested B.Ed. programmes in blended or ODL mode to students in remote or difficult-to-access locations and also to in-service teachers who are aiming to enhance their qualification (5.23, p. 23). This strategy was not reported in NPE 1986/92.

Curriculum Framework for Teacher Education

NPE 1986/92 did not suggest any curriculum framework for teacher education. After publication of NPE 1986/1992, there were two curriculum frameworks – one in 1998 and another in 2009. NEP 2020 suggested a National Curriculum Framework for Teacher Education by 2021 to be revised once every 5-10 years (5.27, p. 24).

Regulating Teacher Education

NPE 1986/92 recommended curricula and methods by the National Council for Teacher Education (NCTE) (9.6, p. 45). Of course, this NCTE was not a statutory body. It was part of NCERT. In 1993, NCTE was made a statutory body that had jurisdiction of the whole nation except Jammu & Kashmir state. NEP 2020 suggested revitalising teacher education sector and its regulatory system through radical action (15.2, p. 42), and empowering the regulatory system to take stringent action against substandard and dysfunctional teacher education institutions (TEIs) that do not meet basic educational

criteria, after giving one year for remedy of the breaches (15.3, p. 42). As part of its overall strategy for improving function of regulatory bodies, NEP 2020, suggested NCTE function as a Professional Standard Setting Body (PSSB) and continue to draw the curricula, lay down academic standards and coordinate between teaching, research and extension of their domain/discipline, as members of the General Education Council (GEC) (18.7, pp. 47-48).

Education Departments in Multidisciplinary Universities and Colleges

NEP 2020 has suggested education departments in all multidisciplinary universities and colleges which, besides carrying out cutting-edge research in various aspects of education, will also run B.Ed. programmes (15.4, p. 42). It also suggested that each higher education institution have a network of government and private schools to provide student teaching practical (15.6, p.43 This strategy was not reported in NPE 1986/92.

Faculty Profile in Departments of Education

NEP 2020 proposed that faculty profiles in Departments of Education aim to be diverse and give stress on teaching / field / research experience (15.8, p.43). This strategy was not reported in NPE 1986/92.

Vocational Education in School and Higher Education

NPE 1986/92 visualised vocational education as a distinct stream, intended to prepare students for identified occupations spanning several areas of activity provided after class VIII (5.17, p. 16). Its proposal to make vocational courses cover 10 per cent of higher secondary students by 1995 and 25 per cent by 2000 (5.23, pp.23-24) could not materialise. NEP 2020 proposed ensuring vocational exposure at early ages in middle and secondary school and integrating quality vocational education into higher education and making it possible for every child to learn at least one vocation and get exposed to several more (16.4, p. 44), developing an action plan for having at least 50% of learners through the school and higher education system getting exposure to vocational education by 2025, and creating skill labs in the schools in a hub and spoke model which will allow other schools to use the facility (16.5, p. 44), experimenting different models of vocational education, and apprenticeships, and having incubation centres in partnership with industries (16.7, p. 44), and expanding the National Skills Qualifications Framework to cover each discipline vocation and profession and aligning Indian standards with the International Standard Classification of Occupations maintained by the International Labour Organization (16.8, p. 44).

National Committee for the Integration of Vocational Education (NCIVE)

NEP 2020 proposed formation of a National Committee for the Integration of Vocational Education (NCIVE) (16.6, p. 44). This strategy was not reported in NPE 1986/92.

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Effective Curriculum and Pedagogical Approaches in Microbiology

Kushagri Singh* and Saurabh Singh Rathore**

The current scenario in India is not able to focus more on practical aspects of microbiology with respect to teaching this subject in higher education. A rote learning approach is followed for several years in the field of the life sciences education system. Therefore the development or enhancement of the career of microbiology students in higher education needs urgent implementation of different tools and techniques. Most importantly, focus on the practical aspects of teaching this subject so that students are able to gain interest. We all know that microbiology is completely an important discipline because of its highly detrimental as well as beneficial impact on humans, plants, and animals. Our future scientists of microbiology are our higher education students today and to develop a quality of critical thinking, we need to educate them in a different way where they just not play a passive role while attending lectures but also be an active part of education in this subject. Therefore, pedagogical research in the field of microbiology is required as the current education system jeopardizes the career of our country's future microbiologists.

In the current scenario, pedagogical research mainly aims to improve the experience as well as outcomes of learners using evidence-based approaches, framing educators' actions. In the higher education system, the study reported that the assessment routines currently are only pushing the learners/students towards a mechanical or rote learning approach. Subjects in life sciences, especially microbiology a kind of a stand-alone degree discipline but an important part of science because of the dominating role of microorganisms in the case of human, plant, and animal infections as well as their chief character in pharmaceutical, environmental, industrial and food/Beverage industries. Therefore, it is highly required to share new ideas and tools, and continuous upgradation of this specific field in teaching which directly or indirectly will improve better understanding and keen interest of learners in this discipline of biological sciences.

Several studies have reported that the current education of microbiology only encourages a culture of superficial learning which is suitable only for scoring good marks in educational institutions. It has also been observed that there is a major gap in curriculum development which could offer educators as well as learners to be more inclined towards "doing" rather than just "learning ". Therefore, it is urgently required to establish a repository of studies focusing on research practices, both quantitative as well as qualitative, to deeply investigate the problems of the already existing education system. Microbiology, in current teaching as well as learning activities at higher education/ university in most cases is dependent completely on the definitions and memorization of concepts and ultimately places a student in a passive position or not in an active role. This kind of education culture in microbiology will not be able to encourage critical thinking and thus creativity in learners. It will also not be able to foster in pursuit of any well-grounded or authentic microbial scientific information. There is always a need for solid knowledge of the basics of a specific discipline but meanwhile, it is also necessary to develop a range of different analytical skills which are important to escort scientific investigations.

With respect to microbiology (a discipline of life sciences), students of microbiology are not motivated frequently to memorize or learn the basic concepts of this subject. The reason behind this may be as follows:

1. Difficulty in dealing with the scientific terminology which is used by educators regularly during their lectures.
2. Students might lose their interest in traditional (conventional) lectures where they have a

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passive role. Such issues could be dealt with by the involvement of students in the process of learning which is an outcome to intensify the interest in a specific subject. To turn teaching science (microbiology) into a meaningful pursuit, there is a need to consider knowledge building as a continuously changing or dynamic process for learners as well as educators.

Purposes of Microbiology Education

1. To understand the impact of microorganisms on the health of plants and animals.
2. To know the research challenges faced by microbiologists and the barriers to meeting those challenges.
3. To create public literacy in microbiology.
4. Microbes for the benefit of society.

Detrimental Aspects of Microorganisms

The study of microbes is pivotal to studying all living organisms as microbes are the basis of the biosphere. Microorganisms pose a threat to human health as well as the health of plants and animals, therefore the study of microorganisms has become an essential part of research and study in understanding all life on this planet.

Research in the field of microbiology has been changing rapidly. This field is always impacted by several events that are responsible for shaping the public perceptions of microorganisms like the emergence of globally significant diseases COVID-19, threats of bioterrorism (anthrax, botulism, plaque, smallpox), increase in multi-drug resistant microorganisms, therapies to treat microbial diseases (bacteriophage therapy) and contamination of food on a larger scale (staphylococcus aureus, yeast, molds).

Research on bacteria has initially led to many fundamental scientific discoveries. Initial support for bacterial research was justified because of its pathogenic or disease-causing nature. And with the discovery of antibiotics, it seemed like the war against microbes had been won. Therefore, research areas shifted to topics like cancer, heart ailments, and genetic disorders. But, with the generation of new microbes or microbes that evolved with new traits very rapidly again shifted researchers' focus on the development of new therapies because of microbes' antibiotic-resistant properties and the slow generation of antibiotics effective against them. To make the best progress, microbiology must reach across traditional departmental boundaries or barriers and integration of the scientist's expertise in other disciplines (11-13).

We also need to educate the children as well as college students today, as they are going to be the researchers of tomorrow. Since microorganism have a direct bearing on the human condition, it is critical that the public at large scale become better grounded or sensible with respect to the basics of microbiology. For this purpose, public literacy campaigns must be organized to convey such issues. Decision makers at federal, state, local, and community levels should be made more aware of the ways that how microorganisms impact human life and higher education curricula could be improved including valuable lessons in microbial science.

Beneficial Aspects of Microorganisms

Other than pathogenicity, microorganism possess many beneficial roles also like microorganism in the pharmaceutical industry (microbes produce antibiotics and in the development of vaccines), microorganisms in the field of biotechnology (through fermentation microbes breaks down complex molecules in organic acids, ethanol, and vinegar and other fermented products such as curd), microorganisms help in bioremediation where it breaks organic compounds from sewage water. Enzymes, organic acids, vitamins, amino acids, antibiotics, and polysaccharides are additional metabolic products produced by microorganisms for commercial purposes. Microorganisms in the food industry like many dairy products such as curd and cheese produced by bacteria. Microorganisms in the environment degrade oil (oil spills in coastal areas and open sea) through hydrocarbon-degrading activities of microbial populations (hydrocarbon clastic bacteria HCB). Microorganisms in biofuel like a large amount of cellulose, mannitol, and agar found in microalgae are fermented to alcohol (ethanol & butanol). biomethane can be produced by anaerobic digestion of microalgae biomass. Important in the production of chemical substances (acetaldehyde, acetoacetic acid, ethanol, butanol, galactose, fructose, glycerol, mannitol, lactic acid, mannose, sorbose, succinic acid, and pyruvic acid) (14, 15).

Some of the criteria to enhance teaching in a classroom are:

- Use of PowerPoint presentations/internet expertise during lectures.
- Development of a comprehensive curriculum at the master's level incorporating existing training opportunities and creating new content to fill gaps.
- To carry out basic microbiological techniques to develop research work in microbiology.
- Preparation of new teaching modules focusing on practical aspects of microbiology, its implementation, and further analysis of students' results.

Methodologies to be Implemented for Microbiology Learning in Higher Education

1) Active Learning-based Approaches

"Students as well as educators' questions"

The educator should encourage students to ask questions in the classroom and out of the class as well, modeling for students that science is a constantly expanding field that is completely based on progressive research.

The educator should describe the lecture portion of the course, based on a video series followed by discussions. Through this approach only a small amount of time will be spent on lecturing to the students, hoping that the interactions would lead the students to the key concepts presented in the videos.

2) Clarity in Teaching

Educators could use many ways to teach with clarity like

a) Simplified explanations (using drawing, videos, illustrations, using examples)

b) Emphasis on main ideas (repetitive explanation, emphasis on vocals)

c) Flexibility in teaching (adjusting teaching to students' reaction-educator ask the student to vote on the way that they liked to watch the films (small segments vs large segments)

d) Connecting to students' everyday life and prior background (knowledge on microbiology that would allow them to appreciate how it may apply to our lives)

3) Linkages to Teaching

a) Group Study

The educator should explain the pedagogy he/she is using and why? (Why educator is putting students into groups). In almost all class sessions students are asked to work on in-class assignment in groups. The group assignment will include discussions about questions provided by educator and each group share their information with the whole class.

b) Assessment

Assessment should be designed in a way so that the students get encouraged to complete their assignments. Assessment is another way to model good teaching practices. There is a requirement to acquire skills and practice the skills of learning about science (microbiology) or science within microbiology.

4) Students' Perspective or Students' Content Knowledge

The educator or instructor could collect pre- and post-content surveys which include any of the three courses molecular biology, biochemistry, and microbiology. It will be analyzed using t-test analysis that whether the students significantly improved their scores on the post-survey that would be taught according to new techniques.

Conclusion

This review article aims to cultivate students' comprehensive experimental skills, scientific research thinking/critical thinking and innovative abilities. The traditional experimental operation process cultivates students "hands on" operation ability, but limited by many factors such as experimental operation ability, which leads to the experimental training of students in the real learning process and the effect is not at all ideal (16, 17).

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Evaluating Social Media's Effect on University Education: A Case Study

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The utilization and number of platforms for social media have increased during the past ten years. There are about 3.2 billion people who use social media. The sites are made up of mobile and web-based apps that let people or organizations establish accounts and interact with those who also have such reports. Popular social media networks include WhatsApp, LinkedIn, Instagram, Twitter, YouTube, and Facebook are popular social media networks. Numerous facets of human existence have been profoundly altered by social media.

People are relying on the platforms more and more to communicate with personal friends and colleagues. Business organizations use platforms more frequently to sell their goods and services and communicate with their customers (Fuchs, 2017). The educational sector has not been ignored. Institutions, universities, and other educational facilities utilize social media platforms to communicate with students and promote their courses. The portals are frequently utilized within academic settings.

