

Rs. 30.00
ISSN-0566-2257



UNIVERSITY NEWS

A Weekly Journal of Higher Education

Association of Indian Universities

Vol. 61 • No. 31 • July 31-August 06, 2023

Neeraj Saxena

Redefining Doctoral Education with Independent Research Paths

Chinmoy Kumar Ghosh, Subhash Chandra Samanta and Pradipta Panchadhyayee

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– **Convocation Address**

Let's Create Amanirbhar Bharat Together

**GOVERNMENT OF INDIA, MINISTRY OF YOUTH AFFAIRS & SPORTS
NOTICE**

**FOR APPOINTMENT OF VICE CHANCELLOR IN
LAKSHMIBAI NATIONAL INSTITUTE OF PHYSICAL EDUCATION,
(LNIPE), GWALIOR**

Laxmibai National Institute of Physical Education (LNIPE), Gwalior is a Deemed to be University under Section 3 of the University Grants Commission Act, 1956 and fully funded by the Government of India, Ministry of Youth Affairs & Sports. The organization was initially established as a College of Physical Education in 1957 and it is having the status of Deemed to be University since 1995. It is run through a Society registered under Madhya Pradesh Societies Registration Act, 1973. The Board of Management is its supreme authority and is headed by the Vice Chancellor, who must be an academician and is the Principal Executive and Academic Officer of the Institute.

The Department of Sports, Ministry of Youth Affairs and Sports, Government of India wishes to appoint a Vice Chancellor, Lakshmibai National Institute of Physical Education (LNIPE), Gwalior in the pay-scale of Rs. 2,10,000/- plus special allowance of Rs. 5000/- and other allowances from time to time. The Vice Chancellor shall be appointed by the President of LNIPE out of a panel to be recommended by a Search-cum-Selection Committee which will be constituted as per the provisions of MOA/Rules of LNIPE, Gwalior. The Vice Chancellor shall hold office for a term of five years from the date of assuming the office or till attaining the age of 70 years, whichever is earlier.

The person to be appointed as Vice Chancellor must be a person of highest level of competence, integrity, moral and institutional commitment and should not be over 65 years of age as on date of advertisement of the Notice. He should be a distinguished academician, with a minimum ten years of experience as Professor in a University system or ten years experience in an equivalent position in a reputed research and/or academic administrative organization. The eligibility criteria is given in **Annexure-I**.

Names of eminent personalities in the field of education meeting the above parameters and having high academic achievements to their credit and also possessing administrative ability to provide leadership to the Institute may be submitted to **Sh. Subhabrata Karmakar, Deputy Secretary, Hall No. 101, Near Ramp No. 1, JLN Stadium, Department of Sports, Ministry of Youth Affairs & Sports, Lodhi Road, New Delhi-110003 within 30 days from publication of this advertisement**. The applications/ nominations received after the due date will not be considered.

The interested persons may also submit their applications through proper channel, if applicable, along with all supporting documents and credentials to substantiate their eligibility in terms of qualification as well as experience i.e. minimum ten years of experience as Professor in a University system or ten years experience in an equivalent position in a reputed research and/or academic administrative organization.

The applications/nominations may be made in the prescribed format (**Annexure-II**).

Sd/-
(Nitesh Kumar Mishra)
Joint Secretary (Administration)
Ministry of Youth Affairs & Sports

(Note: Both the Annexures are part of this Notice and available at websites www.yas.nic.in and www.lnipe.edu.in).

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Published by the Association of Indian
Universities

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Subscription is payable in advance by Bank Draft/MO only in favour of Association of Indian Universities, New Delhi.

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#Let'sBeatCoronaTogether

Redefining Doctoral Education with Independent Research Paths

Neeraj Saxena*

Our universities have existed, thrived, and evolved performing the role of repository and generator of knowledge. The teachers have kept them going on, as holders and transmitters of knowledge- equipping graduates with knowledge and values who in turn should create value out of the resources and knowledge around. They have also indulged in research which is about challenging the status quo or exploration beyond the boundary of known knowledge or creation/ synthesis of new knowledge and preparing new researchers in the process). Research takes knowledge as a resource and requires infrastructure and funds, besides a supervisor, for a university-run doctoral programme. Now that updated knowledge and tools are freely available for academic research and plugging into an international group (for specialized knowledge and training) is a right-hand and left click away, why not open up independent research in the universities, without supervisors? Teaching-learning has been redefined post-pandemic; why not research? After all, it is counted in as a 21st-century skill, powered now by Artificial Intelligence!

A university doctoral Programme is demanding on the critical thinking abilities of a postgraduate (or an exceptionally bright graduate); and is training in methods and methodologies of research. Also, training in using the relevant tools and techniques; experimentation and data acquisition; data analysis and interpretation; and documentation of findings and communicating it. The young researcher gets ample opportunity to interact with peers, listen to experts, participate in conferences, get trained in the tools to be used, pick up analytical abilities, and acquire communication skills in the run-up to the dissertation. Much of it is built around or is dependent on the supervisor and there are a lot of unsavoury things/ experiences also (that remain unpublished). This hasn't changed for generations and is the primary reason for the perpetuation of incremental research in universities.

The researchers in universities have the advantage of taking huge risks and should be into blue-sky or beyond-boundary investigations; which sadly isn't the case as most settle for something more than the supervisor has done. One of the reasons I am prompted to write this is the change in approach I could see, the under-/ postgraduate dissertations are prepared. Conventionally, it is a literature review which sets the ground for research—the guide asking the research scholar to find the gap and define a problem/ hypothesis to proceed further. Of late, it is observed that the literature review is being conducted at the end, basically to fulfil the requirements of a structured dissertation/ thesis. There are a few reasons for this trend as I see—firstly, the problem to work on can be picked quickly from the internet or domain groups (without requiring a guide). Secondly, updated global research work is a click away which obviates the review of work already done. Thirdly, there are tools and techniques (including Artificial Intelligence) available to define the research problem. Today workshops are being conducted on Chat GPT enabling researchers to generate research ideas, refine questions, and improve proposals and manuscripts, the latest shot in the arm for

*Adviser, Technology Information, Forecasting and Assessment Council, Department of Science and Technology, Govt. of India, Technology Bhawan, New Mehrauli Road, New Delhi- 110016. E-mail: nrjsaxena@gmail.com

independent researchers! So why not promote doctoral Programmes without a supervisor? Let's be mindful that AI is going to completely change the way research is done.

Without a research supervisor, students have the freedom to pursue research topics and methodologies that align with their specific interests and goals; allowing for greater customization of their doctoral experience; enjoying the autonomy of cross-pollination of ideas and interdisciplinary research approaches; and seeking mentorship from a range of global experts. By removing the traditional supervisor-student dynamic and initiating doctoral programmes without research supervisors can stimulate unconventional thinking and foster innovation, potentially leading to groundbreaking research contributions. With the elimination of potential delays caused by supervisor availability or conflicts, doctoral candidates may experience accelerated progress and completion of their research projects. On the personal front, this would hone the critical thinking and problem-solving skills of the researcher while navigating challenges and making independent decisions. This would also develop an entrepreneurial mindset, fostering creativity, resourcefulness, and adaptability in pursuing their research objectives. Supervisor-free Programmes can, additionally equip doctoral candidates with the skills needed to excel in non-academic career paths, where independent research and problem-solving skills are highly valued.

Universities just need to open their mind to reflect on the proposition, and also their heart. Let a guide, to start with, be made optional (or be there as a collaborator) and push independent researchers against a high bar for publications; alternatively, a parallel doctoral Programme with an independent research path alongside the existing one can be opened. Not only will new fronts open for deeper explorations which will increase publications, the supervisors too will have to raise their quality or lose out to independent research; after all, it is not very high-quality papers that must be the output of doctoral Programmes but researchers as well. It is very common and unfortunate that a researcher after becoming a supervisor rests the oars and maximum publications emerge as co-authors based on the work of research scholars. Single-author publications are the true indicator of the metal and mettle of an individual researcher and independent research paths should formatively encourage this as well.

Persisting with supervisor-led research under university doctoral Programmes may increase the research papers (and researchers), but the unleashing is warranted for forays into multi-, inter-, cross-, or trans- (MICT) disciplinary domains needed for our

ascendancy in the Amrit Kaal (time span till 2047, the centenary of India's Independence); following trodden paths will keep us intact as followers. I know this would be earth-shattering, but that's how spaces for breakthroughs would be created and paradigms change. This proposition, in no way, challenges the capability of a faculty to supervise but examines the opportunity of improving the quality of research, researchers (including supervisors) and research culture in universities; needless to add they will have a wider choice of dedicated collaborators to pick from, for their projects. The ability to switch/ traverse into new areas should boost the confidence of young researchers (come as they do with exploratory and entrepreneurial proclivities) and this also needs to be encouraged by the agencies funding research especially when the National Education Policy (NEP---2020) stresses multidisciplinary education and research. They can access equipment and software valued in excess of Fifty billion Indian Rupees onboard the I-STEM (Indian Science Technology and Engineering Facilities Map-- an initiative of the Office of Principal Scientific Advisor to the Government of India) portal at a nominal cost.

The benefits of the upcoming National Research Foundation (NRF), expected to lead to the democratization of research, can be maximized in the true sense if doctoral Programmes with independent research paths are supported. More graduates, 'm-powered' as they are, would come forward to pursue research and this would massively boost research in MICT disciplines as well. As proposed in the NEP--2020, undertaking a doctoral Programme of study requires either a master's degree or a 4-year bachelor's degree with research. In the undergraduate Programme of 4-years (of eight semesters duration), the student has to complete a rigorous research project in the major area(s) of study. For those who have completed the 3-year bachelor's degree Programme, a 2-year master's degree Programme with the second year devoted entirely to research has been suggested. It is clear that before taking up the doctoral Programme, the student would have had sufficient exposure to research; add to it the free access to information, availability of online tools and guidance from multiple sources of choice--- wherewithal that previous generations of researchers were bereft of. Time is, therefore, ripe for changing the equation in university research from 'guided research- guiding research' to 'independent research- collaborative research' to accelerate research in MICT domains. Now that the world of information and knowledge stands democratized as do the AI-based tools, the pitch grows stronger for independent doctoral pursuit, chasing blue-sky and possibly for a 'Noble' cause too! □

Road to Physics Curricula: Some Thoughts in the Light of National Education Policy–2020 and the Role of IAPT

Chinmoy Kumar Ghosh*, Subhash Chandra Samanta** and Pradipta Panchadhyayee***

It has been the endeavour of the National Education Policy–2020 (NEP 2020) to provide direction to the nature of education which is at crossroads for multiple reasons. It has been realised by all the stakeholders that the process of implementation is not going to be smooth, and *inter alia* the curriculum transaction of every discipline will get affected, Physics being no exception. Here, an attempt has been made to provide an approach to design a need-based curriculum in Physics at the post-secondary level, by primarily falling back on NCF on ‘Teaching of Science’ and a survey conducted by the Indian Association of Physics Teachers (IAPT). Finally, compatibility with the recommendations of the NEP–2020 and an envisaged role of IAPT in the assessment and evaluation of learners have been highlighted.

Kickstarting the Issue

The most important keyword in this article is *curriculum*, and so we need to decipher its meaning threadbare. Most of us have a tendency to use the words ‘syllabi’ and ‘curriculum’ interchangeably. But, in education parlance, the meaning of curriculum goes beyond that. It tends to encompass the totality of the learning experience of a student that she comes across in her academic journey. It specifically refers to a duly planned array of activities that are conducted both inside and away from her parent institution and are targeted towards the attainment of the instructional goals of the subject concerned. The teacher-pupil, as well as peer group interaction among the pupils, play a crucial role in obtaining the proper perspective of the ‘curriculum’. The key issues of such interactions cover the instructional contents, the learning resources, both print and electronic and most crucially the assessment and evaluation of the processes targeted towards

attainment of the educational objectives. ‘Curricula’, the plural of ‘Curriculum’ unfold in several forms, which are as under:

- the explicit
- the implicit (which includes the hidden)
- the excluded, and
- the extra-curricular

Based on the norms of standardization outlined by all that have been stated above, curricula may be subject to elements of teacher and learner autonomy.

In the above backdrop we shall first make a review of the recommendations of the National Curriculum Framework (NCF) on ‘Teaching of Science’. Though the word ‘Science’ figures there, we shall consider these to be *applicable to Physics* in general.

NCF on Teaching of Science

The Position Paper on the issue of ‘Teaching of Science’ was released by the National Focus Group under the aegis of the National Council of Educational Research and Training in 2006. The salient features of the recommendations and observations are as under:

- An ideal Physics Curriculum should pass through several stages of validation, the criteria for which should cover the gamut of *Cognisance, Content, Processes, History, Environment, and Ethics*. The issues related to objectives, content, pedagogy, and assessment of the discipline at different stages of growth of the quintessential learner are quite intimate to the process of validation.
- It makes important interventions in the primary and upper primary stages. Though the learners do not get exposed to *Physics, per se* at these stages, the foundation of the subject gets developed through whatever little they learn about science. So, it is not out of the way here.
- At the elementary stages, that is primary and upper primary, the learner should be engaged in playful and joyful exploration of the world around her. The chief objective should be to arouse curiosity about

*Former Director, National Centre for Innovations in Distance Education, Indira Gandhi National Open University, Maidan Garhi-110068, New Delhi.

**Former Reader, Department of Physics, Midnapore College, Paschim Medinipur, West Bengal- 721101

***Associate Professor, Department of Physics, P K College, Contai, Purba Medinipur, West Bengal-721404. E-mail: ppcontai@gmail.com

- the people, heritage, culture, environment, and so on. She should be encouraged to do hands-on activities and thereby acquire basic psychomotor and cognitive skills. The child has to be asked to fall back on familiar experiences and her conceptual framework should get built on such edifices.
- While identifying the different components of pedagogy, a lot of emphasis has been given to group activity, meaningful interaction with peers and mentors, surveys, collection of data in a simplified form, and their public display through any exhibition organised by any academic institution or any local body such as an NGO actively involved in academia.
 - Continuous (formative) and periodic (summative) assessments through unit and term-end tests with the system of providing direct grades (not marks) have been recommended for evaluation of the learners. But there would be no detention and every child completing eight years of study would be eligible for entry to Class IX.
 - A learner gets exposed to Physics at the secondary stage as a part of science as a composite discipline. The learning should continue to remain activity based by making use of technology more advanced than that used during the elementary stages. Teaching-learning transactions at this stage should be characterized by discovery/verification method of principles.
 - Physics gets introduced at the Senior Secondary stage as a separate discipline with emphasis on performing experiments and problem-solving by the learners. The curriculum load needs to be rationalized so that the content gradient between the secondary and the higher secondary stages is not too steep. Recent advances in Physics should judiciously be identified for inclusion in the curriculum in an extremely user-friendly way so as to not make it esoteric. Stress should be on quality, not quantity, meaning thereby that the tendency of introducing too many topics without going into the rigour and depth of any one among them should be avoided.
 - Three problems have been identified in respect of science education in general, which are worth considering here. These are as under –
 - It has failed to achieve the goal of equity enshrined in our Constitution.
 - It might have been possible to develop competence, but it has not been able to breed creativity and inventiveness.
 - The examination system is the fundamental cause behind most of the problems besetting the meaningful learning of the subject.
- In an attempt to address the above issues, the curriculum comes first. For any science subject, it should be used as an instrument of social change. The textbook should be used as the primary instrument of equity cutting across the barriers of economic class, gender, caste, religion, and region. Information and Communication Technologies (ICT) should play a crucial role in bridging the social divide. It should be utilized as a vehicle for equating the opportunities across the gaps and extending the outreach of electronic resources.
 - Second, it has been strongly felt that quantity has been stressed upon, so much so that quality has taken a back seat. The escape route from such a scenario can only come through a paradigm shift in the overall attitude of dissemination of education, examination system, and so forth. Rote learning has to be totally discouraged. Skills of inquiry should be strengthened and duly supported by way of enhancement of proficiency in language and quantitative skills. Schools should encourage the learner to go beyond the textbook with an investigative approach to study. They should be able to strike a proper balance between co-curricular and extra-curricular activities with the objective of instilling the spirit of innovativeness and creativity among the learners. Non-formal channels of learning, like participation at science fairs, exhibition, etc. should be encouraged.
 - Third, it has been strongly recommended that examination reform should be taken up as a National Mission like any other critical mission of the country. It should be able to create a mechanism by way of which the entire intelligentsia of scientists, teachers, teacher educators, and technologists can be made to converge on a single platform with the objective of creating a testing scheme that would be able to assess the scholastic competence of a learner. It needs to be devoid of elements that trigger stress and the craze for memory-based learning. All such steps need the crucial prerequisite of teacher empowerment.

Now that we have placed the salient features of the recommendations on *Teaching of Science* by NCF, we shall shift our focus from science in general to Physics, in particular, by riding the vehicle of a very special document entitled – *Physics Education in India: Challenges and Opportunities* as envisaged in 1989 by Prof D P Khandelwal (DPK), a great visionary and Founder of the Indian Association of Physics Teachers (IAPT). However, before we do that, it would be worthwhile to have a brief about IAPT.

The Indian Association of Physics Teachers (IAPT) was established in the year 1984 by the great visionary, (Late) Dr. D. P. Khandelwal, with active support from some Physics teachers, with the aim of upgrading the quality of Physics teaching and Physics teachers at all levels. It has now grown into a major organization with about 6500 life members spread all over about 1500 organizations throughout the country including about 100 members from abroad. The members include school, college, and university teachers, research workers, science administrators, and science-savvy enthusiasts. For its grass root working, the country is divided into 22 regions, each with a regional council. The Apex Executive Council coordinates and directs the effort at the national level. The most striking feature of IAPT is that it is a voluntary organization. The members do not work for any pecuniary benefit.

Salient Features of the Documents Prepared by DPK

- Comparing the status of science education at the time of independence with that in 1989, it was remarked, "The gap between the world science and India has increased with time so far as physics education is concerned. With the same resources we could have done much better."
- The overall scenario of science education was considered to be quite bleak, and naturally it raised questions about any glimmer of hope, to which it was remarked, "... - the base on which we are standing is not only not growing in strength but is becoming weaker and weaker with time and it is on the point of collapsing. There is an increasing brain drain away from science in India so that what we get in science at the top echelons are poor human materials on the average." According to DPK, the

-" root cause of such serious lags is that we have failed to look at the entire structure of science education as an integral one..... science made compulsory up to the High School - a fine idea indeed, but with no intensive preparation, creation of scientific temper in the society is sought to be achieved through processions; and so on."

- As regards Research and Postgraduate Education, DPK has fundamentally remarked, *"At present, about 75% of our MScs are coming out of institutions where there are essentially no research activities."* The paucity of fund allocation in research has been identified as the root cause behind the lack of quality research output.
- There has been a serious concern about the relevance of physics and physics education in respect of the creation of jobs, the apparent absence of which needs to be dealt with firmly, and the students be enabled to focus on effortless learning of the basic concepts of physics.
- The process of evaluation is cardinal to the issue of assessment of the progress of a learner. In this regard, DPK has expressed serious concern about the fact that all the public examinations like NTSE, IIT-JEE, JEST, etc. only assess the students on the basis of their theoretical competence, and not even an iota of the practical component. Does not that mean that physics gets relegated to a theoretical-based subject!!!
- DPK's most valuable observations on child and their science education are:

"A child has a natural curiosity to explore, learn, and master. Since science provides additional experiences, it should attract the child more than other subjects. But, science education as it obtains in India, by and large, does not provide that additional excitement. Worse is that in the name of science, we ask for rote memorization, often of items that are well beyond comprehension. The result is that child is repelled from science. To him, science is a collection of statements....., not an area of exploration and excitement. That feeling is shared by the guardians and the public men. The overall result is that if the children and their guardians think about science at all, it is done in terms of the careers for which it is a compulsory channel. In effect, only those children stay in science who have an eye on a professional course."

- It is observed that over the years, there has been an increasing tendency to brain drain. In order to arrest this trend, we need to target increasing the number of quality science educators. In this regard, the guardians need to be mentally conditioned not to pressurize their wards to go only for examination-oriented study even at the cost of sacrificing their inquisitiveness. In this connection, the issue of internal brain drain should not be lost sight of.

A very crucial outcome of the above recommendations points to the issue of waning importance of laboratory work, which had always been so close to DPK's approach towards active learning of the subject. In view of that, as a part of the centenary celebration of DPK, a national-level survey work has been conducted to understand about the exact status of laboratory-based physics education at the 10 + 2 and the UG levels. The outcome of the survey is worth mentioning in this connection.

The Outcome of the National-Level Survey in a Summarized Form

- As per the teacher's perspective regarding the sincerity and seriousness of the performance of experiments, it was felt very strongly that various steps need to be taken to scale up the interest of the students in lab activity, in particular for the UG level. It has also been observed that the students generally fail to relate the topics in the theory syllabus with those included for practical. Lab work should be made commensurate with the theory syllabus, and the students are to be provided hands-on training on making equipment.
- Nearly 75% of the teachers surveyed at the +2-level feel that more than 10% of the experimental methods in the syllabus are outdated or new techniques need to be introduced. In contrast, nearly 80% of UG teachers feel the same. So, there is a need to update the lab syllabus to introduce new techniques in more than 10% of the experimental methods.
- Opinion was divided as regards the proficiency of the students in handling modern instrumentation in the UG lab. It was felt by more than 50% of the surveyed teachers that a good student can manage modern instrumentation on her own, while about 30% felt that the students at the UG labs get trained in modern techniques by the teachers. Rest was undecided. Notwithstanding such responses, the fact remains that adaptability to modern techniques is of crucial importance, and the matter needs to be followed up with a better degree of objectivity.
- The issue of handling modern equipment has a somewhat peculiar angle. On one hand, some of the teachers are reluctant to allow the students to touch new equipment procured in a lab as it is felt that they may be naïve, and on the other hand, most of the students are afraid of the unknown and unwilling to explore. It emerges that an approach to handle issues related to safety and mishandling needs to be outlined. Further, ways need to be thought of to address the issue of shortage of equipment.
- Nearly 75% of the surveyed teachers at both levels do not allow students to use alternate or different methods to perform experiments. The reasons for this low percentage need to be explored.
- Lab-orientation is a very crucial issue. A student should know about the 'Do's and 'Don'ts' in a Physics Lab. While the 10 + 2 level teachers by and large expressed that they involve their students in such an exercise, the response was not the same in respect of the UG level teachers. The reason behind the reluctance of teachers in undertaking the said activity is quite a matter of concern.
- The Physics lab should be able to promote the attribute of scientific integrity among the students. While in most of the cases the students honestly record the observed data, there are contrary experiences too. Honesty in respect of recording data inculcates a scientific temper, and so it is an absolute necessity. Aberrations from this trend need to be probed with utmost seriousness.
- Proper balance needs to be struck between the components of formative (daily) and summative (periodic) assessments.
- Special attention should be given to the identification of sources of errors and their determination. This feature gets missed out in several situations.
- Use of graphs for presenting the results and performing calculations needs to be promoted. While the students are generally inclined to do so at the UG level, the situation is not desirably favourable at the 10 + 2 level.

- Knowledge about the issue of significant digits in respect of expressing a result is very vital.
- Out-of-the-box thinking, like finding out alternative ways of performing experiments is promoted by some teachers. Some students also pick up the trait of trying experiments outside the lab, like at home, with inexpensive devices.
- There needs to be some provision for providing an essence of lab experience to a student before she actually makes entry into the precincts of a lab. It will, *inter alia*, de-intimidate a student about the lab situation, and make herself fearlessly undertake the journey of exploration.
- In the ultimate analysis, the situation in the laboratory in surveyed population is far more challenging at the UG level than at the +2 level. We need to take a look at the PG level to understand how things are at that level.

The Issue of Brain-drain

In common parlance, brain drain refers to the emigration of highly trained or qualified persons from a particular country to another. But, of late 'Internal Brain-Drain' is a cause for concern. It points to the fact that even the best institutions are failing to attract students to science disciplines, Physics being prime among them. These subjects are gradually being felt to be in the unproductive category so far as the creation of job opportunities is concerned. So, the socio-economic condition of the country turns out to be the chief bane in this regard. How to bring students back into the mainstream of science in general, and physics in particular, is a matter to ponder about.

Some Landmarks in the Roadmap Suggested by DPK

He felt the need for the development of a model UG Physics lab. It was visualized to be able to provide the opportunity to performance of about 100 physics experiments completely backed up by proper equipment, manually based on outcomes of suitably designed workshops with inputs from impeccable experts in the field. The Centre for Development of Physics Education (CDPE) at Rajasthan University has been a reasonably successful experiment. Such efforts need to be replicated in different parts of the country. Digital technology may be put to use in an effective way to increase the outreach of the

experiments, some of which can be utilized as tools for the demonstration of principles that may cause enrichment of deliberations in the theory classes. Instruments fabricated in such labs may be multiplied in a cost-effective way so that more and more students can reap the desired benefit.

Along similar lines, a model school-level physics lab may be prepared. Apart from developing competencies in students in respect of the performance of experiments, such a lab may be made to act as an educational hub for the creation of demonstration items, videos, learning content in the blended mode, and so on. The lab should *inter alia* be able to promote inter-disciplinarity among various science subjects. It should also be able to spread the culture of using inexpensive devices for the performance of direct experiments, which means experiments by way of which principles of physics get demonstrated directly. The training imparted to a student must be able to develop a kind of competence in her so that she feels inspired to even go beyond the boundaries of the lab to perform experiments. She should learn not to complain about the lack of facilities. Last but not least, teaching in theoretical classes should be complemented duly by the activities at such a lab.