This study attempts to look into how social media use affects academic performance and teaching and learning in university education. 250 staff members and students from the Textile and Engineering Institute in Ichalkaranji participated in the study. In order to get data on the participant's usage of the internet in the classroom and how it has impacted their learning, knowledge, and marks, the respondents were asked to fill out a survey. Most participants said they had utilized social media during training. They did, however, add that platforms for social media were beneficial for educational purposes. 39% of participants said that using social media for learning has improved their academic performance. The remaining 61% either said social networking had no effect on their marks, had a negative impact, or have been unsure.

The goal of this research is to examine the impact of such technologies on both learning and teaching. Users could include teachers, students, or educational institutions. The technique might involve, among other things, sharing learning resources, discussing classwork, and disseminating important academic information. For instance, some teachers and students use WhatsApp to exchange information about a specific course and to talk about issues (Cetinkaya, 2017). This study attempts to investigate how social media use affects academic performance in university education as well as teaching and learning.

This study is crucial since technology has fundamentally changed a variety of spheres of life, including marketing. The issue is particular to schooling. These methods significantly aid in the facilitation of classroom instruction and learning, yet they are also recognized to divert students' focus & result in time waste. It is important to examine if the benefits of employing technology in education outweigh the drawbacks.

Literature Review

The utilization of social media in the classroom has become the subject of numerous research. One of the initial studies examined the possibilities that emerging social media techniques offered to such curriculum for arts education in 2008. (Salavuo, 2008). It is important to note that a few years prior to the study, some of the most well-known social media networks had only recently been launched. For instance, YouTube was established in 2005, Twitter in 2006, and Facebook in 2004.

Studies over the years predicted that the new medium would swiftly become more well-known. Empirical evidence of the impact of social media use on educational outcomes has recently come from studies. Such empirical investigations have been made possible by the wide use of such media and their timely acceptance. Researchers have been able to utilize these platforms to carry out research on the

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same platforms since social media applications now allow users to create and run surveys (Fuchs, 2017). The technology used in social media has garnered credibility in the short time they have been around (Fuchs, 2017). The media applications have gained the trust of people and organizations, who use them as platforms for audience interaction. The volume of reliable information provided on platforms is a key factor in the rise in press credibility.

On the websites, helpful information has been offered by news sources, reputable people and organizations, experts in many industries, and professionals. This very legitimacy has drawn many educational institutions to employ social media for their marketing initiatives, student communications, and life-improving initiatives, among other things. Social media has been acknowledged by colleges, universities, and other educational institutions as having a good impact on teaching and learning initiatives.

Institutions for teaching and learning have gone so far as to embrace plugins that enhance interactions with students. To evaluate the effectiveness of their efforts, they can make use of strong analytical techniques (Lupton, 2015).

The rising credibility of social media platforms does not guarantee that there is no inaccurate or misleading information on them. Unreliable people and groups have been using the platforms more and more to disseminate false information. Leading social media sites are making a lot of effort to find and delete misleading information and rumors on various platforms.

Additionally, some educational institutions have been teaching college students how and where to assess the reliability of content people find on the web, particularly on social media. Prominent sites on social media do provide guidance on how to spot false information. Students can use social media in different ways to know more about instruction and learning. Additionally, there are numerous ways that educational institutions use social media sites to disseminate search information.

Sharing lectures that have been captured on video on websites like Facebook and YouTube is a crucial strategy. Colleges and universities frequently capture classes these days and upload them on YouTube so that learners have access to them. Students just need to connect to the organization's YouTube page to obtain notifications of new videos or conduct a keyword lookup to locate those videos.

In both teaching and learning, videos have proved essential. The movies are available for students to pause, fast-forward, and playback as often as they choose. They will be better able to comprehend the material this way. The use of material supplied in the form of videos on social media can be incredibly beneficial for distant pupils (Alwehaibi, 2015).

In the video, educational institutions exchange information about courses as well as opening schedules, awards, and promotions for programs they are offering (Alwehaibi, 2015). YouTube has a significant beneficial impact on students' learning and teachers' pedagogical skills. Most persons that are not learners at the specific college that submitted the material can be published here on the social media platform.

This has made it easier for the general population to access important information. If the pattern holds, social media will help people become more informed. Publishing status updates on sites such as Facebook is another method educational institutions use social media to share relevant learning content. Using these platforms, the organization can update details on commence days, classes, and exams.

The feedback can enable them to learn more about the difficulties students face and find solutions. Facilitating dialogues, and social media is yet another way that it facilitates teaching and learning (Cetinkaya, 2017). Several social media sites, including Facebook and WhatsApp, let users create either private or public groups. A person or organization can set up a group on either programme where all the users can post content. These teams have provided instructional learning. These groups are currently developed in many classes to encourage discussion and keep students updated on class activities (Cetinkaya, 2017). Most social media groups are not started by an organization. They are made by students either independently or with assistance from their lecturers. Students prefer participating in debates since they are less formal on social media, which is a major advantage.

An e-learning platform has been used by most colleges enabling students to access online material

and engage in classroom conversations. The issue with such platforms is that learners rarely use them beyond the required assigned activities. However, many learners use one or more media platforms daily. Due to this, these platforms are significantly more beneficial for learning outside of the classroom than e-learning platforms. Numerous students frequently visit YouTube numerous times for enjoyment. In return, students are likely to watch a little video that covers a topic that they're expected to understand in the classroom if they come across one (Chtouki et al., 2012). Social media's relaxed atmosphere makes studying far more pleasurable.

Different academic professionals, including well-known physicists, have social media profiles and use them to convey knowledge about their specialised subjects (Balakrishnan and Gan, 2016). The material is presented in an understandable manner. Such specialists are followed by students, who learn a lot in the process. Students' perspectives on a subject are widened by the information they learn from these professionals. They can also consult the expert and ask them for clarification-related inquiries.

Researchers and academicians now have another way to conduct their research thanks to social media sites. A feature on social media sites like Facebook enables researchers to design questionnaires and afterward collect useful data (Fuchs, 2017). Students can conduct a study like this to find out what other students think about a particular topic. Additionally, educational institutions can use this feature to get student input and the analysis techniques provided by different profiles on social media to monitor ongoing activity on those accounts (Fuchs, 2017).

Advantages of Social Media Use in Education

The potential benefits of using social media in education have been the subject of certain experimental investigations. Won (2015) cites increased student participation as a key advantage of social networking use in education and learning. On a subject, learners can collaborate on the platforms. They may work together on revisions, do group assignments, or simply talk about topics that interest them (Won, 2015).

Some students now choose to establish a network on social media sites like Telegram, in which they can offer thoughts remotely, rather than meeting each occasion in person for group activities. This improved cooperation has improved learning and education. The next noted advantage of using social media is that it influenced learners to adopt an optimistic perspective toward their education. Students typically grow to dislike some subjects because they find them uninteresting. This frequently occurs when students are required to sit through protracted lectures that cover difficult subjects. The material is made more pleasant to learn thanks to social media. For instance, sharing a brief video on social media that simplifies a difficult concept and makes it pleasant can influence students' attitudes and interest in the subject. Additionally, talking about classwork informally with other students fosters the development of the student's perspective on their studies.

The third advantage of utilizing social media in learning and education is the fact that it encourages greater student involvement. Shyness is one of several factors that prevent pupils from participating in class frequently. Students who are shy about speaking in front of others can contribute remotely thanks to social media. Increased participation encourages student collaboration and boosts their disposition. Participation in learning is a crucial component of education (Won, 2015). This is because it fosters a stronger sense of community among the students. The growing usage of social media in education might enhance the crucial component of teaching. The fourth advantage of using social networks in education has aided in the learning and teaching of disciplines that necessitate a substantial amount of hands-on experience.

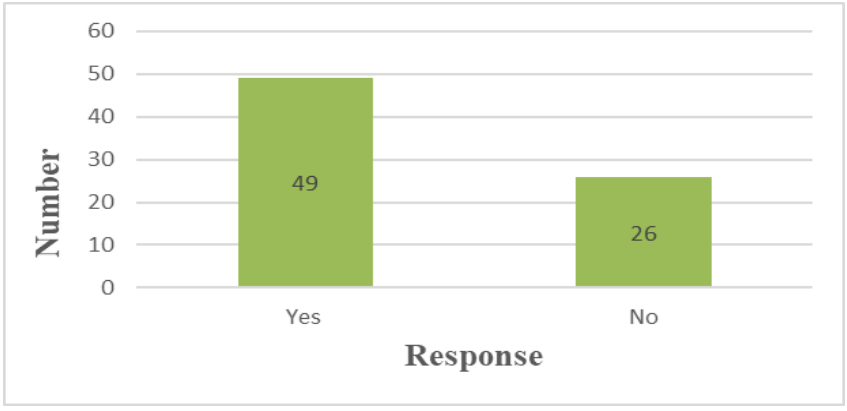
For instance, nursing students must carry out medical treatments or use surgical devices. The learner may not have sufficient time to practice carrying out the technique or using the specific equipment, nevertheless. Making a video of a certain procedure being carried out or a piece of equipment being used and posting it to a social network like YouTube can help students study more independently. They can either bookmark the video for further learning or watch it again till they feel confident enough. Students do better in class as a result of this.

Social Media's Negative Effects on Education

Social media use in education has been associated with several challenges. One such

drawback is that social media interferes with students' academic progress. Even in classes when students link to their social media accounts while listening to a lecture, this issue has been noted. Students are said to waste a lot of time on social media when working independently in the library or a reading room. According to a recent survey, some social media users log on for two hours on average each day, while others log on for up to five hours (Fuchs, 2017).

Figure 1: Shows How Many Students Use Social Media for Education and Learning



Students frequently lose focus when utilizing social media platforms to learn because of a recent update and spend a lot of time as a result. Numerous research studies have been conducted to determine whether subsequent social media influence affects students' academic performance. According to certain studies, there exists a direct link between the overuse of social media and subpar academic achievement (Alwagait, et. al., 2015).

The availability of a lot of inaccurate and deceptive material online is the second drawback of just using social networks for education and learning. This one is so that anyone can post information on the Internet, and it is impossible to verify the veracity or correctness of any material. The academy has very high standards for itself. To ensure that the content on academic websites is accurate and trustworthy, it is peer-reviewed by professionals.

Social media sites are a far less trustworthy source of authoritative information since they lack such a process. When using information they find online, students should exercise extreme caution and be careful to verify its veracity before using it in class. The effectiveness of face-to-face learning is impacted by social media use for teaching and learning, which is its third drawback. Most students shun in-person interactions and rely too heavily on social media for information. For instance, in group projects, students might decide to work using social media groups rather than meeting in person (Alwagait, et. al., 2015). Some students undervalue group work because there aren't many face-to-face encounters. This reflects how social media has altered how people communicate with one another. Nowadays, people hardly ever interact in person and prefer to converse online via social media. Because of the excessive reliance on social media for learning and the disregard for in-person instruction, students who are not on social media are at a disadvantage. To achieve a successful outcome, it is necessary to find a balance between the two.