Centres for Science Culture had also been a pet project of DPK. The idea behind having such a centre was to link science in general, and physics in particular with history, culture, traditional knowledge, and their likes. The idea was very much compatible with the concept of holistic education being promoted by the National Education Policy (NEP) 2020. DPK's efforts got the desired support from the then MHRD, now the Ministry of Education, Government of India, and funds were allocated for the creation of four Centres for Science Culture (now Scientific Culture), abbreviated as CSC, but IAPT could come out with only one at Midnapore College, West Bengal. The Centre has faced many problems, mainly administrative and financial, but it has survived over the years primarily due to the untiring efforts of a handful of teachers and student enthusiasts. The role of a CSC may be summarized in the words of DPK: "This is a new concept designed to spread the science culture in the society at large. My basic assumption is that classroom experiments and demonstrations are essentially the simplest ways of developing an understanding of science. Therefore, if we can assemble all such materials for visitors to see

and play around with, then it may form the nucleus of a CSC. There are many associated limitations. We may need to change the scale factor, put some additional control factors, and many details too. But there are many freedoms: we are not bound by time factor and sequence consideration, and we may seek assistance from audio and video media. Again, we can make an interesting mix of items from all branches of science, and have units related to exploration in history, geography, culture, etc where science-based techniques are used.”

With all its limitations CSC, Midnapore College has been successful, may not be in an overwhelming way; there are a lot of scopes for improvement, and let us face the fact that its sustainability is quite an issue.

Apart from CSC, there are other success stories as under:

The CDPE, Jaipur, already referred to above, has contributed quite significantly towards the growth of physics education.

Anweshika is also quite a successful experiment. Anweshikas work under an umbrella called the National Anweshika Network of India (NANI), under the aegis of IAPT.

The reason behind such enterprises catching up with the public imagination is that despite all their shortcomings, they have not yielded to the pressure of the scenario of otherwise dominant highly skewed rote learning. They have always been taking humble efforts towards making the understanding of science simple and elegant. All of them can be treated as movements in the arena of teaching-learning of science with the spirit of developing inquisitive minds, which *inter alia* inspires a learner to go beyond the classrooms.

There are other available ways and means for taking students beyond the classroom, which can be made available from time to time. These may be students’ participation in various competitions based on science, conduction of science quizzes, stage shows, and so on. Observing birthdays of famous icons of science, important days like National Science Day, National Environment Day, etc., and also, observing year-based phenomena like 2005, which happened to be the International Year of Physics, and so on.

The creation of locality-based science clubs, and at schools should be encouraged. These clubs should organize science fairs free from any kind of extravagance and with the one-point agenda of popularization of science.

Having said all these, can we provide a very *practical scientific* curriculum of science in general and physics, where ‘*practical*’ means ‘conforming to reality’ and ‘*scientific*’ essentially means ‘rational’?

Where Do We Go from Here?

The role of IAPT can play vis-à-vis the recommendations of the National Education Policy 2020

So, the die is cast. We have opened out a plethora of issues. How to remain afloat in such a big sea of problems? How can we find our curriculum of dreams? We are not going to spell out the curriculum *per se*, as it cannot and should not be part of a proposal. A curriculum must emerge out of careful deliberations made by experts in the field. Here we shall provide only the transactional strategy.

This is where we need to fall back on the recommendations of NEP 2020. The crucial among them are the following:

- Early childhood care and education and creation of foundation of learning (ECCECFI)
- Holistic approach towards studying a discipline (HATSD)
- Learning to be made enjoyable and engaging (LMEE)
- Experiential learning (EL)
- Development of scientific temper (DST)
- Equitable and inclusive education (EIE)
- Promotion of Indian languages, Arts, and Culture (PILAC)
- Technology use and integration (TUI)

It has been recommended that for ECCECFI, a learner will be attached to *Anganwadis*, Daycare centers, pre-schools, and so on. The foundation of learning should be based on the development of literacy and numeracy, but parallelly a learner should be exposed to different routine happenings related to everyday life and should be inspired to raise questions, like how does the electric bulb glow, how does the fan rotate, how does water come through

the tap and so on. They should not be provided with the answer, rather they should be aided to find the answers. *Anganwadis*, Daycare centres, and pre-schools are ideal places for such kind of tender-age nurturing. It is well accepted that there should be an emphasis on Basics and understanding of Basic Measurements at the schools, and these attributes would get a fillip by way of activities pertaining to ECCE.

Learners are to be sensitized about HATSD. In earlier days, science used to be called Natural Philosophy. The compartments between the different disciplines were apparently non-existent. The learners need to have a similar kind of orientation, of course by way of striking a proper balance between this approach and the issue of compartmentalization. The situation can somewhat be explained by saying that a learner need not try to resolve as to whether Michael Faraday belonged to the discipline of Physics or Chemistry; she should be concerned only about imbibing the knowledge in science created by Michael Faraday. Knowledge can cut across the disciplines of Sciences and Social Sciences and Literature as well. The mental make-up of a learner at this stage should be oriented in such a manner that she should not be hesitant to accept such facets of inter-disciplinarity and trans-disciplinarity at later stages of her upbringing.

It is quite needless to mention the importance of LMEE. A child is instinctively playful. We cannot expect her to be bookish. Such a trait gets developed with time. First, the interest has to be generated, and it can be made possible by way of making the process of learning for her playful and joyful. Several toys, kits, etc. are available in the market, which may be provided to the child at the *Anganwadis*, pre-schools, etc. and the child may be encouraged to play with such items at her home. Some parents may not be able to afford such items. So, efforts are required to encourage such guardians to make homemade toys and other playful items available to the child.

There is no alternative to EL. Swami Vivekananda remarked, "We may read books, hear lectures, and talk miles, but the experience is the one teacher, the one eye-opener. It is best as it is. We learn, through smiles and tears we learn". The learner should be encouraged to learn by way of experience. The most prolific ground for experiential

learning for a school student is her laboratory. But over the last quite a few years, there has been a declining trend of involvement of students as well as teachers in laboratory component; and it is very dangerous for science subjects. One of the reasons behind such a scenario is that for the national level competitive examinations like IIT-JEE, NEET, etc. the practical component never figures in the tests administered for the candidates, thereby virtually relegating physics, chemistry, and biology to theory-based disciplines. One expects that riding the vehicle of NEP 2020, a revival of laboratory components may take place in teaching-learning transactions of science.

It may be worth mentioning that DST has been enshrined in the Constitution of India as Clause 51A, Item (h) as a noble duty of a citizen. It need not be the monopoly of a student/teacher/researcher of science; it should be treated as a way of life. It should *inter alia* be able to inculcate in the student the spirit of inquiry, the mainstay of which should be scientific integrity, honesty, and fearlessness, the like of which was exhibited by Giardino Bruno, and Galileo Galilei. In the physics laboratory, the learner should fearlessly be able to record the data observed by her. If something has been observed contrary to the existing knowledge and belief, the learner should not be hesitant to present the same and analyse it. It will be a trait that will enable her to develop questioning skills, which bear the hallmark of a scientific temper.

Our country has an inherent tendency to tread the path of a socialistic pattern of society, where inclusiveness happens to be an unquestionable attribute. This inclusiveness should be all-pervasive cutting across the boundaries of tribes, castes, classes, creeds, regions, religions, and so forth. Further, in the globalized world with phenomenal advancement in technology, EIE rightly aspires to bring the downtrodden, the differently abled, and learners with special needs and talents into the mainstream fold of education. In this context, the teaching of science in general, and physics in particular has to embrace a new dimension which is compatible with the learning needs of these special categories. It calls for specialized training and orientation of the teachers.

NEP 2020 *inter alia* advocates for the teaching of science in vernacular language. It also promotes the

integration of art, culture, and heritage in a teaching-learning transaction of science. Thus, PILAC needs to be taken up in the right earnest in the context of physics education.

In the 21st century, technology has turned out to be the biggest game changer. All the benefits made available to the education scenario by the digital world should be exploited fully and TUI must come up in a very big way to aid physics education by recognizing the potential of Open Education Resources, Open Access, and other web-based resources. These should have the persistent back-up of audio-visual aids, mobile technology, robotics, augmented and virtual realities, use of sensors, Arduino, and so on targeted towards the enrichment of the physics curriculum.

At this stage, it is worth discussing the very thoughtful government-level initiative called ATAL TINKERING LAB (ATL). The objective of the ATLS is to make the learners in the schools conversant with the use of the latest technology and its multi-faceted applications. As of January 2023, ATLS have been established in about 15000 schools spread all over the country. In effect, the ATLS are akin to DPK's idea of Model HS Lab. If Government permits, then IAPT can use the resources of ATLS for the betterment of science education in the said schools as well as those located in their neighborhood, practically without any additional cost.

Having said so, we shall now conclude by stating the capabilities of the IAPT, which has in its track record the successful conductions of the following: -

- Umpteen workshops, and training programmes for teachers, students, and other stakeholders in multiple areas of physics and physics education at the levels of 10 + 2, UG, and PG. These are being conducted across the length and breadth of the country ever since the inception of IAPT. The key feature of all these workshops is the combined participation of the teachers and the taught. They use the pedagogy of Active Teaching-Learning Process (ATLP), where the learners actively interact with their peers as well as teachers, who conduct themselves as facilitators.
- Conventions at the central as well as regional levels involving a galaxy of eminent teachers and researchers in physics.
- Training programmes targeted towards special needs, most conspicuous among them being in the area of Physics Practical at 10 + 2/UG level to support the students who were largely deprived of laboratory facilities during the unprecedented existential crisis unleashed by the COVID pandemic. CSC, Midnapore, and Anweshikas have also contributed quite significantly to this initiative. This was accomplished in a hybrid manner which included online training having the backup of highly inexpensive home-based experimental kits.
- Competitions on innovative experiments presented by students by making efficient use of videos, podcasts, and other related methods. Here, the facilities of the ATLS may prove to be handy.
- Online science quizzes, elocution, and essay competitions on special occasions such as National Science Day. These have also been conducted in the offline mode at various schools and colleges throughout the country.
- National Graduate Physics Examination, National Standard Examinations in Physics, Chemistry, Biology, Astronomy, and Junior Science as base examinations for selecting the Indian teams for participation at the Olympiads of the respective subjects held at the international level. Among other things, it included the very unique task of online practical examination with proper means of surveillance, proctoring and evaluation.
- Organisation of Practical Examination: - It is understood that the schools have been given the responsibility of conducting the practical component of the Senior Secondary Level Examination in some of the states. It is unfortunate that such a step taken by the respective governments has given rise to the tendency of applying unscrupulous means in evaluation. It is a bane in our education system, about which everyone while being fully aware, prefers to remain silent about the issue. One wonders why a state government concerned cannot outsource the practical examination. If any such state government shows the inclination, then the corresponding Regional Council of IAPT will be happy to shoulder the responsibility.
- Special Research Orientation Programme for Non-PhD UG Teachers: As per the curriculum demand of the NEP 2020, Special Research Orientation Programme (SROP) should be organised for non-

PhD UG Teachers to cope up the emerging need of guiding students in research in the final (4th) year. This activity along with the role of liaison between academia and industry can be taken up as well by the IAPT.

- Issues have got raised about the reduction in the content of syllabus in the post-COVID scenario as well as the introduction of need-based vocational courses and skill development related courses. The expertise of IAPT can be explored for these purposes.
- DPK had opined that JEEs should be appended with testing the practical skills of the candidates aspiring for admission into professional courses. With the advancement in technology and the IAPT experience of conducting practical component of National Graduate Physics examination with the use of technology, it is quite possible to organise such skill test for JEE candidates also. Again, IAPT can help the Government, if it takes an initiative in this direction.

The most redemptive feature of the above capabilities is that the training programmes, workshops, etc. conducted by the IAPT have equal emphasis on theory and practical.

Conclusion

- The above credentials are indicative of IAPT's capabilities of meeting the requirements of ECCECF, HATS, LMEE, EL, DST, EIE, PILAC and TUI which are attributes of NEP 2020.
- The platform of IAPT can be gainfully utilized to organise relevant training and orientation programmes for suitably equipping the stakeholders concerned.
- Through this document an appeal is being made to the authorities (may be the Ministry of Education and/or DST) concerned to provide the platform to IAPT to make a dent in physics curriculum development at the senior secondary level. Once it is realized, IAPT with the desired support from all concerned will come out with a physics curriculum

compatible with the recommendations of NEP 2020

- It is being suggested that IAPT be given a scope to brainstorm with national level experts in the area of Physics and Curriculum Development, and members who are responsible for providing logistic support with the ultimate objective of designing a suitable curriculum with elements, as stated above.
- Last but not the least, the resourcefulness of IAPT be utilized gainfully for conduct of practical examination, which is a move having the desired potential of ultimately giving the component of practical its due importance in learning science.

Acknowledgement

We thankfully acknowledge the valuable comments and suggestions of the esteemed members of RC 15, IAPT.

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Rejuvenation of Andragogy for Sustenance in Quality Higher Education

Shivakumar U Ganachari*

The purpose of adult education is to help them to learn, not to teach them all you know and thus stop them from learning.

Carl Rogers

Quality stands forever in the forefront till the sun rises in the East. It produces only top-notch results in every stage. The ancient contributions: of knowledge, research, teaching-learning process remain illustrious in our learning even in the 21st century. The reason behind the superlative degree of the ancient approach in learning is that continuous learning and the quest for gaining knowledge in their domain made all of us take a leaf out of it in the educational practice. The revival of the learning process should be an integral part of teaching-learning. Without showing strong intent in the upgradation of knowledge, explorations of new dynamics in curriculum design and its delivery enhancement are quite challenging in higher education. The attitude of learners, relearn and unlearn should be kept alive in higher education to stay relevant.

Nothing is permanent except change. Quality plays an exceptional role in bringing change in all forms of life education is no exception. Since the dawn of civilization, the upgradation of the learning process has been an integral part of human evolution to stay remain relevant. The word quality, sustenance, competencies, faculty development, and upgradation of knowledge have been buzzed a lot more than earlier. It means a saturated mind has no place in the contemporary world. The pace of higher education has been reshaped to ensure quality outcome-based learning, enhancing competencies, and employability skills, and strengthening research by building a robust academic ecosystem for effective teaching-learning. The globalized world is focusing more on outcome-based learning rather than mere documentation and Marksists graduates. Reformation and curriculum design alone will not bring change in the learning process of the learners. It is the approach, classroom preparation of

facilitators, and the use of andragogy content-wise that holds significance in adding value to the learners learning. Curriculum design visualizes the line of execution whereas andragogy substantiates effective and outcome-based learning. In the fast-changing scenario, both universities and colleges need to focus on the exploration of andragogy to enhance effective classroom delivery. The world is looking forward the quality learning and outcomes from educational institutions for a better place to live in. Improve the transparency of individual qualifications through the defined learning outcomes; (NQF 2023) We design curricula to prepare graduates for an uncertain world, equip them with the knowledge and skills of their chosen profession, and give them a competitive advantage in a globalized and competitive workplace. These issues are emerging as significant challenges for universities and teachers of today (Curriculum Models for the 21st Century) Understanding students' experiences and managing their expectations are integral to the provision of an effective and engaging curriculum (Oblinger and Oblinger, 2005. P 74)

Therefore, the strategic approach of facilitators should help learners to enhance their learning ability. It should also guide them in participatory learning, autonomy in learning, interactive learning, and collaborative learning. The redefinition of the teaching-learning strategy alone will be the instrumental upgradation of knowledge. Learning and performance are best fostered when students engage in a practice that focuses on a specific goal or criterion, targets an appropriate level of challenge, and is of sufficient quantity and frequency to meet the performance criteria. (Seven Research-Based Principles for Smart Teaching Susan A. Ambrose (2010)

What is Andragogy?

Malcolm Knowles coined the concept ANDRAGOGY in 1968, meaning "the art and science of helping adults learn". In the line of the term PEDAGOGY meaning "the art and science of helping children to learn"; andragogy referred to adult learning.

* Assistance Professor, Soundarya Institute of Management and Science, Bengaluru- 560073. E-mail: suganachari@gmail.com

Why Andragogy in Higher Education?

The concept of andragogy is not a new one, it is more than 3 decades old. A lot of thinking, theorization practical observation, and research were conducted on the topic. Adults learn differently as compared with children. There is a difference in development and learning tasks. Higher education is a decisive stage in building the passionate career of learners. The role of facilitators is instrumental in bringing transformations in learning. The classroom delivery should focus more on harnessing knowledge and enhancing learning ability through a self-directed process. Andragogy encourages conducting classes on experiential learning, interactive, and collaborative approaches. Since higher education is all about dealing with mature learners where apt ecosystem needs attention to strengthen through robust academic ambience. Higher education strives hard to strengthen outcome-based education. To achieve these objectives facilitators should rejuvenate their learning approach from time to time. Quality outcomes of higher education is depending on curriculum delivery. Without proper planning of curriculum implementation and delivery of quality outcomes, outcome-based learning remains a pipedream. Time is apt to educate educators on exploring andragogy for better learning outcomes in higher education. It also plays a significant role in the capacity building of learners and the quality sustenance in higher education.

Table:1 Comparison of Pedagogy and Andragogy

	Pedagogy	Andragogy
Learner dependence	The art of teaching through methods to children. Or dependent learners	Andragogy is the facilitation learning for adults, who are self-directed learners.
Learning Resource	Teacher driven classroom	Both facilitators and learners play a role
Learning Reasons	Gaining knowledge to the next level process	Performance driven classroom
Learning Focus	Subject centred learning	Problem solving process
Motivation	Required motivation	Self-driven learning
Teaching Role	Dependent on designer	Collaborative learning

Curriculum Design, 21st Century Skills, and Andragogy Compliment Each

The core values of learning will not be changed but the use of terms keeps changing according to the changing scenario. Education needs to manifest the knowledge of the learners through academic robustness. To sharpen the learning ecosystem through the upgradation of facilitators' knowledge, and rejuvenation of learning tools holds premier. Since the majority of higher educational institutions are affiliated with the universities. They need to implement and prepare a strategic academic plan to deliver the curriculum. To meet the aims and objectives of the curriculum, institutions should have structured academic planning and strategy through common educational technological tools. It helps to achieve the core values of learning, graduate attributes, and mapping the learning outcomes. Educational institutions need attention to understand the learner's needs and meet their expectations. Due to the mediocre classroom delivery, focusing on examination-oriented teaching, centum scoring, attituding of facilitators is building a lacuna between education and employability skills. As a result, the contemporary world is looking forward to 4C's from graduating students namely, competencies, critical bent of mind, creativity, and effective communication skills. To achieve the objectives of 4C's andragogy provides a conducive learning environment. It guides to exploration of different dynamics to develop competencies among the learners. Facilitators should give proper attention to integrating curriculum to experiential learning, Collaborative learning, and opportunities for self-directed learning under mentor and mentee. At the same, the facilitators should also identify the modules which develop and connects to Bloom's Taxonomy's Cognitive, Affective factors, and Psychomotor. Through this, the mentor can create academic learning to develop skills, competencies, and the ability to perform in all circumstances. Since higher education emphasizes skills, experiential learning, imbibing life skills, and overall employability skills in the present scenario. Andragogy and ICT tools provide the perfect platform to develop these skills among learners. (a) Cognitive and creative skills involving the use of intuitive, logical, and critical thinking; (b) Communication skills involving written, oral, literacy, and numeracy skills; (c) Interpersonal skills and generic skills that a learner should possess to perform a task or a job

competently, productively, and independently (NQF-2023).

Table:2 21st Century Learning Skills

	21 st Century Skills	Why it is required?	
1	Critical thinking	Finding solutions to problems	1. Andragogy and Educational Technological tools help to develop strategic planning to delivery Curriculum. Ex: Flipped classrooms, CALL, MALL ...etc 2. Lesson Plan will provide insights to map each module to develop 4C's
2	Creativity	Thinking outside the box	
3	Collaboration	Working with others	
4	Communication	Connecting with people	

* CALL: Computer Assisted Language Learning

* MALL: Mobile Assisted Language Learning

* Flipped Classroom: Provides an opportunity for self-directed learning

Indeed, the academic plan of action of facilitators holds the key to cultivating the culture of continuous learning among the learners. The programs must articulate an action plan for achieving the educational goals in terms of comprehensive learning resources for learners (Draft NAAC White paper 2022).

Attention Required to Heutagogy for Higher-order Thinking Learners

Heutagogy, known as self-determined learning, is a student-centered instructional strategy. It emphasizes the development of autonomy, capacity, and capability.

Higher education is a decisive platform in the career of learners. It is also considered a diversified group where it needs attention and robust academic planning for the capacity building of the learners. Since higher education classrooms deal with mature and adult learners who require to sharpen their learning process based on varied interests. With the heutagogical approach, the learner evolves from a passive recipient to an analyst and synthesizer. These are some of the most valuable skills for students as they interact with a world

where knowledge management—or curation—is more valuable than access. Heutagogy emphasizes a learner-centered approach it motivates the learner to take active participation in learning and problem-solving. It also enriches cognitive skills, and creativity and equips with transition workforce. The National Education Policy 2020 main objective is to strengthen the learning attitude of the learners for ensuring employability skills and research through independent learning.

Thus, heutagogy helps to improve the learner’s ability and also guides independent learning. Since we are striving hard to upgrade quality higher education by internalizing through graduate attributes. So, both andragogy and heutagogy are apt strategies to accelerate learning. To become self-directed learners, students must learn to monitor and adjust their approaches to learning. Seven Research-Based Principles for Smart Teaching Susan A. Ambrose (2010).

Sustenance of Quality in Higher Education: A Wake-Up Call... or Need to Way Forward?

Today, in the 21st Century the idea of education has taken a new dynamism in terms of learning, harnessing skills, and developing competencies among the learners. “Quality higher education must aim to develop good, thoughtful, well-rounded, and creative individuals” (NEP–2020). In addition to this, the advancement in science and technology, and the redefinition of educational technological tools are the guiding and emerging force in modern education. The upgradation of knowledge, research bent of mind, and innovative content delivery have taken a new shape in teaching–learning. The ultimate function of education is to empower the young to strive towards their well-being (Draft NAAC White paper 2022) The adjustment with changing pace is the biggest challenge to the educational institutions and facilitators in general. It is also posing a serious challenge to the sustenance of quality in higher education. It is observed that Indian higher education is unable to produce quality, competent students. Even accreditation agencies substantiate the claim. ‘Education in India is not competitive in terms of quantity and quality with other countries. Quality in higher education is a burning issue that can be ensured through regular review of the function of the institutions either through self-assessment or through outside agencies and by accrediting the institutions.

The glimpse of higher education in India appears to be deep-rooted in malfunctioning in producing mediocre graduates. The graduates without employability skills, and unable to justify the fairness of the degree. It is unfair to blame the learners who are the puppet of the system. I strongly feel facilitators need to introspect on classroom delivery and; are we giving justice to the curricula and the learners? The world is moving by leaps and bounds in bringing transformation in higher education to sustain and survive we have to revive by upgrading our knowledge, and learning process and strategically exploration of andragogy and heutagogy for the betterment of academic vibrancy. The true transition and transformation of higher education happen when the facilitators adjust to the pace of changing scenario that is the beginning of quality sustenance. I do believe 21st-century developments, and National Education Policy--2020 will help us to galvanize in setting a quality benchmark. If not now; will never.

Conclusion

The fundamental philosophy of teaching-learning will not change but the use of terminology and interpretation get a new dynamism. The approach to learning and strategic usage of ICT tools will be redefined at regular intervals. Facilitators should imbibe the thrust for honing skills, knowledge, and openness for learning which, rejuvenates them to excel in academic enrichments. As Paulo Freire aptly said Education either functions as an

instrument that is used to facilitate the integration of generations into the logic of the present system and bring about conformity to it, or it becomes 'the practice of freedom', the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world.

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Optimal Learning Environment for Higher Education Students in the Context of National Education Policy–2020: An Analysis

Prasenjit Das* and Pranab Barman**

Education is the key to human evolution; a nation's growth and development depends on its education system. To enhance education, there is a need for encouraging plans and policies to provide a concrete path. National Education Policy--2020 offers an elaborative framework for developing the nation's education system. The current policy is the third in the sequence of the National Education Policy and replaces the NEP of 1986. Education aims to help people develop their capacity for all elements of human existence. As a result, it helps prepare the next generation to be the optimal member of society regarding their mental, physical, and bio-physiological foundation. The success of a student's education will be directly impacted by their access to an ideal learning environment since we are all aware that a nation's educational system relies heavily on its students. In such circumstances, the educational system should be revamped with specific policies and commissions for the overall growth of pupils in the nation (Kumar, 2022). Several commissions and policies have been created in India to advance the educational system. By establishing several programmes and policies, the Government of India has significantly altered the area of education from pre-independence to the present. The National Education Policy, which replaced the preceding National Policy on Education in 1986, was introduced by the Indian government in July 2020. The policy focuses on five pillars i.e. affordability, accessibility, equality, quality, and accountability to enable ongoing learning (Kaurav et al., 2021). The policy aims to give everyone access to a high-quality education, lifelong learning opportunities, and complete and fruitful work.

The National Education Policy 2020 is an important document and a source of guidance for reforming the Indian educational system. In order to help India become a knowledge powerhouse, it emphasises the goal of better access, fairness, excellence, inclusion, and affordability (Das, 2022).

* *Research Scholar, Department of Education, Raiganj University, West Bengal-733134. Email- pdas1534@gmail.com*
***Assistant Professor, Department of Education, Raiganj University, West Bengal-733134. Email:pbarmanskbu@gmail.com*

The Gol's revolutionary strategy will completely overhaul education by advancing pedagogies, knowledge development, creative delivery methods, and integrated administration of educational systems (Gupta & Gupta, 2021).

Furthermore, it was correctly said that higher education has a significant role in determining the economy, social standing, acceptance of technology, and healthy human conduct in every nation. The policy's key objectives are to expand high-quality higher education across the nation. The strategy for higher education is centred on offering a flexible curriculum via an interdisciplinary approach and having several exit points for students' output (Umachagi & Selvi, 2022). As one of its most essential suggestions, the strategy aims to turn HEIs into major interdisciplinary universities and HEI groupings. In addition, the strategy offers a broad-based liberal education via a comprehensive yet flexible curricular framework, inventive course combinations, the integration of practical training, and many entry-exit points. The HEIS will be granted autonomy regarding academic, administrative, and financial support under this strategy (Kurien & Chandramana, 2020).