Value of Research

Most of the studies that were evaluated didn't investigate how using social networks for education and learning affected students' performance. Research looking at the relationship between media usage and student grades addresses the issue from the standpoint of utilizing social media for hanging out and socializing

Figure 2: Opinions of the Participants on the Value of Social Media in Education

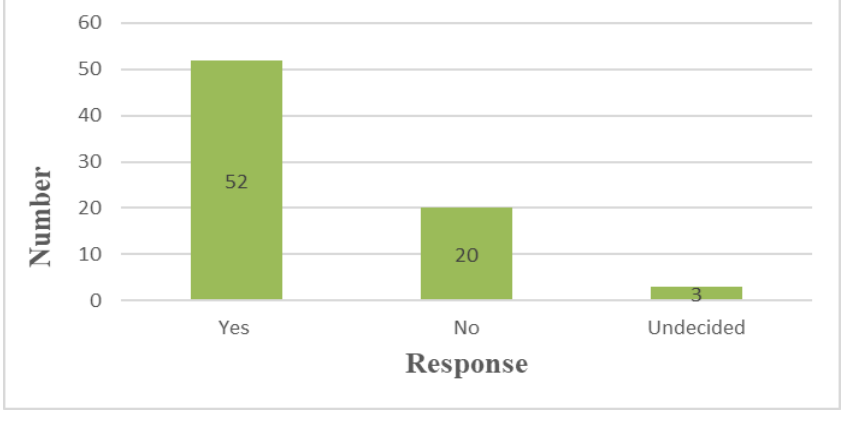


Figure 3: Showing How Participants Felt about Social Media's Impact on Education

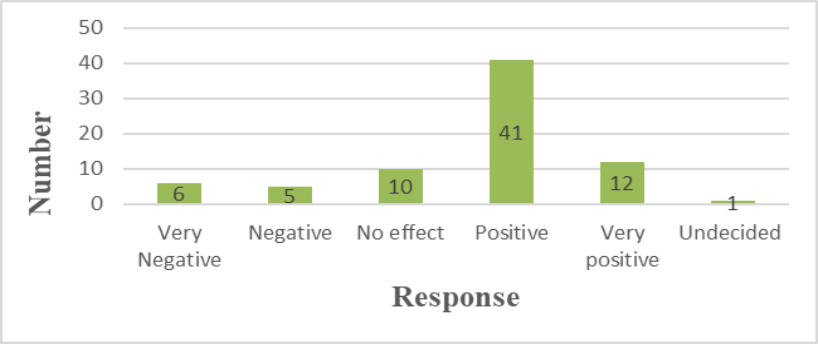
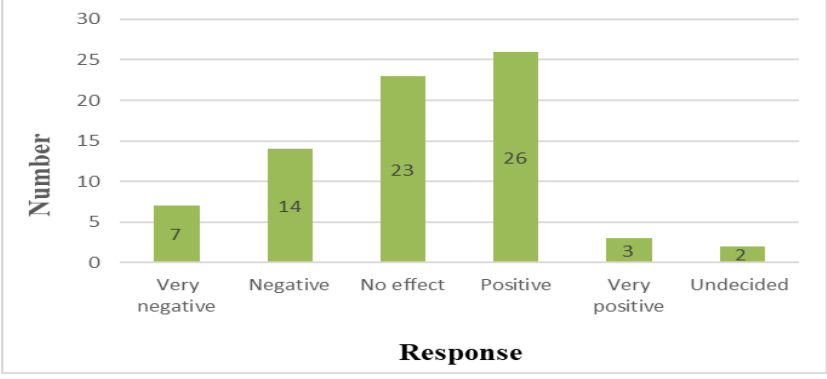


Figure 4: A Graphical Representation of How Social Media Impact Grades



rather than for teaching and learning. It will be easier to determine whether social media is useful in this application and to take the necessary action with the support of more research that is explicitly focused on the effect of social media in education and learning on students' marks. By examining whether the use of social networking sites influences the marks of student participants, this study fills in this vacuum. The study investigates whether these technologies are appropriate for academic study.

Research Methodology

The research adhered to an observation-based empirical research methodology. The researcher conducted a survey of staff and students from colleges who were chosen at random. 75 participants in all took part in the study. Because there weren't many survey questions, the respondents didn't spend a lot of time responding to them. The researcher assembled the responses, documented each outcome in a spreadsheet, and then examined the information.

Obtained Results

Data from the 75 participants were analyzed, and the results revealed that 49 of said respondents use social media networks for learning whereas 26 really don't. Participants were asked if they thought social media was helpful in the classroom. Fifty-two replied yes, twenty said no, and three indicated they weren't sure.

When asked if they believe social media does have a beneficial and bad impact on their education, vast number of participants responded positively, as shown in Figs. 2-4, Tables 1 and 2. The participants were divided in their agreement that utilizing social media while in school had improved their grades, but most of them did so. According to several participants, social networking would have no effect on academic performance.

Discussion

This study sets out to look into how utilizing in the classroom with social media affected the education, learning, or academic achievement of students. This survey's respondents, who made up

Table 1 : Students Perception on Social Media's Influence on Education
Social Media's Effect Upon Education

Very Negative	Negative	No Effect	Positive	Very positive	Undecided
6	5	10	41	12	1

Table 2 : Social Media's Effect on Students' Scores

Very Negative	Negative	No effect	Positive	Very positive	Undecided
7	12	23	28	3	2

about 75%, claimed that social media improves education and learning. Just 41% of those polled claimed that social media had benefited them by getting better scores. Most respondents supported using social media in the classroom. The study's findings are consistent with those of earlier research on the topic. This is why many students favor using social media sites for education and teaching. Nevertheless, a sizeable portion of respondents also believes social media negatively affects learning and academic achievement. Most of the folks in this group mentioned how social media is disruptive and how students squander time on the sites rather than studying. Some students find social media used to be distracting, and others feel that information and material have not been based on instructional tools.

Conclusion

Social networks would undoubtedly remain important in people's lives in the coming years. According to projections, a lot more people will continue to sign up for various social networking sites in the upcoming years. Many businesses and individuals are using social media platforms to perform desired duties because of the increased usage of these platforms. Marketers, researchers, politicians, and other people and organizations have attempted to use the platforms' power for specific purposes. The educational sector has not been ignored. In addition to using them for advertising, education, and learning, and connecting among the learners, they also utilize them for other purposes. Additionally, students rely extensively on the platforms to find material that is helpful for their academics. This survey has shown that most students believe social media platforms are helpful for studying. However, if social media is not handled properly, it could have a detrimental effect on education. Most study participants advocated for educational institutions to use social networks in teaching and learning more frequently. Academic establishments should follow the example of advertisers and try to interact with their learners on social networks because so many learners are registered and frequently access certain networks.

However, organizations must be extremely aware of the adverse effects that these platforms can have on students. Students should be made aware of how much effort many individuals spend on social networks, and they should be advised to become increasingly conscious of the detrimental effects which unneeded use of the internet may have on their life.

Another suggestion would be for learners to attempt to use social networks effectively for both education and learning. Students must take advantage of an opportunity to advance their own professions. Lastly, more study is required to determine how students' grades are related to the use of social networks in education and learning. They must also conduct an additional study on the effectiveness of instruction and how it influences social media use.

All data for this research came from just one university, and several elements that affect how people use social media are too challenging to evaluate. Future research on how to utilize social networks effectively for education and learning must involve more studies, more measures, and consideration of more variables. Equally crucial is conducting further investigation to assist students in selecting the data and content they ought to review and think over.

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Best Use of Education is to Benefit the Disadvantaged People

Rakesh Aggarwal, Director, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry delivered the Convocation Address at the 35th Convocation Ceremony of the Sri Ramachandra Institute of Higher Education and Research, Chennai on April 12, 2023. He said, "Growth in life, just as for the bamboo seed, takes immense patience and almost impossible tenacity. Whether you follow your heart or you do not, success will come. But if you follow your heart, you will not only have success but also no regrets. If you did not follow your heart, you will lead a 'successful' life, but it would feel like a false life. We have only one life – so let us not waste it living someone else's life." Excerpts

I am very pleased to be with you for the 35th Convocation or *Pattam-alippu* of the Sri Ramachandra Institute of Higher Education and Research, Chennai, a Deemed University. The Sri Ramachandra Institute is among the most reputed medical educational institutions in the country and is engaged in imparting high-quality education across several fields of medicine and allied sciences and technology. Hence, I consider it a privilege to have been invited to be amongst you today.

Let me begin with congratulating the degree awardees and recipients of various prizes and medals. I guarantee you that today will be one of the most memorable and defining days in your lives. This day marks the end of a long and tiresome period of education and training, culminating in your being certified as an expert in your chosen field. You have completed a course of the most robust education and are receiving a highly valued degree. And, as for the awardees, you have completed your course with a much higher level of performance than your peers. Only a small proportion of those born on this earth reach this level of attainment. Hence, today, you should be, as you must be, filled with a sense of pride and achievement. My heartiest congratulations on your accomplishment to each one of you. Bask in the glory of the day, enjoy, celebrate – so that this day remains ever fresh in your memory.

Next, I congratulate family members of the recipients of degrees and awards – including the parents and, in some cases, spouses and possibly even children. They – the family members – have sacrificed a lot during the last few years, while you were busy studying and learning. Many of them have worked hard to earn money to pay your fees, lived alone – looking after all the social responsibilities of the family by themselves, and in the case of postgraduate degree recipients possibly even looked after your child – all alone, without any help from you. Some of the family members, most likely mothers and wives, and hopefully husbands, would have woken up early to prepare the morning tea and breakfast for you. Why did they do this? So that you may pursue your dream and passion without any distraction, acquire knowledge and skills, and sit proudly in this hall today. You must all recognize their sacrifices, bow to them and promise to pay them back – by looking after them exactly as they have done for you over the past few years. And, to the family members – do share the delight of your wards today. Your hard work, your resolve, your '*tapasya*' has borne fruit – rejoice at it.

Let me also use this occasion to express my wholehearted appreciation for the faculty, staff and leadership of this Institute. They have imparted you not only knowledge, but would have helped shape your thoughts, values and careers ahead. They have done this selflessly, in the '*guru-shishya*' tradition of our country. I can tell that from my personal experience that you cannot (and will not) even realize the value of their contribution at this time. However, as the time goes on, you will find, as I have done, that your teachers have equipped you with a master key – one that will open several different doors through your lives. Some of them will silently dote on you through life, keeping track of your progress – and will be available if and when you need them. They will be proud of you, when you do well in life. Do keep in touch with them, and it will be to your advantage.

Many think of a Convocation as marking the end of first phase of life. Instead, it marks the intersection of two different phases of life, a transition from the first phase to the second – from being a student or

trainee to becoming a professional. From being 'cared for' to 'being responsible to care for others'. From receiving from the society to giving back to the society. From 'warm memories of the past' to 'dreams for the future'. From a 'cosy, familiar comfortable life' to a 'life full of new challenges, uncertainties and trepidation'. Hereafter, you will be expected to chart a path for yourself, which would vary according to your field of study. As you do this, you will find new co-workers, new friends, a new house, a new city – and will need to adapt to these. The change may be difficult, but you will surely succeed. I can assure you your teachers and your institution have prepared you for all these challenges. When in a fix, just think of one of your teachers and try to imagine how she or he would have handled the situation, and you will have the solution.

Let us look at what 'Convocation' represents. In Hindi, my mother tongue, 'Convocation' translates to 'Deekshant Samaroh'. 'Deeksha' has been an integral part of the Indian culture, the *gurukul* system, and is equivalent to 'initiation', 'consecration' or 'sacrament'. It relates to advice on how a graduate should use the newly-acquired knowledge. Hence, a Convocation is not merely a celebration – instead, the day is imbued with a more solemn and deeper meaning. Therefore, please allow me to spend a few minutes sharing a few thoughts and some of what I have learnt in my life.

My first and foremost advice to each of you is to 'Follow your heart'. Let me explain this, using medicine as an example. There are several diverse paths available to those graduating in medicine today – joining a teaching institution, doing laboratory research, joining a corporate hospital or group practice and becoming a specialist healthcare consultant; working with a non-governmental organizational at the grassroots level; join an international agency engaged in public health; starting your solo practice; or even joining public service or politics. Similarly, professionals in other sciences too have myriad career choices. You will need to choose -- which of these you wish to follow. Similarly, you will need to make other choices in life: how many hours should I work, what kind of patients should I see, how much should I charge the patients, should I see some patients for free, etc. While making these choices, follow your heart. The path your heart suggests may appear to be difficult to follow, but things will eventually work out.

Each of you is like a seed – a bamboo seed. Bamboo seeds, when planted, in the first 3-5 years, appear not to grow at all or to grow very slowly – despite regular watering and care. However, one day, things suddenly change – a shoot emerges and rapidly grows into a tall plant. If one had given up on the seedling, how so ever briefly, there would have been no bamboo. The plant is there only because of one's perseverance, because one never gave up. Follow what your heart tells you to do; have faith, work with purpose – and you will surely attain your goal -- your heart's goal. Growth in life, just as for the bamboo seed, takes immense patience and almost impossible tenacity. Whether you follow your heart or you do not, success will come. But if you had followed your heart, you will not only have success but also no regrets. If you did not follow your heart, you will lead a 'successful' life, but it would feel like a false life. We have only one life – so let us not waste it living someone else's life.

While asking you to follow your chosen path, I must also advise you to maintain a certain degree of intellectual nimbleness. We are living in an era of rapid changes in science and technology, with rapid transformation in several professions. Hence, the ability to change is an important attribute – not only to keep up with the changing time and seize new opportunities as these comes along, but also to create your own opportunities.

Second, your achievement today comes with social and societal commitments. We must remember that, in life, values are more important than money. You have been fortunate to have been able to receive good education. Not everyone is. And each of us needs to be cognizant of this, and to work towards not only one's personal ambitions, but towards upliftment of the entire community around oneself. Each of us want to be wise, mighty and wealth. What does that mean?