The 2020 policy covers a wide range of topics in higher education, such as recognising, identifying, and fostering each student's unique abilities; flexibility in learning; no strict stream separation; holistic education; and the emphasis on constructivism, conceptual understanding, creativity, and critical thinking (Panditrao & Panditrao, 2020). It also encourages multilingualism and the power of language in teaching-learning; life skill instruction; regular formative assessment for students; and etc.(Gupta & Choubey, 2021). The guidelines also include a section on utilising the classroom setting best for students at a higher level. The goal of the current paper was to concentrate a strong emphasis on this factor. The prime objective of this investigation therefore is to study the optimal learning environment for higher education level students in the context of NEP 2020. The study also sums up the positive and negative aspects of the optimal learning environment at the higher education level. The data used in this study are secondary data

which are descriptive in nature. Here, the researchers have collected the data from various journals, books, reports, magazines, internet sites, newspapers, etc.

Optimal Learning Environments and Support for Students

Learning environments are improved when teachers allow students to practise what they are learning and actively interact with resources and others. Designing physical and social settings that optimise instructional time and facilitate learning for everyone is crucial (Chattopadhyay, 2020). The National Education Policy 2020 emphasises the following factors contributing to a positive learning environment and student support.

Effective Learning Environment

Building a comprehensive strategy that includes appropriate curriculum and continuous assessment as adequate curriculum support is advised by NEP---2020. Those are prerequisites for high-quality higher education learning (Das, 2023). This strategy focused on offering a stimulating and encouraging learning environment combined with the necessary tools and infrastructure, such as libraries, labs, classrooms, sports and recreation areas, student discussion areas, etc., to achieve sustainability in the higher education system (Gupta & Gupta, 2021). The suggestions that are made below are centred on how to provide students in higher education with a productive learning environment:

- The college/university curriculum has to be engaging and relevant for the pupils. It must also include current information and specifications for the best learning results.
- To identify the student's learning experiences, which will aid in effectively transferring the curriculum information, pedagogical practise is required.
- At the higher education level, there should be an emphasis on encouraging students to establish strong ethical foundations, psycho-social well-being, etc.

Autonomy in Higher Education Institutions

In order to create the best learning environment possible in higher education institutions, the policy proposed giving faculties and institutions complete autonomy to innovate on curriculum, pedagogy, and evaluation within a wide framework. Every HEI must have extracurricular activities in its curriculum, such as organisations and events devoted to science, mathematics, poetry, language, literature, debate,

music, etc., along with relevant academic knowledge and a suitable campus.

- As part of its more extensive institutional Development Plan, each institution will integrate all its academic initiatives, from curriculum development to improving the quality of its classroom interactions (IDP).
- Institutions must develop a robust internal framework to assist a diverse student body in various academic and social contexts.
- Every faculty member must be able to educate students to provide holistic development; professors at this level must be capable of more than just classroom instruction; they must also be able to serve as mentors and guides.

Student Achievement

With regard to the evaluation of students' accomplishments in higher education. The suggestions made by New Education Policy 2020 are as follows:

- Higher education institutions should choose the evaluation method, not the students, to guide them to the final certificate (Wankhade, 2021).
- The assessment system will be more equitable and based on similar learning outcomes if HEIS switches to a criterion-based grading system, which will evaluate students' assessments in accordance with their learning objectives (Aithal & Aithal, 2020).
- The assessment and examination systems should switch from high-stakes exams to continuous and comprehensive evaluation (CCE).

Continuous Support for Disadvantaged Background

All students need specific assistance and motivation from the educational system as well as from society in order to finish their higher education. The policy has made the following proposals in order to motivate pupils from socioeconomically disadvantaged groups:

- Universities and colleges can establish top-notch support centres for students. Higher education institutions (HEIs) must provide specific funds and academic resources for the students to achieve their objectives. The HEIs should specifically support and encourage students who come from different socioeconomic backgrounds (Gupta & Gupta, 2022).

- Academic and career counsellors who are qualified in their fields must be accessible at higher education institutions to safeguard the students' physical and emotional well-being.
- Students would participate in various clubs, such as sports, activity clubs, culture and art clubs, etc., for high-quality engagement.

Achievement of Global Quality Standard

All classes at the higher education level, including in-person, online, and ODL, as well as student support services, will strive to meet the highest standards of quality in terms of all programmes, courses, and pedagogy across all subject areas. The following are NEP 2020's recommendations for achieving the global quality standard:

- The Policy strives for global quality in its instruction, which will aid in attracting a sizable number of international students to India (Saxena, 2020).
- Higher education institutions must give Indian students who desire to travel, study abroad, transfer credits, or conduct research abroad more mobility.
- The policy aims to promote specific courses and programmes, such as Indology, Indian languages, Yoga, Art and Culture, History, etc., to achieve the objective of a global quality standard (Inamdar & Parveen, 2020).

Internationalisation

Through interactions between various educational systems, internationalisation of higher education encourages the distribution of best academic and research practises and aids in the development of global citizens through the mobility of students and scholars from various nations. In this respect:

- The Indian universities that received good performance ratings will be encouraged to open campuses abroad.
- Special emphasis should be put on promoting student exchange programmes and research collaborations between Indian universities and other international institutions.
- The credits earned from international universities are also eligible to be counted toward the award of a particular degree.

Student Participation

Since students are the main stakeholders in the education system, it can only function with them. The following recommendations have received comments from the 2020 policy regarding student participation in higher education:

- Systematised support will be provided to students from low socioeconomic backgrounds on their needs.
- Every educational institution must have a counselling programme to help students deal with stress and emotional changes, and all HEIs must provide high-quality medical care tailored to the needs of their students (Goel & Goel, 2021).

Financial Support for Students

Financial and economic assistance may help students achieve their objectives. NEP 2020 has made the following suggestions in this regard:

- The HEIs should provide financial aid to needy students so that no student is denied the opportunity to pursue higher education.
- To ensure students' financial assistance, the "National Scholarship Portal" will be enlarged to include public funded institutions' stipends, board, and lodging (Banerjee et al., 2021).
- Private higher education institutions will also provide scholarships for their students, ranging from 100% to 25% for half of them (Gupta, 2021).

Critical Analysis of NEP 2020 on Optimal Learning Environment at Higher Education Level

Positive Sides of the Policy

- The National Education Policy 2020 creates a framework for efficient self-regulation that will enable higher education institutions to operate with more autonomy (Singh & Baghel, 2020).
- The policy aims to permit the establishment of campuses by various Foreign Universities in order to support the creation of an ideal global learning environment in HEI. The concept of internationalising education will assist in mobilising students, faculty, and programmes across the nation.
- Because the policy seeks to establish institutions that offer a range of programmes with excellent teaching, research, and community engagement, students will benefit from this because they will have more flexibility and options across different streams (Majhi, 2021).

- The policy gives the ODL system and online education much attention, which will help close the gap between students and institutions.
- Promoting financial aid for students from disadvantaged backgrounds will ensure their overall development and future productivity.
- HEIS will determine the final certificate after consideration of various assessment methods. In order to provide HE students with the best opportunities, the Choice Based Credit System (CBCS) will be updated for innovation and flexibility in this regard (Suryanarayana & Kumar, 2020).
- The policy aimed to establish top-notch support centres and provide professional and career counselling at higher education institutions to develop student's academic and social aspects (Das & Barman, 2021).

Negative Sides of the Policy

- Although this policy has been in place for almost two years, less progress has been made in this area if we had focused on creating a conducive learning environment for students in higher education. The promotion of this area at the grassroots level needs more attention from planners and policymakers.
- Although the NEP emphasises merit-based admission and faculty recruitment, most students and faculty were left behind due to unequal credit distribution.
- One of the primary goals of this policy includes a quality higher education that must enable personal accomplishment and enlightenment, as well as public engagement and productive contribution to society. For a better educational outcome, every university must use the same grading system (Yadav & Yadav, 2023).
- One of the main issues the Indian HEIS is now dealing with is the poor quality of undergraduate education by massive institutions with affiliations. Despite the policy's intent to establish credit banks and equity in the appraisal process, it still needs to be implemented.
- The strategy should have focused on systematically constructing in-house research units to publish high-quality research and share with international indexing organisations to create the best learning environment possible in colleges and universities.

Conclusion

How can we claim that educational institutions are caring for students' emotional, physical, and social needs in the current global era of technology and innovation? The 2020 policy clearly states that all students must be supported and that we must involve them in pedagogy and learning; otherwise, classrooms should not be used as lecture halls or classrooms but as the best possible learning environment. The students need to be in a safe, democratic environment. Here, students need to start from scratch. A teacher should give students the most diversity and who can engage in the best development environment possible. HEIS should develop the student's family, social, and professional lives and should vary depending on the curricular or extracurricular areas of higher education.

Additionally, higher education curricula should include constitutional studies to teach students about India's constitution. Higher education levels can create the best learning environments for students by incorporating legal awareness and happiness studies (Sibi & Miranda, 2022). In order to prepare students for an ideal environment and a better state of mental health, the policy should also emphasise mental health plans for students in higher education. The programme should be designed with a broad curricular framework that includes all necessary subjects to promote overall development (Shukla et al., 2022). In conclusion, it can be said that NEP--- 2020 is a welcome change and unquestionably a step in the right direction toward a thorough transformation of the educational system that will bring about the country's NEP's excellent academic transformation.

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Execution of Ideas is the Key to Progress

Jagdeep Dhankhar, Hon'ble Vice President of India delivered the Convocation Address at the 25th Convocation Ceremony of Indian Institute of Technology Guwahati, Assam on July 04, 2023. He said, "When you walk out with your degrees, you will be the envy of the world, there can be no failure by you, you will be contributing massively. Keep one thing in mind, respect for your teachers, regard for your parents, and resolve that you will give back to society. I have been advocating an idea for a long time, Alumni is a strength of an institution, There must be a federation of Alumni associations that will be the richest think tank for the development of the nation." Excerpts

I am extremely delighted to be in the land of Assam, the land of majestic and mighty Brahmaputra. The Asthaxmis of the North East are blessed with this wholesome and sublime confluence of nature and culture.

I had the opportunity to know more of this region when I was the Governor of the State of West Bengal and was Chairman of Eastern Zone Cultural Centre.

Blessed by *Maa Kamakhya* and the saintly spirituality of Srimanta Sankardeva, Assam is known for the rich history of great Ahom rulers and their legendary Lachit Borphukan. Let me remind you with great pride when we look back into our historical perspective, the battle of Saraighat in 1671 and the mughals were trounced.

The vision of the Hon'ble Prime Minister Shri Narendra Modi in initiating the 'Look East - Act East' policy is bearing rich dividends. IIT Guwahati is an epicentre because those who get out of this university as graduates are impacting life nationally and globally.

The North East recently and because of the visionary initiative of Hon'ble Prime Minister has been given its rightful place in the national and historical narrative.

Friends, Convocation is indeed a momentous occasion, it is a reward of your painstaking work. It is at this juncture you come to love your teachers who had been very harsh. It is at this juncture you learn the sacrifice of your parents and this is something has resulted in this day which you will ever remember in your life. Congratulations to all the degree holders for well earned and well deserved recognition. Wherever you will go in the world the tag "IIT Guwahati" will make a difference as in the world now the Indian passport is making impactful difference. The recent

visit of Hon'ble Prime Minister to United States, the impactful results it had, I'm sure we never dreamt of it. Artificial Intelligence has become America-India, both are equally impactful.

My young friends, the nation has great expectation from you and rightly so because you will take, mark, and control in upsurge of Bharat at 2047. India's phenomenal unprecedented growth and rise is a defining moment not only for the nation but for the entire world.

India at the moment is the Chairman of G-20. You would have seen activities all over the country, including your Institute. And the message that we are giving to the world that is the essence of our civilisational ethos 'One earth, one family'.

Beyond doubt technology will ensure surge towards Bharat being at top in 2047. Contemporaneous global and national scenario indicates that this century will witness emergence of Bharat as a global economic leader.

Series of affirmative steps at State and Central level has been taken and they have ensured exponential growth of this country, in a manner in which we could have never imagined. And I say so because; I got in Parliament for the first time more than 30 years ago in 1989. I know the scenario then and I know the situation now.

India today is a global destination of investment and opportunity. I had an occasion to meet IMF President twice, she calls India a "bright star in the economic world". The rise is reflected in the country becoming the 5th largest global economy in 2022. In the process we surpassed our erstwhile colonial rulers. Just a decade ago, it was the 10th largest economy. And I have no doubt and those who know, economists are sure about it that India will be the 3rd largest economy by the turn of the decade. The rise of India is unstoppable.

There has been transformational and impactful adoption of technology by India in recent years. We could never imagine in a country of more than 1.3 billion people, how swiftly they have adopted technology.

In 2022, \$1.5 Trillion transactions were digital, India accounted for more than 46% of that. If I put it to you, Digital Transaction in 2022, after combined digital transactions of the US, UK, Germany and France, multiply it by four, we are still ahead of them. Could you ever imagine? And mind you digital transformation is not just technology alone, the Human resource have to accept it. This has happened in village with farmers, with workers and that's an achievement, an accomplishment. The world is looking at us. Let me tell you something which I shared with the world leaders, that India is the only country in this world that has made available to its citizens Co-Vaccine certification digitally. It could not even happen in the west. That is where we are at the moment.