Who is wise? It is not one who knows everything. Instead, a good answer is: "The person who learns from all people." Right here in this hall, there are others who may see things very differently than you do, whose beliefs are at odds with your own. Wise persons seek out people who are different from themselves and learn from them. Wisdom lies in tolerance and listening to others and respecting others.

Who is mighty? "A person who exercises self-control." Power is of no use if it is used indiscriminately. The real power is one that is channelized – to benefit not oneself but the entire mankind.

Who is wealthy? "The person who rejoices in his or her portion", i.e. one who is contended. As Mahatma Gandhi – the father of our nation – said: "This world has enough for everyone's need, but not enough for anyone's greed". Remember, we in this room are among the haves – young, healthy and likely to be among the top 1% of India's population in income. We need to be considerate about the older, the feebler, the poorer. Use your education to benefit the disadvantaged people – that is what matters in the long run.

For those you who have trained in healthcare fields, remember that Medicine is not merely a profession, but it is also a calling. Since times immemorial, doctors have had a higher purpose in life. That does not change, should not change, and cannot change – not even in today' mammon-enamoured world. As a doctor, you are unlikely to starve. You will always have enough to live. Having attained that liberated state, why should we not use our lives for helping others.

Third, your education does not end today. What has come to an end is the 'classroom instruction', and not 'education'. As Henry Ford, the founder of Ford Motor Company and developer of mass production techniques said: "Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young." I hope you agree with me when I say 'each of us wants to remain young as long as possible'. Hence, each of you must continue to read and learn something new every day for the rest of your life. I sincerely hope that you will.

Finally, let me end with a quote from Dr. Nelson Mandela. He said: "Education is the most powerful weapon which one can use to change the world". We, in medical profession, are different even in the use of weapons. We use a weapon, for example a knife, not to cut, but to heal. I wish and hope that you will combine the practice of using your ultimate weapon, the knowledge that your teachers and this great institution, Sri Ramachandra Institute, has equipped you with, with empathy and compassion -- to alleviate human suffering and to improve mankind, and not merely to earn money.

My best wishes to all of you for successful careers – careers and lives that your families, your friends, your teachers and your institution will be proud of.

Thank you for patient listening. *Nandri*.

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CAMPUS NEWS

National Workshop on Entrepreneurship in Library and Information Work

A two-day National Workshop on 'Entrepreneurship in Library and Information Work' was organized by the Institute of Public Enterprise, Shamirpet Campus, Hyderabad during March 23-24, 2023. The event was sponsored by Indian Council of Social Science Research, New Delhi. The event was designed to offer practical guidelines for library professionals in appreciating the need for entrepreneurial approach and exploiting the opportunities. It was started with welcome address by Dr. G Venkata Nagaiah, Convener of the event.

In the Inaugural session, Prof. S Srinivasa Murthy, Director, IPE extended warm welcome to all the participants and resource persons. He spoke on the genesis of digitalisation and the strengths of library products and services. He also spoke on the information services in the Internet era and their importance in effective management of academic libraries.

Shri. Ramesh Yernagula, Director, National Social Science Documentation Centre, ICSSR, New Delhi delivered the keynote address, in which he motivated the young Librarians and Library professionals to involve themselves in conducting digitally enabled services to engage the users. He highlighted the need for library service and products to address both digital migrants and digital natives in different perspectives. Need for entrepreneurial approach and opportunities for entrepreneurship are aplenty, he mentioned. Inaugural session ended with vote of thanks by the event Co-convener, Dr. Prarthana Kumar.

The main proceedings of the event were set in motion with an exposition on the central background concept 'Entrepreneurship - why, what, How' by Prof. Narendranath Menon. Prof. Menon argued that entrepreneurship is the dominating zeitgeist cutting across the professions. He highlighted what it means to seeing entrepreneurially, thinking entrepreneurially and acting entrepreneurially. He recounted the immense opportunities that have opened up in the fast-changing world of Information and Communication Technologies.

The session was followed by a presentation on 'Entrepreneurship in Information/Knowledge services' by Dr. Prarthana Kumar, Assistant Professor from Marketing Department of the IPE. Dr. Kumar shared insightful content on Entrepreneurship in Information and Knowledge Services. She pointed out to the need for innovation to be entrepreneurial in today's information dominated world. She highlighted how 5-Laws of Library Science is inherently an invitation to be innovative from the word go. She listed a variety of possible new information services and products that are due to be introduced. She mentioned how the opportunities in the information enterprise will be usurped by the entrepreneurs with varying educational background, and it is time for LIS professionals to seize the day, as they understand the information needs, search and retrieval better than the others.

The post lunch Session featured the Success Stories and Learnings by information and knowledge-based Entrepreneurs, wherein the panelists shared their experience in creating and monetising information products such as business quizzes, a host of other digital information for MBA students, aspiring *quizzies* and executives who wish to keep updated with business news. The speakers of the sessions were Prof. G Mohan, Professor and Management Consultant and Dr. Kumar, Director, B-School Express Pvt. Ltd.

Prof. Mohan, in his presentation, shared his experience with IndiaBusinessQuiz.com that he has been running successfully over several years. He shared how to gather quiz information, distribution, marketing and monetizing and the challenges faced by this entrepreneurial venture. Prof. Mohan was both candid and forthcoming about the possibilities in his presentation.

Dr. Kumar, Director, B-School Express Pvt. Ltd. spoke on how sweeping shifts in technology, new generation players, start up wave to make his point, and his own experience in running a management education portal.

During post-lunch session, Shri. N V Sathyanarayana**,** Chairman and Managing Director, Informatics (India) Ltd speaking on **'**What it means to be in Information Business–Informatics Experience'. Shri. Satyanarayana shared his thoughts on information service entrepreneurship and how to generate income from such ventures. He shared the Informatics Inc.

experience from its very inception. The evolution of Informatics to its present shape has gone through several stages, turns and twists. It has evolved from the days of Dialogue services to the present day ubiquitous information access. His narration of the challenges, the opportunities seized and the risks taken were lessons for all potential information entrepreneurs. The presentation was also a primer in new product development, client management and organizational growth. Learned speaker and pioneering entrepreneur in the field also touched on the contemporary concepts such as AI and ChatGPT and their possible impact on information business.

Dr. G Venkata Nagaiah spoke on 'Information Products that have worked'. He shared his varied experiences involving information services such as resource sharing among DOS/ISRO libraries, much sought after documentation on TRAI rules and Regulations by Telecom and cable operating client group, and his experience in compilation of who is who of Indian writers, as also Bibliography of Tagore Literature.

This was followed by a presentation on 'Idea Generation for Entrepreneurial Ventures' by Dr. N G Satish, Professor, IPE. His presentation briefed on the process of creativity and the basic techniques of creative thinking for new product ideation. The techniques detailed included analogical thinking, attribute listing, morphological synthesis, absence thinking, breakdown, mind mapping, reverse brainstorming, etc. He illustrated these techniques in the light of information products currently in vogue. He also enumerated a host of information products that could be floated by the LIS professionals and generate revenue for the organization.

The next session was on 'Entrepreneurial Opportunities for Library Professional Work' handled by Dr. Shailesh Yagnik**,** Advisor, MIMI and KEIC, Ahmedabad. Dr Yagnik, in his lively and interactive session, narrated his experience in making marketing and advertisement intelligence products and services that have been successful in revenue generation. He also shared his experience in making over 400 product information reports.

Following this was a panel discussion on 'Entrepreneurial Librarianship' by Dr. S N Chary, SSDC, ICSSR, New Delhi and Mr. Ganapathi, EDI, Ahmedabad. Dr S N Chari spoke on 'Effective Use of Intrapreneurship in the Libraries', and Mr G Ganapathi's presentation was on 'Intrapreneur and Intrapreneurship'. The speakers explained the characteristics of a typical intrapreneurial librarian and the need for more such activities in the present scenario.

Penultimate session of the Workshop was an extended panel discussion which was chaired by Prof. Rajendra Kumbar, Sr. Professor, Pune University on 'Teaching and Imparting Entrepreneurial Skills to MLIS students - Syllabus and Activities'. Other panelists were Prof. Madhusudhan, University of Delhi, Dr. K Bharathi, Associate Professor (Rtd.), Osmania University, and Dr. Sarika Sawant, Associate Professor, Women's University, Mumbai.

The panelists appreciated the need for introducing a new course on Entrepreneurship at MLIS level to appraise the students about the changing needs of the time and preparing them to be entrepreneurial in their information work. Prof. Kumbar emphasised on the urgent need to include entrepreneurship in the MLIS syllabus and presented a set of topics that would make up the syllabus. Prof. Kumbar also presented a detailed syllabus for entrepreneurship course at MLIS level, detailing the goals, desired outcomes, teaching and assessment methods, and topics to be covered were: introduction to entrepreneurship, information products, steps in developments of information products, and carrying out projects / activities in enterprise development.

This was followed by an Open House Session and question and answers led by Dr. G Venkata Nagaiah, Convener and Dr Prarthana Kumar, Co-convenor of the event. The Workshop had elicited from the participants' ideas for 'New Information Products / Service' along with brief details on the value proposition. The top suggestions were identified and recognised with merit certificate.

During Valedictory Address**,** Prof S Srinivasa Murthy, Director, IPE addressed the importance of entrepreneurship in library and information work. Prof. Murthy also motivated the participants to take the advantage of the ideas brought home in the workshop.

AIAER Conference on Transforming Education in 21st Century

The one-day Annual Conference on 'Transforming Education in 21st Century' is being organized by the All

India Association for Educational Research at Regional Institute of Education, Bhubaneswar, Odisha on May 06, 2023. The Subthemes of the event are:

- School Education.
- Vocational Education.
- Technical Education.
- Management of Education.
- Curriculum, Pedagogy and Assessment in Education.
- Technology in Education.
- Research in Education.
- Other Relevant Disciplines.

For further details, contact Vice President, Prof. B N Panda, Regional Institute of Education, Bhubaneswar-751022 (Odisha), Mobile No: 09437070447/ 09124070447, E-mail: *bnpanda38@hotmail.com/ drtrinathdas@rediffmail.com.* For updates, log on to: *https://aiaer.org/*

International Conference on Holistic Health and Well-being Issues, Challenges and Management

A two-day International Conference on 'Holistic Health and Well-being Issues, Challenges and Management' is being organized by the Lovely Professional University, Punjab in collaboration with the Indian Academy of Health Psychology during May 26-27, 2023.

Holistic Health and Wellness is sustained by eight pillars i.e. Physical, Nutritional, Emotional, Social, Spiritual, Intellectual, Financial, and Environmental. The pillars will give you a sense of how to work toward your optimal wellness, but it is by no means prescriptive. The path to wellness is not one-size-fits-all. The journey is unique and different for each individual. Your biology, personality, and environment will determine what wellness means to you. That is why your approach should be personalized. The common thread for everyone is that wellness requires a holistic approach. To determine your personalized approach to wellness, reflection on the eight pillars of Holistic Health and Wellness is required. There are endless ways to create Holistic Wellness Solutions - and there is no "right" answer. As you become more aware of the way multiple areas of your life interest, you may find that there are times when one area becomes more important than others. Sometimes, a solution or activity will lose the strength of its positive impact. You need to stay open-minded and compassionate as you develop this new, whole-person approach to well-being. The Subthemes of the event are:

Mental and Physical Health

- Phobia and Social Relations.
- Technology and Future of Mental Health Treatment.
- Insomnia and Digital Apps.
- Cognitive Science Research Initiative.
- Digital Health and Health Informatics.
- Positive and Preventive Health Behaviors.
- Chronic Lifestyle Diseases.
- Media Influence on Health Related Behavior.
- Cyber Behavior and Health.

Issues of Climate Changes and Occupational Safety

- Equitable Workplace and Employee Well-Being.
- Workplace Bullying and Mental Health.
- Effect of Climate Change on Human Behavior.
- Public Health and Safety.
- Occupational Safety and Risk Transfer to Health.

Sustaining Mental Health and Well-being

- Sustainable Mental Health: Developments and Challenges.
- Spirituality and Yoga.
- Geriatric Health and Well- being.
- Prospective Models for Sustainable Mental Health.
- Social Support, Happiness and Well-being.

Positive Psychology for Well-Being

- Positive Psychology: Avenues and Challenges.
- Resilience & Burnout.
- Mindfulness.
- Emotional Intelligence.
- Wisdom Positive.

Ethics of Technology and Mental Health Management

- Time Management & Work-life Balance.
- Innovations and Challenges in Healthcare Management.
- Ethics of Technology Usage in Healthcare Management.

- Business Management, Culture and Well-being.
- Terminal Illness and Pain Management.
- Issues in Work Life and Healthcare Management.

Mental Health and Mental Disorders in COVID-19

- COVID-19 and Psycho-Social Challenges.
- Isolation and Well-Being.
- Managing Anxiety and Depression Post Covid-19.
- Neuro developmental Disorders Post Covid-19.
- Eating Disorders and Body Image Issues.
- Challenges and Effects of Virtual/ Online Education during COVID-19.

Role of Education & Teachers in Generating Health Consciousness

- Alternative Healthcare and Holistic Medicine.
- Community Health & Well-being.
- Education for Happiness.
- Health Activation Training.
- Training of Health Consciousness and Life Skills.
- School Behavioural Health and Wellness.
- Issues of Equity, Diversity and Inclusion (EDI) and Psycho-Social Challenges.
- Mental Health Education & Methodologies Role.

For further details, contact Organising Secretary, Lovely Professional University, Jalandhar-Delhi G.T. Road, Phagwara, Punjab-144402, Contact: 01824-404455, E-mail: *ichhw@lpu.co.in.* For updates, log on to: *https://conferences.lpu.in/ichhw/*

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AIU News

Faculty Development Programme on Introduction to AI for Educators

The first Faculty Development Programme on 'Introduction to AI for Educators' was organized by the Association of Indian Universities, New Delhi in collaboration with the Shoolini University, Solan, Himachal Pradesh during December 27, 2022-January 12, 2023. About forty-seven participants registered for the programme from Chandigarh, Himachal Pradesh, Punjab, and Maharashtra. The participants were the faculty members from different disciplines such as Physiotherapy, Education, Special Education, Economics, English, Commerce, Management, Engineering, and Sociology.

During virtual Inaugural Session, the dignitaries present were Dr Pankaj Mittal, Secretary General, Association of Indian Universities (AIU), Dr. Amarendra Pani, Director (I/c) and Head, Research Division, AIU, Mr. Ashish Khosla, Head, Yogananda School of AI and Computer Science and Chief Innovation Officer, Shoolini University, Dr. Ashoo Khosla, Chief Learning Officer, Shoolini University and Resource Persons for various sessions, Deans and Senior faculty members of Shoolini University, etc.

Dr Ashoo Khosla highlighted the importance of lifelong learning and optimum use of technology in education. She started with the quote of Albert Einstein, "Intellectual growth should commence at birth and cease only at death." In the programme, the main focus will be on technology and use of technology to improve the efficiency of educators and administrators, she said.

Dr. Pankaj Mittal appreciated the efforts done by the Shoolini University to use technology in various aspects of functioning of university. Dr. Mittal said that to make optimum use of technology in Teaching Learning, Research, Collaborations, Continuous and Comprehensive Assessment and Evaluation, as emphasized in NEP-2020, the educators should be trained to use technology. She said that the AIU has taken the initiative to assist in this area by giving Academic and Administrative Development Centers to ten Universities and each center will collaborate ten courses for faculty, administrators, and librarians in various areas. Dr. Mittal made it clear that prime motive of these courses is learning and not certifications.

Dr. Amarendra Pani also emphasized the need of technology in Education and said that this can be possible only by giving training to teachers for the use of technology. Mr. Ashish Khosla apprised the audience regarding the various topics to be covered in this course by emphasizing the fast-changing world due to technology. He said that we have to improve teaching learning process by effectively using the power of AI in Education. Educators will be exposed to twenty different tools and use of these tools in the project.

This will help to be the Ambassadors of these tools in the institutions. The session was very informative and interactive.

Mr. Ashish Khosla emphasized the importance of this session, by saying that it will lay the foundation of the course. Everyone needs to know about AI.

The overview of the session was given as:

- Understanding what is AI?
- Open your mind to spot ideas for applying AI problems in and around you.
- Help you understand the impact of AI on the world around us.
- Understand the myths around us.

The Concept of General Purpose, AI and Special purpose AI were explained. Topic was explained with the help of examples and videos.Chat.openai.com was introduced with the help of examples. Since the participants were mainly from non-engineering background, concepts were introduced with the help of examples and videos in a very simplified way. Dr. Pankaj Vaidya discussed under following heads:

- Dictate your document in word with AI.
- Bring out your best writer with Microsoft AI based Editor.
- AI based Video Record for presentation with power Point.

Dr. Amar Raj Singh created e-content for online courses, so he shared his experience of content creation and emphasized for learning you should try on lots of things. The limit of software is as good as your limit to be creative. While discussing AI tools for Video Creation, Dr. Amar Raj Singh discussed hardware and software required for video creation. He discussed various steps in video production process such as idea, script, story board, shooting the video, animation, voice over/ music effects, final editing, and delivery. He also demonstrated how to create a video from content.

Dr. Gaurav Gupta discussed open source as well as paid versions of AI tools for research. Research tools in different categories like the writing tools, resource tools, the summarization tools were discussed and hands-on practice on Endnote, Research Rabbit, paper digest and Quillbot were very nicely demonstrated with the help of examples. Jasper, Trinka, Hemingway Editor Writing Software for researchers were introduced. Paraphrasing Software such as Quillbot, Word tune, Spin bot, and Grammarly were discussed. The organization tools such as Scrivener, Authorea and Reedsy were also discussed. Research lab which is a Review Literature Tool was also demonstrated. Dr. Amar Raj Singh has demonstrated the use of Quillbot which is used for Grammar checking and paraphrasing.

In this session in-house developed platform Siqandar AI was introduced to the participants and access was given to the participants for practice. Mr. Ashish Khosla explained the importance of effective communication in our lives and also use of AI in training effective communication. He explained 3 V's Theory by Albert Mehrabian on which Siqandar is based. Ms Swati Solomon explained the use and benefits of Siqandar AI-A fundamental Shift in Training and Coaching. She demonstrated how to use this app and interpretation of score card by accessing through participant account.

Mr. Devender Thakur demonstrated by accessing through Admin account. Free access to this app for one class of ten students to practice, was also given to all participants. Mr. Shailesh Lamba who was already using this app recommended to use this tool to all participants as he found it very useful tool in improving communication. Dr. Charanjit Singh who is teaching communication in School of Journalism also recommended to use this tool in School of Journalism. Dr. Devesh Kumar who have used this tool in Management School apprised the participants that this tool is very valid to assign scores in communication skills.

Mr. Sachin Sharma took a very interesting and informative Session on Generative Art which is about the future of technology in Education, can be used by every educator and make the teaching learning Process interesting and engaging. Mr. Sachin Sharma demonstrated to create many images by using different apps. He discussed the topic under the following heads:

- What is Generative Art?
- How generative Art is created?
- What is NFT? And use of NFT in education.
- Use of open-source tools to create generative art, such as DALL.E, Tom.app, Deep dream generator.com

All these sessions were interactive sessions. Questions –Answer technique was used. All the topics were explained with the help of examples. Dr. Ashoo Khosla gave an assignment to the participants to see how much they have learned. ❑

THESES OF THE MONTH

SCIENCE & TECHNOLOGY
A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of Feb-March, 2023)

AGRICULTURAL & VETERINARY SCIENCES

Crop Forecasting

1. Singh, Garima. **Development of an integrated technology package for paddy straw management**. (Prof. Satyawati Sharma and Prof. Hariprasad P), Centre for Rural Development & Technology, Indian Institute of Technology Delhi, New Delhi.

Soil Science

1. Duraivadivel, P. **Scientific validation of Jeevamrutha for sustainable agriculture**. (Prof. Hariprasad P and Prof. Santosh Satya), Centre for Rural Development & Technology, Indian Institute of Technology Delhi, New Delhi.

BIOLOGICAL SCIENCES

Life Science

1. Chaudhary, Nidhi. **Deciphering the mechanism of a host cellular factor high mobility group boxi protein in dengue virus pathogenesis**. (Prof. Ashok Kumar Patel), Kusuma School of Biological Sciences, Indian Institute of Technology Delhi, New Delhi.

Marine Science

1. Ghosh, Jayashree. **Towards understanding spatio-temporal variability of the Indian Ocean carbon dynamics and its controlling factors**. (Dr. Kunal Chakraborty), Faculty of Ocean Science and Technology, Kerala University of Fisheries and Ocean Studies, Kerala.

EARTH SYSTEM SCIENCES

Atmospheric Science

1. Ghosh, Sudipta. **Impact of carbonaceous aerosols on the regional climate of India using: A regional climate model**. (Prof. Sagnik Dey), Department of Atmospheric Sciences, Indian Institute of Technology Delhi, New Delhi.

2. Pawan. **Modelling of organic aerosols over the Indian region**. (Prof. Dilip Ganguly), Department of Atmospheric Science, Indian Institute of Technology Delhi, New Delhi.

3. Seelanki, Vivek. **Biophysical variability in the North Indian Ocean using a coupled physical-biogeochemical model**. (Prof. Vimlesh Pant), Centre for Atmospheric Science, Indian Institute of Technology Delhi, New Delhi.

4. Yadidya, Badarvada. **Variability of internal waves in the Andaman Sea**. (Prof. A.D. Rao and Prof. Vimlesh Pant), Department of Atmospheric Science, Indian Institute of Technology Delhi, New Delhi.

Geology

1. Sanjay Kumar. **Statistical model for rainfall and drought analysis of Tumakuru District, Karnataka State, India using geospatial technology**. (Dr. Syed Ashfaq Ahmed), Department of Applied Geology, Kuvempu University, Shankaraghatta.

ENGINEERING SCIENCES

Agricultural Engineering

1. Srivastava, Ayushi. **Electronic traceability of Indian honey using blockchain technology**. (Prof. Kavya Dashora), Centre for Rural Development & Technology, Indian Institute of Technology Delhi, New Delhi.

Architecture & Planning

1. Anand, Suneet. **Promoting climate resilience of housing in India: A framework for social housing**. (Prof. V M Chariar), Centre for Rural Development & Technology, Indian Institute of Technology Delhi, New Delhi.

Biomedical Engineering

1. Dharmesh Singh. **Quantitative analysis of MR images for characterization and diagnostic assessment of prostate cancer**. (Prof. Amit Mehndiratta, Prof. Anup Singh and Prof. Virendra Kumar), Department of Biomedical Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Khajurai, Aayushi. **Corticle correlates of voluntary postural sway with vibrotactile feedback in transfemoral amputees**. (Prof. Deepak Joshi), Department of Biomedical Engineering, Indian Institute of Technology Delhi, New Delhi.

3. Malagi, Archana Vadiraj. **Quantitative diffusion-**

weighted imaging in cancer applications. (Prof. Amit Mehndiratta and Dr. Devasenathipathy Kandasamy), Department of Biomedical Engineering, Indian Institute of Technology Delhi, New Delhi.

4. Panwar, Jogi Sandeep. **Design and evaluation of MR-safe loading device for knee joint assessment with MRI**. (Prof. Amit Mehndiratta and Prof. Anup Singh), Department of Biomedical Engineering, Indian Institute of Technology Delhi, New Delhi.

5. Vidyasagar, KECH. **Laser surface texturing of freeform surfaces of articulating components for enhanced tribo-corrosion properties**. (Prof. Dinesh Kalyansundaram), Centre for Biomedical Engineering, Indian Institute of Technology Delhi, New Delhi.

Chemical Engineering

1. De, Biswajit Samir. **Microfabrication and performance evaluation of microfluidic membraneless energy conversion devices for hydrogen generation and utilization**. (Prof.S. Basu and Prof. Neeraj Khare), Department of Chemical Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Mankar, Akshay Raju. **Catalytic valorization of lignocellulosic biomass for the production of valuable chemicals**. (Prof. K K Pant), Department of Chemical Engineering, Indian Institute of Technology Delhi, New Delhi.

3. Panda, Ramdayal. **Recovery of metals from waste printed circuit boards using low temperature ammonium chloride roasting**. (Prof. K.K. Pant, Prof. S.N. Naik and Prof.T Bhaskar), Department of Chemical Engineering, Indian Institute of Technology Delhi, New Delhi.

4. Shikha, Shalini. **Detection of organophosphates using silver nanoparticles and Molecularly Imprinted Polymer (MIP)**. (Prof.Sudip Kumar Pattanayek), Department of Chemical Engineering, Indian Institute of Technology Delhi, New Delhi.

5. Tomar, Sacihin. **Decomposition of sulfur trioxide over mixed metal oxide catalysts in the sulfur-iodine cycle for hydrogen production**. (Prof. Sreedevi U), Department of Chemical Engineering, Indian Institute of Technology Delhi, New Delhi.