Friends, when it comes to internet users, we have more than 700 million but Per capita mobile data consumption, ours is more than that of United States and China taken together. And this is something which we all should be proud.

I urge you friends, on this occasion because you will be taking leap into the larger world, henceforth, those who are getting degrees today will be alumni of this prestigious institution. I'm sure they will bear in mind the sage advice imparted a while ago by Hon'ble Governor of Assam.

Remember what Swami Vivekanand said at one point of time. And friends always remember it because one of the greatest problems young minds face is fear and that fear is the fear of failure and they take failure as stigmatic. When an idea occurs to them they allow the idea to be parked in their mind, but do not execute it. Mind is not a place where a brilliant idea needs to be parked merely because you think there can be failure. Give up that fear. Therefore, I recollect what Swami Vivekanand said, "Take risks in your life. If you win, you can lead. If you lose, you can guide."

Affirmative governance policies allow you to unleash your potential and energy and achieve your aspirations and dreams. Your institute along with others is creating incubating centres; there are

innovation parks for budding entrepreneurs. I can tell you friends it is an idea which in your mind and you are capable of creating. Execution can take place even by mediocrity. So please take lead.

National Education Policy (NEP) 2020, the country got it after three decades. And before the NEP could be crystallised, lakhs of inputs were analysed. The policy turned out to be a game changer. This has turned out to be revolutionary. This has become a conveyance of transformative mechanism to change the world, including India.

Skill has been given prominence. Certain things that were dragging us have been given up. Technology has been introduced. And now the day is not far when India took pride that we had institutions in the past like Takshila and Nalanda. Our Institute like IIT Guwahati and others is matter of time, will rise to that level.

Friends, let me share something in which I suffered. I was throughout a topper of my class. I was in great fear that what will happen if I don't come at number one. I lived with that fear, stress and tension. It was too late in the day when I learned कुछ ज्यादा नहीं होता, दोस्तों से कुछ ज्यादा बात कर लेता, कुछ खेल लेता.. so never have tension, stress and competitiveness to beat others. Excel yourself with yourself and that I'm sure will give you rich dividends.

You are lucky to be in Amritkaal, to be in a time particularly after 2014, because before 2014, the country had coalition governance for three decades. I was a Union Minister from 1989-91, in a government that was a combination of more than 20 parties, and I was a junior minister for Parliamentary Affairs. In 2014, after a long gap of three decades the country had one party majority, which was reemphasized in 2019. That is why we could get rid of Article 370 of the Indian Constitution changing the life of the people of Jammu and Kashmir. This historic justice, why did it take seven decades? Article 370 was labelled in our constitution as a temporary article, I don't think a temporary thing should last that long.

Friends, there is another thing on which I need to invite your attention. Our constitution was given to us by very wise and sagacious people, Dr. B R. Ambedkar was the Chairman of the Drafting Committee and they had included a very important part in the constitution with respect to Directive Principles of State Policy. They were certain that

these principles are fundamental in governance of the country. So the Directive Principles have been termed by the framers and founding fathers of our constitution as 'fundamental in governance of the country'. It is the duty of the state to apply these principles in making laws.

Friends, this has happened over the years Panchayat was a Directive Principle, constitution was amended and a structured mechanism for Panchayats evolved. Cooperative was another; we have seen them turning into constitutional status. Right to education was another, we have made laws. In that premise, I am somewhat stunned by the reaction of people, when there is a thought afloat, that something should be done with respect to directive principle under Article 44 and that is "The state shall endeavour to secure for citizens a Uniform Civil Code throughout the territory of India".

Now, I can tell after 30 years, I am sure that the situation must have come, any further delay in implementation of Uniform Civil Code will be corrosive of our values. The underlying sublimity has to be appreciated and understood. This will bind Bharat, it's nationalism more effectively this was the thought process of founding fathers of the constitution. Friends, just reflect and think about it, there can be no premise or rationale to impede or delay the implementation of Directive Principles when we are in Amrit kaal.

I need to share some concerns with you because our rise is phenomenal, unprecedented and it's being recognised globally. India's impact in the world is being felt as never before. It is a time when the world expects India to say something. India does not have to exert itself to make its voice clear and known to the world, they await it. Therefore, I am sure my young friends would particularly agree, it is a prime duty to take pride in being Indians and be ever proud of its historical achievements.

Let me caution you friends, political stakeholding cannot be at the cost of nation or nationalism, there must free run for politicians, there must be politics the way they wish to have but with the common denominator; it has to be within the realm of respect for our nation and nationalism.

Friends, you will be walking into a larger world and will be contributing in the economic field one thing which is not being seriously considered, I

would appeal to the Chairman, Board of Governors also, to get in touch with his industrial fraternity i.e Economic Nationalism. I urge you all to ensure commitment to economic nationalism, let it not be compromised for fiscal gains. कैसा लगता है, पतंग विदेश से आएगी? दिवाली के दिये विदेश से आएंगे? furniture विदेश से आएगा? And our foreign exchange will be drained. I have named only a few items, I do believe in the Global Trade mechanism, but that should not come in the way of our economy being bled. That is the duty of every man in industry and business to ensure fiscal gains, out of research or requirement is not an issue, but we must ensure fiscal gains should not be a guiding factor. I am sure you will be well situated, you will be the ambassadors of this thought, you will be able to create an ecosystem where our economic nationalism spirit will flourish and will be enhanced.

Friends no foreign entity can be allowed to tweak with our sovereignty and reputation. After all, Bharat is home to 1/6th of humanity; our human resource is impacting global institutions and trotting every part of the globe. We cannot be on the back foot when it comes to our sovereignty and reputation. We cannot suffer taint on our flourishing and blossoming democracy and constitutional institutions.

Tell me friends in which part of the globe you have a democracy flourishing at the village level, at the panchayat level, at the zila parishad level, at state level, at national level and in the field of cooperatives and all constitutionally secured and ensured? There is no country in the world where the transmission of power is so smooth, seamless and respectful. We are, and we must be ever cognizant of it, we are the oldest, the largest, most vibrant and functional democracy and that is giving stability to global peace and harmony.

Friends, you have access to all information. It is a matter of concern that with periodic frequency and in strategic mode there is orchestration of anti-national narratives and objective is to tarnish and taint our image. It is high time choreographers of anti Bharat narrative orchestration are effectively rebuffed. This can be done only by the young trained minds that carry the tag of being alumni of a prestigious institution like yours. It is ironical and a travesty of nature, and it pains me that some of us, call prey to the sinister design that has to be antidoted.

Friends, another aspect which is changing our lives is transparency and accountability in governance. Now, there is zero tolerance for corruption, I am sure everyone here will agree, none is above the law. The long arm of law is reaching everyone. Those who thought that the law could never touch them are suffering the heat of law and this is happening at this moment because there is policy of zero for corruption.

Corruption is anti-democratic, it is poor governance, which runs down our growth but another scene is appearing, if someone is holding up for corruption, we have a robust judicial system we must access the system, but people take to streets. People who have held the positions of power, people who have held constitutional positions, take to streets rather than taking recourse to lawful process. I would therefore urge you that, at a time stakeholders in corruption, beneficiaries in corruption are marshalling all the forces, to find cover and escape route. It is the narrative set afloat by young minds like you to neutralize it. A corruption free society is the safest guarantee to your growth trajectory. I would therefore urge every person present here, particularly my young friends, boys and girls, you have the capacity to discern, and you have the capacity to find out what is right and wrong, but please don't observe silence. Your silence can be too costly for the nation.

Decades ago in the United States, a survey was conducted, and it was indicated, that if the silent majority decides to remain silent, it will be silence forever. So, I beseech young minds to be discerning and take your own call but then don't keep that idea to yourself, exert it that will help us evolve a system for the benefit of the nation.

My dear young friends, you must have an appetite for Assamese food, but also have an appetite for other point of view. These days we have become very intolerant, we don't want to consider others point of view, that is not good for humanity. Experience has shown that more often than not, the other point of views the right point of view. So for the drop of a hat, don't reject the others point of view. Who can feel more pain of it, than the Chairman, Rajya Sabha? A post which I hold, Parliament, a temple of democracy is a place for deliberation, dialogue and discussion which means to understand

and appreciate what the other person has to say. You may agree or disagree, ऐसी परिस्थिति के अंदर मेरी वेदना व्यक्त करते हुए मैं आपसे कहूंगा असहमति को विरोध में प्रवर्तित करना जनतंत्र के लिय अभिशाप से कम नहीं है। भारतीय संस्कृति और सम्यता की मूल भावना से मेल नहीं खाती यह बात। संवाद की डोर मनवाता और प्रजातंत्र के जीवन डोर है। इसमें खिंचाव और गाँठ जन कल्याण के लिय हितकारी नहीं हो सकते। एक छत के नीचे विरोध और असहमति स्वाभाविक है।

There are bound to be different points of view which may even not be reconciled, इसका निदान विचार विमर्श है। यही हमारी हजारों साल की संस्कृति का अमृत यही है, कि बातचीत से हम मामलों का हल निकालेंगे। The world is facing a great war at the moment, and the Statesman kind of stance taken by the Indian Prime Minister, Shri Narendra Modi, "War is no solution to a problem", has been appreciated globally.

Friends, I would like to make references to two other quotes by Dr B.R. Ambedkar a visionary and a genius who drafted our constitution, I am sure everyone particularly my young friends who are warriors Bharat@2047 will bear in mind, "You should be Indian first, Indian last and nothing else but Indians". This thought we should always keep in mind, the moment we do it, I am sure our country's rise will be further accelerated.

Our constituent assembly did a good job for 3 years, but I would like to make reflections on what Dr. B.R. Ambedkar said on the very last day, the relevant concluding observations on 25th November 1949:

"It is not that India was never an independent country. The point is that she once lost the independence she had. Will she lose it a second time? What perturbs me greatly is the fact that not only India has once before lost her independence, but she lost it by the infidelity and treachery of some of her own people. Will history repeat itself? ..." Friends, what he said on 25th November 1949, reflecting on infidelity and treachery of some of our own people, we are seeing it before our eyes. There are Institutions globally where Indian industry makes investment and the Chairman, Board of Governors will take note of it, millions of dollars are given to those outside institutions but our students and faculty members in those institutions abroad happen to be the only one criticizing their own country. I would urge the Chairman, Board of Governors, to

see that our institutions like IIT Guwahati must get contributions from industry, they must be the main source for funding from the CSR, I am sure he will take it forward.

Young friends when you walk out with your degrees, you will be envy of the world, there can be no failure by you, you will be contributing massively. Keep one thing in mind, respect for your teachers, regard for your parents and a resolve that you will give back to the society. I have been advocating an idea for a long time, Alumni is a strength of an institution, There must be a federation of Alumni associations, that will be a richest think tank for the development of the nation.

आप सभी को शुभकामनाएं, आपका भविष्य मंगलमय हो, अच्छा हो। Be happy without tension, stress and fear of

failure. जो भी idea आए, execute करने की कोशिश करो, क्या पहली बार आदमी चांद पर गया और successful हुआ? नहीं हुआ, वह successful हुआ, जब 20 जुलाई 1969, Neil Armstrong ने चांद पर लैंड किया, उसके पहले भी प्रयास हुए थे, आज ISRO मे जो प्रगति हो रही है, ऐसी परिस्थिति में यह कहूंगा, think out of the box, take a leap, be innovative, जो ख्याति हमने प्राप्त की है दुनिया में unicorns and start-ups के अंदर, that is envy of the world.

मुझे यहां आने का जो अफसर मिला, मैं उसे अपना परम भाग्य मानता हूं, यह दिन मुझे सदैव याद रहेगा।

Today, I carry in my heart a connect with all of you, that I will take to my maker only.

Thank you so much!

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We Congratulate.....

Prof. Ashok Kumar Puri for taking over as the Vice Chancellor, IEC University, Solan, Himachal Pradesh with effect from June 05, 2023.

Prof. R R Biradar for taking over as the Registrar (on deputation basis), Central University of Karnataka, Kalaburagi with effect from July 04, 2023.

Prof. R Thirumurugan for taking over as the Registrar, Central University of Tamil Nadu, Thanjavur, Tamil Nadu with effect from July 06, 2023.

Ms Suman Cathrine Kispotta (IAS) for taking over as the Vice Chancellor, Vinoba Bhave University, Hazaribag, Ranchi, Jharkhand with effect from July 13, 2023.

Prof. Faizan Mustafa for taking over as the Vice Chancellor, Chanakya National Law University, Patna, Bihar with effect from July, 2023.

CAMPUS NEWS

NAAC Seminar on Contextualizing Outcome-based Learning

A two-day National Seminar on 'Contextualizing Outcome-based Learning in Higher Education Institutions for Quality Education' was organised by the MES Institutes of Management, Bengaluru, recently. The event is sponsored by the National Assessment and Accreditation Council (NAAC) and it was focused on setting and achieving benchmarks that facilitate the alignment of the teaching-learning process in line with outcome-based learning in the backdrop of NEP-2020 and education 4.0. About one hundred and two faculty members participated in the event. While addressing the faculty at the inauguration, the distinguished speakers stressed that building a robust infrastructure for learning begins with an understanding of the goals and desired outcomes that support engaging and empowering learning experiences.