Civil Engineering

1. Padala, Suresh Kumar. **Concrete in marine tidal environment-modelling for service life prediction with respect to chloride ingress**. (Prof. Bishwajit Bhattacharjee and Prof. Shashank Bishnoi), Department of Civil Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Agrawal, Ghanshyam. **Hydrological modelling using apex model for an experimental agricultural watershed in upper Yamuna Basin**. (Prof. A.K. Gosain and Prof. B.R. Chahar), Department of Civil Engineering, Indian Institute of Technology Delhi, New Delhi.

3. Chaudhary, Shushobhit. **Improving the potential of satellite-based precipitation estimates for hydrological applications**. (Prof. Dhanya C T), Department of Civil Engineering, Indian Institute of Technology Delhi, New Delhi.

4. Srivastava, Abhishek Narayana. **Enhancement of biodegradation and biogas generation form municipal solid waste co-disposed with industrial organic wastes in bioreactor landfills**. (Prof. Sumedha Chakma), Department of Civil Engineering, Indian Institute of Technology Delhi, New Delhi.

Computer Science & Engineering

1. Abidi, Ismi. **Privacy, integrity and performance of edge devices for sustainability**. (Prof. Rijurekha Sen), Department of Computer Science & Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Siddhu, Lokesh. **Leakage aware dynamic thermal management for 3D memory architectures**. (Prof. P R Panda), Department of Computer Science & Engineering, Indian Institute of Technology Delhi, New Delhi.

Electrical & Electronics Engineering

1. Bhattacherjee, Indrani. **Epileptic seizure prediction and detection using machine learning techniques**. (Prof. B K Panigrahi), Department of Electrical & Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Chaudhary, Vivek. **Fast-forward full-duplex strategies to mitigate reactive jamming attacks on low-latency communication**. (Prof. Harshan Jagadeesh), Department of Electrical Engineering, Indian Institute of Technology Delhi, New Delhi.

3. Chishti, Farheen. **Design and control of PV-wind energy based microgrids with islanding and resynchronization**. (Prof. Bhim Singh), Department of Electrical Engineering, Indian Institute of Technology Delhi, New Delhi.

4. Karmakar, Subir. **Design and control of high power grid interfaced solar PV system with Bes**. (Prof. Bhim Singh), Department of Electrical & Engineering, Indian Institute of Technology Delhi, New Delhi.

5. Nougain, Vaibhav. **Identification & location of faults in DC microgrids**. (Prof. Sukumar Mishra), Department of Electrical Engineering, Indian Institute of Technology Delhi, New Delhi.

6. Shatakshi. **Control and implementation of solar PV-DG based microgrids in grid-connected and islanded modes**. (Prof. Bhim Singh and Prof. Sukumar Mishra), Department of Electrical & Engineering, Indian Institute of Technology Delhi, New Delhi.

7. Shrivastava, Pranav Kumar. **Studies on micromachined circuits for microwave to sub-THz applications**. (Prof. Shiban K. Koul and Prof. Mahesh P. Abegaonkar), Centre for Applied Research and Electronics, Indian Institute of Technology Delhi, New Delhi.

Electrical Instrumentation Engineering

1. Mandeep Kaur. **Multi objective optimal power flow consideration wind power penetration**. (Dr. Nitin Narang), Department of Electrical and Instrumentation Engineering, Thapar Institute of Engineering and Technology, Patiala.

Electronics & Communication Engineering

1. Sorathiya, Vishal Parsotambhai. **Graphene based metasurface polarizer for fair infrared frequency range**. (Dr. Shobhitkumar Kirtkumar), Department of Electronics & Communication Engineering, Marwadi University, Gujarat.

Energy Studies

1. Grover, Himanshu. **Monitoring, operation and control strategies for smart electrical systems**. (Prof. Ashu Verma and Prof. T.S. Bhatti), Department of Energy Science & Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Kandpal, Bakul. **Algorithms for electric vehicle scheduling in smart distribution networks**. (Prof. Ashu Verma), Department of Energy Studies & Engineering, Indian Institute of Technology Delhi, New Delhi.

3. Mahreen. **Development and investigation of atmospheric pressure non thermal RF plasma jet**. (Prof. Satyananda Kar and Prof. Debaprasad Sahu), Department of Energy Science & Engineering, Indian Institute of Technology Delhi, New Delhi.

Material Science and Engineering

1. Dhingra, Shaifali. **Hydrophilic polymer brush coatings on biodegradabile aliphatic polyester surface for biomedical applications**. (Prof. Sampa Saha), Department of Materials Science and Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Muzaffar, Aravi. **Processing, structure and mechanical characterisation studies for optimised design of copper and nitinol based porous metallic fibrous materials**. (Prof. Rajesh Prasad and Prof. Suresh Neeiakantan), Department of Materials Science and Engineering, Indian Institute of Technology Delhi, New Delhi.

3. Nayak, Prajesh. **Shear thickening fluid encapusulation in electrospun UHMWPE and its ballistic performance under high strain rate**. (Prof. Anup K. Ghosh and Prof. Naresh Bhatnagar), Department of Materials Science and Engineering, Indian Institute of Technology Delhi, New Delhi.

4. Shikha. **Pentaerythritol-derived polyhydroxy dendrimers and flame retardant additives**. (Prof. Josemon Jacob and Prof. Leena Nebhani), Department of Materials Science and Engineering, Indian Institute of Technology Delhi, New Delhi.

Mechanical Engineering

1. Arora, Hemant. **Investigation on large size deployable antenna truss mechanism**. (Prof. Sudipto Mukherjee and Prof. B.S. Munjal), Department of Mechanical Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Chaudhary, Rameshwar. **Tribo-performance studies of textured concentrated contacts at heavy loads using nano-lubricants**. (Prof. R.K. Pandey and Prof. S.K. Mazumdar), Department of Mechanical Engineering, Indian Institute of Technology Delhi, New Delhi.

3. Mourya, Devershi. **Development of advanced vortex bow blades for turbines**. (Prof. P.M.V. Subbarao), Department of Mechanical Engineering, Indian Institute of Technology Delhi, New Delhi.

4. Nath, Gaurav. **Bottom-up and directed self-assembly using the lattice boltzmann method**. (Prof. Bahni Ray), Department of Mechanical Engineering, Indian Institute of Technology Delhi, New Delhi.

5. Pant, Pawan Kumar. **Ventilation studies on open window bus**. (Prof. S.R. Kale, Prof. S.V. Veeravalli andProf. M.R. Ravi), Department of Mechanical Engineering, Indian Institute of Technology Delhi, New Delhi.

6. Patil, Bhagatsing Ambarsing. **Assessment of leanness in new product development process: A case of machine tools**. (Prof. P.V.M. Rao and Prof. M S Kulkarni), Department of Mechanical Engineering, Indian Institute of Technology Delhi, New Delhi.

7. Sahu, Nitesh Kumar. **Coupled interactions between flow field and combustion inside entrained flow coal reactors**. (Prof. Mayank Kumar and Prof. Anupam Dewan), Department of Mechanical Engineering, Indian Institute of Technology Delhi, New Delhi.

8. Shelly, Daksh. **Polymeric filler reinforced glass fiber epoxy nanocomposites for improved impact strength**. (Dr. Tarun Nanda and Dr. Rajeev Mehta), Department of Mechanical Engineering, Thapar Institute of Engineering and Technology, Patiala.

Textile & Apparel Design

1. Khude, Prakash Arun. **Studies on durable antibacterial fabrics using nano-silver embedded polyester fibres**. (Prof. Abhijit Majumdar and Prof. Bhupendra Singh Butola), Department of Textile and Fiber Engineering, Indian Institute of Technology Delhi, New Delhi.

2. Mathur, Prasun. **Studies on the flame retardancy of nitrogen-rich textiles**. (Prof. Kushal Sen and Prof. Javed Nabibaksha Sheikh), Department of Textile and Fiber Engineering, Indian Institute of Technology Delhi, New Delhi.

MATHEMATICAL SCIENCES

Mathematics

1. Khandelwal, Rohit. **Pointwise a posteriori error analysis of finite element methods for elliptic variational inequalities**. (Prof. Kamana Porwal), Department of Mathematics, Indian Institute of Technology Delhi, New Delhi.

MEDICAL SCIENCES

Medicine

1. Dar, Mohammad Ovais. **QUantum chemical evaluation and synthesis of NHC containing compounds C C and C N coordination interactions**. (Prof.P V Bharatam), Department of Medical Chemistry, National Institute of Pharmaceutical Education and Research, Mohali, Punjab.

Neurology

1. Sahoo, Biswaranjan. **Tyrosine sulfation: Implications for synaptic plasticity and memory**. (Prof. Shiv K Sharma), NBRC, National Brain Research Centre, Manesar.

PHYSICAL SCIENCES

Chemistry

1. Antil, Neha. **Development of single-site metal-organic framework-catalysts for sustainable organic transformations**. (Prof. Kuntal Manna), Department of Chemistry, Indian Institute of Technology Delhi, New Delhi.

2. Ashok Kumar. **Synthesis of diphenyl ethers for the detection of ions byphotophysical methods**. (Dr. Manmohan Chhibber), School of Chemistry and Bio-Chemistry, Thapar Institute of Engineering and Technology, Patiala.

3. Dutt, Sunil. **Development of α amylase catalysed organic transformations**. (Dr. Vikas Tyagi), Department of Chemistry & Biochemistry, Thapar Institute of Engineering and Technology, Patiala.

4. Newar, Rajashree. **Metal-organic frameworks supported single-site base-metal catalysts for organic transformations**. (Prof. Kuntal Manna), Department of Chemistry, Indian Institute of Technology Delhi, New Delhi.

5. Rastogi, Harshita. **Biophysical investigations of Adenylate Kinase (AK3LI) in the crowded Milieu-correlating investigations activity, conformation structure and dynamics**. (Prof. Pramit K. Chowdhury), Department of Chemistry, Indian Institute of Technology Delhi, New Delhi.

6. Yadav, Kaushal Kishor. **Studies on reactivity and structural aspect of uranyl(VI) Ion with O,N and S/Se heteroatom substituted organic derivatives**. (Prof. Jai Deo Singh), Department of Chemistry, Indian Institute of Technology Delhi, New Delhi.

Physics

1. Arora, Gauri. **Investigations on stokes singularities**. (Prof. P. Senthilkumaran), Department of Physics, Indian Institute of Technology Delhi, New Delhi.

2. Khushboo Singh. **Chemical sensing using THZ time-domain spectroscopy**. (Prof. Amartya Sengupla), Department of Physics, Indian Institute of Technology Delhi, New Delhi.

3. Madhuri, D R. **Synthesis and characterization of graphene/ metal oxides nanocomposites for supercapaciitor applications**. (Dr. Ashok R Lamani), Department of Physics, Kuvempu University, Shankaraghatta.

4. Narang, Kapil. **MOVPE growth of III-nitride based advanced heterostructures**. (Prof. Rajendra Singh and Prof. Rajesh Bag), Department of Physics, Indian Institute of Technology Delhi, New Delhi.

5. Virendra Kumar. **Development of speckle noise reduction devices for laser based projection imaging and uniform illumination**. (Prof. Dalip Singh Mehta), Department of Physics, Indian Institute of Technology Delhi, New Delhi. ❑

NIRMALA EDUCATION SOCIETY

Nirmala Nivas
Altinho, Panaji, Goa

Applications with full Biodata are invited from Indian Citizens for the **POST OF PRINCIPAL** from the academic year 2023-2024 onwards.

For minimum qualifications, tenure, requirements and service conditions etc., please check our **website: www.nirmalainstitute.org.**

Sd/-
Vice President
Nirmala Education Society
18/04/2023

WANTED

Applications are invited from the eligible candidates for the post of **Assistant Professor** by Registered Post to **The Director, Shri Sharda Bhavan Education Society's Institute of Technology and Management**, (Permanent Non-Grant), VIP Road, Nanded - 431602. The **last date of application is 01-05-2023**. The candidates of reserved category should send one copy of application to the Assistant Registrar, Special Cell, S.R.T.M. University, Nanded.

Sr. No.	Subject/ Course	No. of Posts	Nature of Post	Reservation
1.	B.C.A.	07	Full Time	Open:7,SC:4, ST:2, VJ(A):1, NT(B):1, NT(C):1, NT(D):1, SBC:1, OBC:7, WS:4
2.	B.B.A.	11	Full Time	
3.	Mathematics	03	Full Time	
4.	English	02	Full Time	
5.	B.Sc.(H.S.)	06	Full Time	

Note: For more details and prescribed application form, please refer to **websites: www.srtmun.co.in & www.ssbesitm.org.**

Application should be addressed to:

The Director, S.S.B.E.S's Institute of Technology and Management, VIP Road, Nanded-431602.

- Prescribed format of application must be submitted along with all necessary educational certificates & testimonials.
- Qualification, pay scale & other allowances as per the Govt. of Maharashtra norms.

Secretary
S.S.B.E.S., Nanded

Director
S.S.B.E.S., ITM, Nanded

INSTITUTE FOR SOCIAL AND ECONOMIC CHANGE (ISEC)

Dr V.K.R.V. Rao Road, Nagarabhavi PO, Bengaluru-560 072 (Karnataka), India
Tel: 91-080-23215468/5592/5519;
Fax: 080-23217008 ● Web: www.isec.ac.in

AN ALL INDIA INSTITUTE FOR INTER-DISCIPLINARY RESEARCH & TRAINING IN THE SOCIAL SCIENCES

DOCTORAL PROGRAMME – 2023-24

Applications are invited from the eligible candidates for the Doctoral Programme 2023-24. The prescribed application form and information brochure can be downloaded from the ISEC **Website www.isec.ac.in.**

Completed **Hard copy of the Application** with requisite attachments should reach the following address **on or before 15th May 2023.**

The Registrar
Institute for Social and Economic Change
Dr. V K R V Rao Road
Nagarabhavi P.O.
Bengaluru-560 072 (Karnataka)

For detailed information visit our **website: www.isec.ac.in**

Registrar

Shetkari Shikshan Prasarak Mandal, Rethare Bk
Krishna Mahavidyalaya, Rethare Bk,
Post. Shivnagar, Tal. Karad, Dist. Satara, 415108 (M.S.)
(Affiliated to Shivaji University, Kolhapur)
(Permanently Granted)

WANTED

Applications are invited from eligible candidates for the following posts:

Sr. No	Name of Post/ Subject	Subject wise vacant post	Total Number of Vacant Post	Total Reservation
A. Assistant Professor :-				
1	Chemistry	2	6	ST-1, VJ(A)-1, OBC-2, EWS-1, Open-1
2	Statistics	1		
3	Mathematics	1		
4	Physics	1		
5	Zoology	1		

Note:- For detailed information about posts, qualification and other terms and conditions, please visit University website: **www.unishivaji.ac.in.**

Place : Rethare Bk
Date : 24/04/2023

Principal
Krishna Mahavidyalaya,
Rethare Bk, Post. Shivnagar,
Tal. Karad, Dist. Satara-415108

Secretary
Shetkari Shikshan Prasarak Mandal,
Rethare Bk, Post. Shivnagar,
Tal. Karad, Dist. Satara - 415108

ST. THOMAS COLLEGE

Ranni, Kerala – 689673
Owned and managed by St. Thomas Valiyapally, Ranni,
a parish church of "Syrian Knanaya Arch Diocese"
(Affiliated to MG University, Kottayam)
Ph: 9447161472, 8301057965.
E-mail: stcranni@gmail.com

WANTED

Applications are invited from eligible candidates for the following posts of **Assistant Professors** against permanent vacancies in St. Thomas College, Ranni.

Subject	Community Quota	PwD Quota
English	1	1

Age, qualifications, scale of pay etc. will be as per the norms prescribed by the UGC / M G University / State Government. Application form and other details can be had from Manager, St. Thomas College, Ranni – 689673, Kerala on payment of Rs. 1,000/-.

Filled up application along with copies of all required documents should reach the office of the undersigned **within 30 days** from the publication of this notification.

18/04/2023

Sd/-
Manager

ATTENTION : SUBSCRIBERS UNIVERSITY NEWS

The NEW RATES of Subscriptions effective April 01, 2020 shall be as per following:

	Institutions Rs.	Teachers/Students/Individuals* Rs.
1 year	**1,250.00**	**500.00**
2 years	**2,200.00**	**900.00**

***AT RESIDENTIAL ADDRESS ONLY**

The payable amount is required to be remitted **in advance** by any of the following modes of payments:

a) AIU WEB Portal (b) Cash Deposit (c) Demand Draft/At Par Cheque and (d) NEFT/RTGS/Net Banking/G-Pay/ BHIM APP, etc.

1	**Bank Account No.**	**0158101000975 (Saving)**
2	Beneficiary Name and Address	**ASSOCIATION OF INDIAN UNIVERSITIES**
		16, Comrade Indrajit Gupta Marg, New Delhi – 110 002
3	Bank & Branch Name	CANARA BANK, DDU MARG
4	Bank's Address	"URDU GHAR", 212, Deen Dayal Upadhyaya Marg, New Delhi – 110 002
5	Branch Code	0158
6	IFSC Code	CNRB 0000158
7	Contact No. & E-mail ID	(011) 23230059 Extn. 208/213 (M) 09818621761

THE NEFT/RTGS/ONLINE PAYMENT TRANSACTION/UTR NUMBER MUST BE SENT BY MAIL IMMEDIATELY WITH COMPLETE MAILING ADDRESS & PIN CODE FOR LINKING AND ITS SETTLEMENT AT OUR END.

For further information/enquiries, ***send Mail at : subsun@aiu.ac.in / publicationsales@aiu.ac.in***
Website : ***https://www.aiu.ac.in***

GOKHALE INSTITUTE OF POLITICS AND ECONOMICS

(Deemed to be University u/s 3 of the UGC Act, 1956), **PUNE – 411 004**

RECRUITMENT OF FACULTY

Gokhale Institute of Politics and Economics is an educational & research Institute established in 1930 under the aegis of Servants of India Society. The Institute is widely recognized in the country as an advanced centre for the study and research in Economics and allied subject fields. The Institute is seeking applications for the following posts:

Sr.	Name of Post	Nature	No. of Posts	Category
Posts sanctioned under Government of Maharashtra:				
1	**Professor**	Regular	1	Open 1
2	**Associate Professor**	Regular	4	SC 1 ST 1 Open 2
3	**Assistant Professor**	Regular	2	SC 1 ST 1
4	**Assistant Librarian**	Regular	1	Open 1
Posts Self-Financed by the Institute:				
5	**Assistant Professor**	Contractual	3	Open 3
6	**Chief Warden (Female)**	Contractual	1	Open 1

For further details on eligibility criteria, pay, application form etc. visit **www.gipe.ac.in.**
Last date for receipt of applications – **May 02, 2023.**

REGISTRAR

March 14, 2023

FULBRIGHT India

USIEF

सत्यमेव जयते

Fulbright-Nehru Specialist Program
Opportunity to Host U.S. Experts for Short-term Duration

United States-India Educational Foundation (USIEF) invites applications from Indian institutions for hosting U.S. experts for a short-duration of two to six weeks under the Fulbright-Nehru Specialist Program. USIEF pays for international airfare and an honorarium to the expert. Host institution is responsible for the cost of housing, meals, and program-related in-country transportation.

For eligible disciplines, application procedure, and other details, visit USIEF website: **https://www.usief.org.in/Fellowships/FIC-Institutional-Awards.aspx**: and for any query, write to **girish@usief.org.in.** The last date for submission of application is **April 30, 2023.**

WANTED

Applications are invited from the eligible candidates for the following posts to be filled in **Adarsh Education Society's Arts, Commerce and Science College, Hingoli (Granted)** run by **Adarsh Education Society, Hingoli.** Eligible candidates should submit their application along with necessary documents **within fifteen days** from the date of publication of the advertisement by Registered Post Only. The candidates of Reserve Category should submit one copy of their application to the **Assistant Registrar (Special Cell), Swami Ramanand Teerth Marathwada University, Nanded** by Registered Post.

Sr. No	Posts	Subject	No. of Posts	Reservation
1.	Principal	-	01	Unreserved
2	Asst. Professor	Botany	01	Open -01, OBC-01,
3	Asst. Professor	Public Administration	01	

Permission as per NOC No. JDHE Nanded/NOC/2019/10 dated 30/12/2022.

NOTE : For more detailed information about post Qualifications, from salary and other terms and conditions, please visit University Website –www.srtmun.ac.in & College website- www.adarshcollege208.ac.in.

Address for correspondence:
To
President,
Adarsh Education Society's
Arts, Commerce and Science College,
Akola Road, Near Power House, Hingoli,
Dist. Hingoli-431 513 (Maharashtra)

Secretary
Adarsh Education Society, Hingoli

President
Adarsh Education Society, Hingoli

WANTED

Applications are invited from the eligible candidates for the following posts in **Shri Datta Arts, Commerce & Science College, Hadgaon, Tq. Hadgaon, Dist. Nanded (100% Granted)** runs by **Hadgaon Taluka Shikshan Prasark Mandal's, Hadgaon, Tq. Hadgaon, Dist Nanded.**

The Application duly complete with all respective documents should be reached on the following address **within Fifteen (15) days** from the publication of this advertisement. Candidates belonging to the categories other than open should also submit their one copy of application to **The Assistant Registrar, Special Cell, Swami Ramanad Teerth Marathwada, University, Nanded.**

Sr. No.	Subject	Name of Post (Designation)	No. of Post	Reservation
1.	**Chemistry**	Assistant Professor	**01**	**Open-01, SC-01, OBC-02, EWS-01**
2.	**Microbiology**	Assistant Professor	**01**	
3.	**Zoology**	Assistant Professor	**01**	
4.	**Botany**	Assistant Professor	**01**	
5.	**Physics**	Assistant Professor	**01**	

Permission as per NOC No. JDHE Nanded/NOC/ 2019/26 Dated 31/03/2023.

Details of advertisement Application format is available on **www:srtmun.ac.in** and on also our College **website www:sdch.edu.in.**

Note:-The Vacancies of Assistant Professor will be filled subject to condition of the decision in Writ Petition No. 2021/2015 pending in Hon'ble High Court of Judicature of Bombay, Branch at Aurangabad.

Correspondence Address:-
The Principal
Shri Datta Arts, Commerce & Science College, Hadgaon,
Tq. Hadgaon, Dist. Nanded – 431712

Secretary/Principal
Hadgaon Taluka Shikshan Prasark Mandal, Hadgaon

Children Welfare Centre's

CHILDREN WELFARE CENTRE LAW COLLEGE

Valnai Village, Marve Road, Orlem Bavdi Stop, Malad (W), Mumbai-400064

MINORITY

APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS FROM THE ACADEMIC YEAR 2023-24

UN-AIDED

Sr. No.	Cadre	Subject	Total No. of Posts	Category
1.	**Principal**	-----	01	01-OPEN
2.	**Assistant Professor**	Law	10	10-OPEN
3.	**Assistant Professor**	Political Science	01	01-OPEN
4.	**Assistant Professor**	Economics	01	01-OPEN
5.	**Assistant Professor**	English Literature	01	01-OPEN
6.	**Assistant Professor**	History	01	01-OPEN
7.	**Librarian**	-----	01	01-OPEN

The above posts are open to all, however, candidates from any category can apply for the post.

Reservation for women will be as per **University Circular No. BCC/16/74/1998 dated 10 March, 1998. 4% reservation shall be for the persons with disability as per University Circular No. Special Cell/CC/2019- 20/05 dated 05th July, 2019.**

Candidates having knowledge of Marathi will be preferred.

"Qualification, Pay Scales and other requirement are as prescribed by the UGC Notification dated 18th July, 2018, Government of Maharashtra Resolution No. Misc-2018/C.R.56/18/UNI-1 dated 8th March, 2019 and University Circular No. TAAS/(CT)/ICD/2018-19/1241 dated 26th March, 2019 and revised from time to time".

The Government Resolution & Circular are available on the website: mu.ac.in.

Applicants who are already employed must send their application through proper channel.

Applicants are required to account for breaks, if any, in their academic career.

Application with full details should reach the **GENERAL SECRETARY, CHILDREN WELFARE CENTRE LAW COLLEGE, Valnai Village, Marve Road, Orlem Bavdi Stop, Malad (W), Mumbai-400 064. within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-
GENERAL SECRETARY

Hyderabad (Sind) National Collegiate Board's

PRIN. K. M. KUNDNANI COLLEGE OF PHARMACY

Plot No. 23, Jote Joy Building, Rambhau Salgaonkar Marg,
Cuffe Parade, Mumbai- 400 005

MINORITY

APPLICATIONS ARE INVITED FOR THE FOLLOWING POST FROM THE ACADEMIC YEAR 2023-24

UNAIDED

SELF FINANCE SECTION

Sr. No.	Cadre	Subject	Total No. of Post	Category
1.	**Assistant Professor**	Pharmacy	02	02 - OPEN

The above post is open to all, however, candidates from any category can apply for the post.