Prof. Gopal Krishna Joshi, Executive Director, Karnataka State Higher Education Council, Keynote Speaker stressed that HEIs should provide multidisciplinary options to students since real-world problems are manifold, and employers are increasingly scouting for talent with multiple specializations.

Dr. M S Shyamasundar, Advisor, NAAC while delivering the Presidential Address, emphasized the fact that to harness the demographic dividend and for the progress of the nation, HEIs should provide a robust and flexible learning infrastructure capable of supporting new types of engagement and providing ubiquitous access to new technology and its integration, that allows students to create, design and explore a new future.

There were five technical sessions from stalwarts on Outcome-based education, speaking to the faculty participants on subthemes covering the objectives of the seminar. The resource persons concluded that high-quality education is directly related to outcomes that demonstrate learnings in the form of knowledge, competence, and orientation.

Prof. Gowrisha Joshi, Director, Centre for Educational and Social Studies (CESS) spoke during the session on 'Development of Strategic Plans and Mechanism for Implementation of Outcome-based

Learning in Higher Education Institutions'. The Resource Person opined that sustained initiatives are required for institutionalising outcome-based learning by improving teaching-learning processes, upgrading academic resources, and raising the quality of research and use of technology to enhance the employability of graduates.

Dr. Karthik Sriram, Associate Professor, Indian Institute of Management Ahmedabad spoke during the session on 'Development of Innovation and Research Culture in Higher Education Institutions'. He suggested that HEIs should encourage and motivate their students to identify local problems and attempt to provide solutions to them. He further stated that research gives an opportunity to contribute to society.

Prof. Anupama Malagi, R V Institute of Management, Bangalore spoke during the session on 'Facilitating Novel and Innovative Teaching Methodology in HEIs'. Prof. Malagi urged that as a preliminary step, HEIs should be able to understand the requirements of the 21st Century learner and calibrate the teaching pedagogy accordingly by using innovative tools like blended learning, design thinking, and flipped classrooms.

Prof. V J. Byra Reddy, Chanakya University, Bangalore spoke during the session on 'Validating the Outcomes by Mapping Cos, POs and PSOs in Higher Education Institutions'. He emphasized that expected learning outcomes can be used as reference points for formulating Cos, POs and PSOs which in turn will help in curriculum design, delivery, and review of academic programmes. He further explained Bloom's Taxonomy and how it can be used to articulate the learning outcomes.

Dr. K N Subramanya, Principal, RV Engineering College spoke during the session on 'Integration of Technology in Teaching-learning Process in Higher Education Institutions'. Dr. Subramanya stressed the role of a teacher in the transformation of education by integrating of technology through various tools like MOOCs, remote learning, and experiential learning. He was of the opinion that the adoption of these techniques will lead to active and engaging learning experiences to meet the challenges of today's technology-driven society.

The highlight of the event was the group discussion which provided a unique opportunity for all the participants to deliberate their perspectives on the theme of the event. The participants raised their queries to the learned panel members during the panel discussion. The Panellists felt that each institution has a unique set of challenges and hence there is a need to customize the learning outcomes.

Prof. K M Raghavendran, Chief Executive, MES Institutions, in his Valedictory Address, said that the event should help the faculty in preparing a blueprint for actionable agenda towards Contextualizing Outcome-based Learning in HEIs for Quality Education. He further stated that learners should be empowered to chart their futures.

International Conference on Migration and Sustainable Development

A two-day International Conference on 'Migration and Sustainable Development: Opportunities, Challenges and the Way Forward' is being jointly organized by the Centre for Labour Studies and Practices, Tata Institute of Social Sciences (TISS) Mumbai, Maharashtra and International Institute of Migration and Development (IIMAD) Thiruvananthapuram, Kerala during December 15-16, 2023. Academicians, practitioners, and policy experts, etc. may participate in the event. It will aid in the consolidation of research findings pertaining to many newly developing viewpoints and policies on Migration and Diaspora, giving better insights into the link between migration, diaspora, home country, host country, and transnational and their role in achieving sustainable development goals 2030. The event will cover both theoretical and practical topics in order to provide a comprehensive understanding of the theme. The tentative Subthemes of the event are:

- Migration and Sustainable Development Goals.
- Migration and Green Economy.
- Return Migration and Sustainable Reintegration.
- Invisible and Undocumented Workers.
- History of Migration.
- Migration and Development Strategies at the National and International Levels.
- International Labour Standards and Conventions.
- Diaspora, Remittances, and Development Migration and Global Culture.
- Politics, Racism, Citizenship.
- Gender and Migration.

- Methods and Data in Migration Studies.
- Any Other Relevant Theme.

For further details, contact Organisers, Dr. Irudya S Rajan, Chair, International Institute of Migration and Development (IIMAD), Thiruvananthapuram, Kerala and Dr. Ruchi Singh, Assistant Professor, Centre for Labour Studies and Practices School of Management and Labour Studies Tata Institute of Social Sciences (TISS), Mumbai. E-mail: info@iimad.org. For updates, log on to: www.iimad.org

International Conference on Law and Social Transformation

The One-day International Conference on 'Law and Social Transformation' is being organised by the Alliance School of Law, Alliance University, Bengaluru on September 09, 2023. The Faculty Members, Judicial Officers, Advocates, Research Scholars, and Students, among others, may participate in the event.

Law plays an important role in social transformation by having a direct impact on society. It has always been looked at- as one of the important instruments that can bring about social change. Thus, social transformation is the modification of the way people work. As a result, social transformation entails changes in people's working habits. Changes in technology, demography, competitiveness, conflict, ideology, political life, economic policy, and legal principles are all variables that contribute to social transformation. In an endeavour to promote excellence in legal research, the Alliance School of Law organizes an International Conference on Law and Social Transformation every year.

- Artificial Intelligence, Ethics, and Social Transformation.
- Arbitration and Conflict Resolution.
- Banking and Digital Inclusions.
- Challenges in Legal Education.
- Changing Dynamics of the International Legal Order.
- Children and Law.
- Corporate Governance and Emerging Issues.
- Criminal Justice and Human Rights.
- Democracy and Judicial Activism.
- Environment and Sustainable Development.
- Gender Justice.

- IP Rights in the Changing World.
- Social Justice and Constitution.

For further details, contact Coordinator, Dr. Rashmi K S Associate Professor, Alliance School

of Law, Alliance University, Central Campus, Chikkahagade Cross, Anekal, Bengaluru – 562 106 (Karnataka), Mobile Number: 094483 55047, E-mail: icls@alliance.edu.in. For updates, log on to: www.alliance.edu.in/icls2023/

AIU News

Faculty Development Programme on Administrative Effectiveness

A five-day Faculty Development Programme on ‘Administrative Effectiveness by Using Office Tools and Techniques’ was jointly organised by the Association of Indian Universities –Academic and Administrative Development Centre (AADC) and Shri Vaishnav Vidyapeeth Vishwavidyalaya (SVVV), Indore during May 29 – June 02, 2023. Around thirty-one participants were registered in the programme. The eminent experts across the nation deliberated on Microsoft Office tools and online Google tools and techniques in online mode in ten sessions. All the experts shared their perspectives and knowledge with the faculty members.

The inaugural session began with the worship of Goddess Saraswati followed by the welcome of the guests. Dr. Anand Rajavat, Dean Academic, SVVV, and Nodal Officer of the event, introduced the programme and its objectives. He informed about the different organizations and cities, where the participants have registered from. He introduced speakers who are from industries and renowned academic institutions across the nation for the programme. Dr. Rajavat also explained the role of non-teaching staff in academics and discussed the importance of office tools such as MS Word, Excel, PowerPoint, online Google tools, and emails. Where email is one of the most popular tools for official communication.

Dr. Upinder Dhar, Vice Chancellor stated, in his welcome address about the importance of office tools in academics. Dr. Dhar said about the SVVV which is one of the universities amongst ten Universities in India, selected by the AIU for organizing such Administrative Development Programmes. He said that the students have studied at their homes by using online tools and technical staff played a crucial role in the conduction of online classes during covid-19. With the help of online tools, faculties were able to deliver their lectures and actively participated in teaching.

Dr. Akhilesh Kumar Pandey, Vice Chancellor, Vikram University, Ujjain, Madhya Pradesh was the guest on the occasion. Dr. Pandey said that the people in rural areas are taking the admission as well as uploading documents from their homes through remote access or without visiting the institute. He said that the students can attend the classes and training programmes from anywhere and can communicate with the faculties. Also, the faculties can take the exams and analyse their results effectively by using Google tools. He said about the major elements of academics and three-tier system, where one of the tiers is the administrative staff.

The inaugural session concluded with the vote of thanks proposed by Dr. Shweta Agrawal, Associate Professor, Shri Vaishnav Institute of Science, SVVV, Indore.

The technical session was conducted by Dr. K Thiyagu, Central University of Kerala on ‘Advanced Gmail Tools and Functions’. He covered the basic features of Gmail such as advanced search, background, themes, signature, labels & filters, snooze, etc. He discussed the importance of Gmail features to organize mail in a better way to save time and increase office productivity. He also demonstrated the use of the ChatGPT plugin for writing a mail.

The next session was conducted by Dr. Muthupandi, Madurai Kamarajar University, Madurai, Tamil Nadu on ‘PowerPoint Tips and Tricks’. Dr. Muthupandi discussed the guidelines for effective digital presentation such as fonts, colors, background, logo, and layout of slides. He discussed the important features of LibreOffice Impress (Open-source tool) for creating a good presentation. His overall presentation was focused on the Uniformity, Clarity, and Readability of the content to be presented.

The next three sessions were conducted by Mr. Sumit Zokarkar, Prestige Institute of Management and Research, Indore on ‘Microsoft Excel: Fundamentals, Advanced Features and Analysis Using Pivot Table’.

He covered the fundamentals of Microsoft Excel such as various paste functions, number format, formulae, filters, conditional formatting, etc. He demonstrated the different page views and types of charts to visualize the data in a presentable manner. Also, demonstrated the analysis of bulk data using Look Up functions and the Pivot table feature.

The next session was conducted by Dr. M K Sharma, Co-founder and CEO, Amstech Incorporation Pvt. Ltd., Indore on 'PowerPoint Tips and Tricks'. Dr. M K Sharma explained the role of cloud computing behind shared documents and discussed the reduction of operational costs by sharing the space. He explained the features of Google Docs and Google Sheets to work remotely from anywhere. He also discussed the utility of Google Forms to collect the registration data in organizing events such as webinars or workshops.

The next two sessions were conducted by Mr. Amlesh Mendhekar, Information Technology Consultant on 'Unexplored Features of MS Word'. He discussed the history and versions of MS Word over the time and licensing of MS Office. He covered the different features of MS Word such as customize ribbon interface, bullets, autocorrect, autoformat, find and replace, etc. He explained the importance of keyboard shortcuts while preparing any document.

The programme ended with the Valedictory Session. After welcoming guests, Mr. Nilesh Patidar, Coordinator of the programme presented the report. The welcome address was delivered by Vice Chancellor, Dr. Upinder Dhar. Feedback on the programme was given by participants. Dr. Anand Rajavat proposed the Vote of Thanks. The session concluded with the National Anthem.

Faculty Development Programme on Transformational Teaching

A six-day Faculty Development Programme on 'Transformational Teaching with ICT Tools to Enhance Learning' was organised by the Association of Indian Universities – Academic and Administrative Development Centre (AADC) and Atal Bihari Vajpayee University, Bilaspur from July 03-08, 2023. In the programme, nearly eighty-seven participants were registered and certificates were distributed to seventy-eight participants after the test. The programme sought to provide instructors with cutting-edge teaching techniques and practices, utilizing Information and Communication Technology (ICT) resources to improve students' overall learning.

Prof. M K Verma, Vice Chancellor, Chhattisgarh Swami Vivekananda Technical University, Bhilai was the Chief Guest while Prof. ADN Bajpai, Vice Chancellor, Atal Bihari Vajpayee University, Bilaspur presided over the proceedings. The welcome address was delivered by the Coordinator, Dr. Rashmi Gupta who also gave a thorough rundown of the programme's goals. In his speech, Prof. M K Verma underlined the significance of incorporating ICT tools into the educational process and their potential to create interactive and interesting learning environments. Additionally, he emphasized how ICT was essential in ensuring uninterrupted education during the difficult time of the COVID-19 pandemic.

Prof. ADN Bajpai emphasized the resourcefulness of ICT in teaching, especially in situations where institutions face limited resources. He encouraged the faculty to explore creative and innovative pedagogical approaches that maximize the benefits of ICT tools, ensuring an enriched learning experience.

Convener, Prof. H S Hota thanked everyone who attended the programme and thanked the officials and planners for their important work. He expressed gratitude for the joint efforts of AIU and the University in putting together the stimulating faculty development programme and hoped that the faculty would use the newfound knowledge and abilities to improve the teaching and learning processes for students.