Reservation for women will be as per **University Circular No.BCC/16/74/1998 dated 10th March, 1998. 4% reservation shall be for the persons with disability as per University Circular No. Special Cell/ICC/2019-20/05 dated 05th July, 2019.**

Candidates having knowledge of Marathi will be preferred.

The Educational Qualification, Experience & Pay-Scale for the post of Assistant Professor is as prescribed by the University of Mumbai, AICTE from time to time. Please refer University Circular No. **मशिमाक/विशिमाक/तंत्रशिक्षण/11/2020 कृ 2021 दिनांक 11 जनवरी, 2021 for qualification and experience at the time of interview**.

Applicants who are already employed must send their applications through proper channel. Applicants are required to account for breaks, if any, in their academic career.

Applications with full details should reach the **PRINCIPAL, Prin. K.M. Kundnani College of Pharmacy, Plot No. 23, Jote Joy Building, Rambhau Salgaonkar Marg, Cuffe Parade, Colaba, Mumbai – 400 005 within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-
PRINCIPAL

JOGESHWARI EDUCATION SOCIETY'S

JES COLLEGE OF COMMERCE, SCIENCE & INFORMATION TECHNOLOGY

Jogeshwari (E), Mumbai - 400 060

APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS FOR THE ACADEMIC YEAR 2023-24

UNAIDED

Sr. No.	Cadre	Subject	No. of Posts	Total No. of Posts	Post Reserved for
1	**Principal ***	--	01	01	OPEN – 01
2	**Assistant Professor**	Economics	02	**10**	**SC – 01** **ST – 01** **DT (A) – 01** **OBC – 02** **EWS – 01** **OPEN – 04**
3	**Assistant Professor**	Commerce	02		
4	**Assistant Professor**	Business Communication	01		
5	**Assistant Professor**	Mathematics	01		
6	**Assistant Professor**	Marketing	01		
7	**Assistant Professor**	Finance	01		
8	**Assistant Professor**	Information Technology	01		
9	**Librarian**	-	01		

* Applications are invited for the post of **Principal** from the Academic Year 2023-2024.

The posts for the reserved category candidates will be filled in by the same category candidates (Domicile of State of Maharashtra) belonging to that particular category only.

Reservation for women will be as per **University Circular No. BCC/16/74/1998 dated 10th March, 1998. 4% reservation shall be for the persons with disability as per University Circular No. Special Cell/ICC/2019-20/05 dated 05th July, 2019.**

Candidates having knowledge of Marathi will be preferred.

"Qualification, Pay Scales and other requirement are prescribed by the UGC Notification dated 18th July, 2018, Government of Maharashtra Resolution No. Misc-2018/C.R.56/18/UNI-1 dated 8th March, 2019 and University Circular No. TASS/(CT)/ICD/2018-19/1241 dated 26th March, 2019 and revised from time to time". The Government Resolution & Circular are available on the website: mu.ac.in.

Applicants who are already employed must send their application through proper channel. Applicants are required to account for breaks, if any, in their academic career.

Application with full details should reach the **Secretary, Jogeshwari Education Society's JES College of Commerce, Science & Information Technology, Jogeshwari (E), Mumbai – 400 060 within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Email: jescollegecom@gmail.com, Tel.: 022 28245527; Mob. 8356867783

Sd/-
SECRETARY

MALAD KANDIVLI EDUCATION SOCIETY's

M.K.E.S. COLLEGE OF LAW

Bhavishya Bharat Campus, S.V. Road, Malad (W), Mumbai– 400 064
Tel : 02228010607

MINORITY

APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS FROM THE ACADEMIC YEAR 2023-2024

UN-AIDED

LL.B (3 Years) & B.L.S. (5 Years)

Sr. No.	Cadre	Subject	Total No. of Posts	Category
1	**Principal**	-	01	**01- OPEN**
2	**Assistant Professor**	Law	04	**04- OPEN**
2	**Librarian**	-	01	**01- OPEN**

The above posts are open to all, however, candidates from any category can apply for the post.

Reservation for women will be as per **University Circular No. BCC/16/74/1998 dated 10th March, 1998. 4% reservation shall be for the persons with disability as per University Circular No. Special Cell/ ICC/2019-20/05 dated 05th July, 2019.**

Candidates having knowledge of Marathi will be preferred.

"Qualification, Pay Scales and other requirement are as prescribed by the UGC Notification dated 18th July, 2018 Government of Maharashtra Resolution No. Misc-2018/C.R.56/18/UNI-1 dated 8th March, 2019 and University Circular No. TAAS/ (CT)/ICD/2018-19/1241 dated 26th March, 2019 and revised from time to time".

The Government Resolution & Circular are available on the website: mu.ac.in.

Applicants who are already employed must send their application through proper channel. Applicants are required to account for breaks, if any, in their academic career.

Application with full details should reach the **TRUSTEE / SECRETARY**, **M.K.E.S. COLLEGE OF LAW, Bhavishya Bharat Campus, S.V. Road, Malad (W), Mumbai-400064 within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-
TRUSTEE/ SECRETARY

Annexure-'A'

NATIONAL INSTITUTE OF EDUCATIONAL PLANNING AND ADMINISTRATION (NIEPA)

(Deemed to be University u/s 3 of the UGC Act, 1956)

17-B Sri Aurobindo Marg, New Delhi-110016

Web: www.niepa.ac.in

ADMISSION NOTICE 2023-24

(i) PhD (Full-time) Programme

(ii) PhD (Part-time) Programme

The National Institute of Educational Planning and Administration (NIEPA) is a Deemed to be University, fully funded by Ministry of Education, Government of India. It is engaged in research and capacity building in Educational Policy, Planning and Administration.

The NIEPA offers PhD (Full-time and Part-time) programmes in all area of Educational Policy, Planning and Administration from a broader inter-disciplinary social science perspective. The Doctoral research programme of the NIEPA covers all levels and sectors of education, and it is holistic and multi-disciplinary in its perspective, and is inclusive of comparative and international approaches to education. The NIEPA has an excellent teaching faculty, with expertise in various area of education, policy, planning, management and with disciplinary backgrounds in the social sciences. The faculty has expertise in leading national and international research.

In due recognition of its institutional strength, the NIEPA has been awarded an "A" grade by the NAAC.

Eligibility Criteria for Application to the Doctoral Programme:

3.1 PhD (Full-Time):

Candidates who have completed:

(a) 1-year/2-semester master's degree programme after a 4-year/8-semester bachelor's degree programme in Social Sciences and allied disciplines or a 2-year/4-semester master's degree programme after a 3-year bachelor's degree programme in Social Sciences and applied disciplines or qualifications declared equivalent to the master's degree in Social Sciences and allied disciplines by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed.

Or

Equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution.

A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the UGC from time to time.

Provided that a candidate seeking admission after a 4-year/8-semester bachelor's degree programme should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed.

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(b) Candidates who have completed the MPhil programme with at least 55% marks in aggregate or its equivalent grade in Social Sciences and applied disciplines in a point scale wherever grading system is followed or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of educational institutions, shall be eligible for admission to the PhD programme. A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/ Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the UGC from time to time.

(c) Candidates who are yet to clear their final examination at the master level are also eligible to apply provided they have passed the examination as per the eligibility conditions laid down in the regulation in previous semesters and submit its proof at the time of final admission. In case, because of delay in examination, a candidate fails to provide the proof of minimum eligible marks, an extension of six months from the date of submission shall be given by the DPC, failing which the admission of such candidate shall be cancelled.

(d) Those candidates who have qualified NET and have been awarded Junior Research Fellowships by the UGC, with the above-mentioned educational qualifications can also apply.

3.2 PhD (Part-time):

(a) PhD programmes through part-time mode will be permitted, provided all the conditions stipulated in these Regulations are fulfilled.

(b) The candidate for a part-time PhD programme shall submit a "No Objection Certificate" from the appropriate cadre controlling authority in the organization where the candidate is employed, clearly stating that:

i. The candidate is permitted to pursue studies on a part-time basis.
ii. His/her official duties permit him/her to devote sufficient time for research.
iii. If required, he/she will be relieved from the duty to complete the course work.

Note: It will be compulsory to attend one-year full-time course work for all part-time and full-time scholars.

Mode of Selection

Initial short-listing of applications will be carried out on the basis of the eligibility criteria mentioned above. Short-listed candidates will be required to appear for a written test on **June 10, 2023**. Candidates who qualify in the written test, will be invited for a personal interview, to assess their potential. A weightage of 70% for the entrance test and 30% for the performance in the interview/ viva-voce shall be given. A final list of selected candidates will be in order of merit.

The NIEPA follows all mandatory provisions with respect to reservation policy of the Government of India. Admissions to PhD (Full-Time and Part-time) programmes are made purely on the basis of merit following the prescribed criteria of the Institute, and following rules of reservation of the Government of India.

The NIEPA reserves the right to decide the number of seats to be filled in the year 2023-24, the

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criteria for screening of applications; and the selection procedure of candidates for admission to its PhD programmes.

How to Apply

Candidates should apply online through Samarth Portal in the prescribed online form for admission to PhD programmes of the Institute. The link is available at NIEPA **website i.e. https://niepaadm.samarth.edu.in/.** For further details, please refer PhD Prospectus, 2023-24 of the NIEPA available at the website **www:niepa.ac.in.**

A non-refundable sum of Rs. 800/- (Rs. 400/- for SC/ST and EWS candidates), through online payment, as application fee is mandatory for seeking admission for the above programme. The hard copy of Prospectus can be obtained from NIEPA, if required after filling the online form.

Last Date for submission of Application

Online application should be submitted by **on or before May 15, 2023**.

1.	**Last date for online application**	**May 15, 2023**
2.	**Written test**	**June 10, 2023**
3.	**Interview**	**June 12-13, 2023**
4.	**Declaration of final results**	**June 16, 2023**
5.	**Date of admissions**	**July 3-4, 2023**
6.	**Commencement of PhD Session/Course work**	**July 17, 2023**

Changes, if any, will be intimated through the NIEPA website (www.niepa.ac.in).
For any query related to admissions please send email on (admissions@niepa.ac.in).

Registrar

Anjuman Moinut Tulba

MALEGAON SENIOR COLLEGE OF ARTS, SCIENCE & COMMERCE, MALEGAON.

ID No : PU/NS/ACS/185/2021 (Permanent Non-Grant Minority Institution)
Affiliated to Savitribai Phule Pune University, Pune

REQUIRED

Applications are invited from the eligible candidates for the following posts.

Cadre	Subject	Post
Principal	-------	01 FT
Associate.Prof.	Commerce	01 FT
Asstt. Prof.	Commerce	02 FT
Asstt. Prof.	Urdu	02 FT
Asstt. Prof.	English	03 FT
Asstt. Prof.	Hindi	01 FT
Asstt. Prof.	Marathi	01 FT
Asstt. Prof.	History	02 FT

Cadre	Subject	Post
Asstt. Prof.	Politics	02 FT
Asstt. Prof.	Economics	02 FT
Asstt. Prof.	Maths	02 FT
Asstt. Prof.	Botany	03 FT
Asstt. Prof	Geography	03 FT
Asstt. Prof.	Zoology	03 FT
Asstt. Prof.	Chemistry	03 FT
Asstt. Prof.	Physics	03 FT

Cadre	Subject	Post
Librarian	------	01 FT
Physical Director	------	01 FT
Jr. Clerk	------	02
Head Clerk	------	01
Lab Assist	------	01
Lab Attendant	------	01
Peon	------	03

Eligibility, Pay Scale and Service Conditions:

1) **Principal:** PhD with minimum 15 years of teaching/administrative experience at higher Educational institute and API Score approved From the concerned University
2) **Associate Professor :** M. Com with PhD having minimum 8 year of teaching experience at higher education institute and having API approved from the concerned university.
3) **Assistant Professors :** M.A/MSc/M.COM With minimum 55% marks at PG level and NET/SET/PhD in the relevant subject. Also commerce aspirants with additional Degree/Diploma in IT/Tally computer Science will be preferred
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5) **Physical Director :** M.P.Ed with minimum 55% marks and having NET/SET.
6) **Head Clerk :** Any Graduate / Post Graduate with 5 years of working experience in Higher Educational institute
7) **Junior Clerk :** Any graduate with skilled knowledge of Online and software handling.
8) **Lab Assist :** Any Science graduate with working experience in Higher Educational Institute
9) **Lab Attendant :** 10th /12th Pass with working experience. 10) **Peon :** 10th Pass

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