Prof. Ashish Verma, Dr. Harisingh Gaur University, Sagar delivered the first lecture of the Programme. The lecture focused on offering an insightful introduction to Information and Communication Technology (ICT) tools for teaching, with the goal of equipping faculty members with the information they need to effectively integrate technology into their pedagogy. Prof. Verma kicked off the event by outlining the essential ideas of ICT and their importance in modern education. He underlined how Information and Communication Technology (ICT) has transformed the teaching-learning process, allowing educators to build dynamic and engaging learning environments. The talk highlighted a variety of ICT tools that can be used to improve teaching approaches and student outcomes.

Dr. Suraj Sharma, Faculty Member, Guru Ghasidas Central University, Bilaspur delivered the second lecture. The topic was 'Google G Suite for Education', a powerful suite of collaborative tools designed to better the teaching and learning process. Dr. Sharma demonstrated how the various Google

G Suite applications, such as Google Drive, Docs, Sheets, Slides, Forms, and Classroom, work together effortlessly and can enhance effective content production and collaboration. Google Classroom, which allows teachers to effortlessly manage virtual classes, assign tasks, and provide student feedback, received a lot of attention. The lecture stressed the platform's collaborative characteristics, encouraging students to work as a team and exercise critical thinking.

Prof. Sanjay Kumar, Faculty Member, Pt. Ravi Shankar Shukla University, Raipur delivered the third lecture. The main topic of the session was 'Digital Education', with the goal of highlighting the significant contribution that technology has made to the change of traditional teaching practices. Dr. Kumar provided an in-depth overview of digital education, outlining its guiding principles, advantages, and disadvantages. He emphasized how technology has revolutionized the educational landscape by giving cutting-edge tools and ways for engaging students in an increasingly digital world. The presentation also went through a variety of online tools, digital learning platforms, and e-learning resources that teachers may use to create interesting and personalized learning experiences. The significance of blended learning methodologies, which combine online components with traditional classroom training, was also underlined.

Further, the lecture was delivered by Dr. Prashant Vaishnav, Guru Ghasidas Central University, Bilaspur. The focus of the lecture was on the concept of 'Gamification of Teaching', where Dr. Vaishnav introduced the attendees to the powerful approach of incorporating game elements into the learning process to enhance student engagement and motivation. He explained the benefits of gamification in teaching, including fostering active learning, critical thinking, and problem-solving skills among students. Dr. Vaishnav showcased various gamification strategies such as points, badges, leaderboards, and leveling up, which can make learning more interactive and enjoyable. Moreover, he explored the concept of game-based learning, where educational games and simulations are used to reinforce subject matter in a fun and immersive manner. The lecture also covered gamification tools and platforms available to educators for designing and implementing gamified learning activities.

Dr. Rashmi Gupta, Atal Bihari Vajpayee University, Bilaspur focussed on 'AI Assisted Content

Creation'. Dr. Gupta investigated several AI-powered content generation applications, such as the creation of images, videos, and PowerPoint presentations, resumes, and music. The talk emphasized how AI technology may streamline and improve content creation processes, making them more effective, imaginative, and individualized. Participants were intrigued by the potential of AI-generated content and were inspired to apply these cutting-edge tools to their professional endeavors and teaching methodologies in order to improve various aspects of content creation as well as students learning experiences.

Dr. Neeraj Rathore provided valuable insights into the transformative potential of AI in education. Participants learned about the different applications of AI during the event, including personalization, intelligent tutoring systems, learning analytics, and automated assessment. The event motivated teachers to look into cutting-edge applications of AI to enhance their teaching methods and create more successful and personalised learning environments for their pupils. The speech inspired the audience and left them ready to implement AI-based tools and methods into their instructional practices, promising to enhance student learning outcomes and foster academic accomplishment.

Dr. Gaurav Khare, Madhav Institute of Technology and Science (MITS), Gwalior focused on 'Online Collaborative Tools for Group Projects', exploring various digital platforms and technologies that facilitate seamless collaboration among students working on group assignments and projects. Dr. Khare gave a demonstration of how these tools enable real-time communication, file sharing, task assignment, and progress tracking, enabling efficient teamwork and increasing the general efficiency and productivity of group projects.

The eighth lecture was presented by Dr. Sharddha Masih, focusing on the subject of 'ChatGPT: Applications and Enhancing Learning'. The participants were given a brief introduction to ChatGPT by Dr. Masih, an advanced AI language model created by OpenAI. The talk gave an incisive overview of ChatGPT's design and features, highlighting how it can produce text that sounds like human speech and promote interactive dialogue. Dr. Masih investigated ChatGPT's numerous educational uses and showed how it might be used to give students tailored feedback, interactive learning opportunities, and immediate answers to their questions. The

interactive session allowed participants to engage with Dr. Sharddha Masih, seeking clarifications and exchanging ideas on integrating ChatGPT into their teaching methodologies.

Dr. Rohit Raza, Guru Ghasidas Central University, Bilaspur, Chhattisgarh focused on 'Augmented Reality/Virtual Reality Tools for Teaching', providing an insightful introduction to these immersive technologies. Dr. Raza showcased how Augmented Reality overlays digital content onto the real-world environment, while Virtual Reality creates an entirely virtual world for users to immerse themselves in. He demonstrated the diverse applications of AR/VR tools in education, highlighting how these technologies can transform science education by offering interactive visualizations and simulations for complex concepts. Dr. Raza also emphasized the value of AR/VR for skill-based training, such as medical simulations and vocational training, providing a safe and cost-effective environment for hands-on practice.

Dr. Teerath Prasad Sahu, National Institute of Technology, Raipur, Chhattisgarh focused on 'Virtual Tutoring Systems and Chatbots', showcasing the revolutionary potential of these AI-powered tools in the realm of education. Dr. Sahu gave an excellent overview of virtual tutoring systems, emphasizing how they may give students real-time feedback, individualized learning paths, and adaptive support. He investigated several virtual tutoring tools, such as AI-driven tutoring platforms, interactive e-learning modules, and tailored assessment systems, that might be included in the teaching process. He also cited an example of how chatbots, a type of virtual tutoring system, can perform common administrative duties including responding to frequently requested queries, setting up appointments, and sending out reminders on time. The talk emphasized the value of tailored learning support and demonstrated how chatbots and

virtual tutoring systems may adapt content to suit unique learning preferences, enhancing students' learning experiences.

Mr. Gaurav Rawal, National Level Police Trainer spoke on 'Ethical and Legal Aspects of Modern Age AI Tools', highlighting the importance of addressing ethical considerations in AI usage, such as bias in algorithms, privacy concerns, and the broader societal impact of AI technologies. Mr. Rawal also discussed the legal framework for AI, including current laws and new legislation aiming at ethical and responsible AI use. The discussion illuminated the ethical ramifications of AI in particular fields, such as employment, education, and law enforcement. Participants learned about ethical AI techniques, placing an emphasis on accountability, openness, and justice.

The Chief Guest of the Valedictory Function was Dr. Amarendra Pani, Joint Director & Director (i/c), Research Division, Association of Indian Universities, New Delhi. The participants shared positive feedback about the event emphasizing its value in enhancing their teaching practices using ICT tools. Dr. Pani addressed the audience and emphasized the importance of integrating ICT tools into teaching practices. He commended the participants for their dedication to professional development and encouraged them to continue leveraging technology to create dynamic and engaging learning experiences for their students.

Dr. Rashmi Gupta, Coordinator of the programme proposed the Vote of Thanks and certificates were distributed to the participants to recognize their commitment to professional development and they were inspired to put their new knowledge to use by designing learning opportunities for their students that would alter their classrooms.

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THESES OF THE MONTH

HUMANITIES

A List of doctoral theses accepted by Indian Universities (Notifications received in AIU during the month of May-June, 2023)

Cultural Studies

1. Belay, Bitew Kassaw. **Religious organizations in conflict resolution and culture of peace building in Ethiopia.** (Dr. Priyanca Mathur), Department of Cultural Studies, Jain University, Bangalore.

Geography

1. Bichkunde, Shashikant Sangram. **Latur Jilhyateel kutumb niyojnacha-bhogolik abhyas.** (Dr. Vishavraj Chimangunde), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.

2. Birajdar, Parvati Vishwambhar. **Marathwadyateel pashudhan va dudh utpadan: Ek bhogolik vishleshan.** (Dr. Jadhav S B and Dr. Ramesh S Dhanushwar), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.

3. Gavit, Sunil Soma. **Nandurbar Jilhyateel gramin vasahteencha bhogolik abhyas.** (Dr. A K Hange), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.

4. Hulwan, Pramod Appaso. **Kolhapur Jilhyateel sheti purak dugadh vyavsaye: Ek bhogolik abhyas.** (Dr. A K Hange), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.

5. Patil, Gajanan Hanmantrao. **Latur Jilhyateel daalal udhyogandhyacha bhogolik abhyas.** (Dr. Dhanushwar R S), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.

History

1. Dandge, Suresh Namdeo. **Gopalal Ganesh Agarkar yanthey samajik va shaikshanik yogdan: Ek chikitsak abhyas.** (Dr. More Babruwan Kerbaji), Department of History, Swami Ramanand Teerth Marathwada University, Nanded.

2. Dawane, Siddharth Ragho. **Sushruta medical contribution in ancient India: A historical study.** (Dr. Narendra B Deshmukh), Department of History, Swami Ramanand Teerth Marathwada University, Nanded.

3. Gadhire, Raosaheb Tulshiram. **Mangalveda talukyacha rajkiye, samajik, aarthik, va sanskritik itihās: Ek chikitsak abhyas isvi 1950-2000.** (Dr. S G Jadhav and Dr. Pimpalpal R R), Department of History, Swami Ramanand Teerth Marathwada University, Nanded.

4. Lokhande, Indira Ashok. **Bhartiye swatantrey ladyateel Jalalgaon Jilhyateel niwdak istriyanच्या sehbhag: Ek aithasik abhyas (1920-1947).** (Dr. Kishan Kendre), Department of History, Swami Ramanand Teerth Marathwada University, Nanded.

5. Naik, Niwrutti Uttamrao. **Govindrao Rathod yanthey jeevan va karye aithasik abhyas.** (Dr. Mutkule R R), Department of History, Swami Ramanand Teerth Marathwada University, Nanded.

6. Tomar, Sangeeta. **Identification of the value of weaponry with the Rajput rulers: A case study of Battle of Khanwa and Battle of Haldighati.** (Prof.Kiran Devendra), Department of History, Amity University, Gurgaon.

Languages & Literature

English

1. Ali, Bashart. **The Trauma of partition: A study of Khushwant Singh, Manohar Malgonkar, Bisham Sahni and Bapsi Sidhwa's works.** (Dr. Suresh Kumar), Department of English, Bhagwant University, Ajmer.

2. Bashir, Ishtiaq. **Portrayal of women and their issues in Anita Desai's works.** (Dr. Suresh Kumar), Department of English, Bhagwant University, Ajmer.

3. Bhat, Shridhar. **The perceptions of ESL teachers and learners towards using ICT to develop learners communicative competence: An exploratory study with reference to select government first grade colleges of Udupi and Dakshina Kannada District of Karnataka State.** (Dr. Meti Mallikarjun), Department of English, Kuvempu University, Shankaraghatta.

4. Bhawna. **Quest for identity in the fiction of Rohinton Mistry.** (Dr. Rashmi Verma), Department of English, Kurukshetra University, Kurukshetra.

5. Deshmukh, Anuradha Digambarrao. **Bengali Drama in English: A medium of political philosophy.** (Dr. R T Bedre and Dr. P B Nirmal), Department of English, Swami Ramanand Teerth Marathwada University, Nanded.

6. Dewani, Mehraj U Din. **Genesis of the word terrorism: A study of select novels of Mohsin Hamid.** (Dr. Chaitanya Singh Bhandari), Department of English, Bhagwant University, Ajmer.

7. Gaikwad, Nagesh Sambhaji. **Cultural hybridity & ambivalence of identity in the select novels of Kiran Desai &**

Chetan Bhagat: A critical study. (Dr. P.D. Shitole), Department of English, Swami Ramanand Teerth Marathwada University, Nanded.

8. Gowda, T S Prasad. **Humorous narratives on death dying, and the dead: An inquiry through cultural frames.** (Dr. Chitra Panikkar), Department of English, Bangalore University, Bangalore.

9. Hanumantu, Seshagiri. **Struggle for self-definition: A study of women characters in Alice Walker's selected novels.** (Dr. M Ravichand), Department of English, Jawaharlal Nehru Technological University, Hyderabad.

10. Jonita, M Aro. **The concept on religion through digital rhetoric: Exploring the response and reception to select texts at the turn of the millennials.** (Dr. Geetha R), Department of English, Bangalore University, Bangalore.

11. Kintala, Yamuna. **Approaches to develop English speaking skills at elementary level: A study on the rural government Telugu medium students of North Andhra Districts: Srikakulam, Vizianagaram and Visakhapatnam.** (Dr. P V Ravi Kumar), Department of English, Koneru Lakshmaiah Education Foundation, Guntur.

12. Lomte, Nita Annasaheb. **East-West encounter in the select novels of Kamala Markandaya and Ruth Praver Jhabvala: A comparative study.** (Dr. Ajitsingh R Gaherwar and Dr. Rajpalsingh S Chikhalikar), Department of English, Swami Ramanand Teerth Marathwada University, Nanded.

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2	Assistant Professor	Political Science	02		OPEN - 02
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