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World University Rankings, India Rankings of NIRF and Accreditation Grades of NAAC: Implications for India's Emergence as *Vishwa Guru* under National Education Policy-2020

M V Lakshmi Reddy*

Implementation of National Education Policy-2020 is making its strides. The policy emphasizes internationalization of Indian education (NEP-2020, p.39) seeking larger numbers of international students studying in India as well as provisions made for greater mobility of students in India who may wish to visit, study at, transfer credits to, or carry out research at institutions abroad. India is expected to be a global study destination providing premium education at affordable costs thereby helping to restore its glory as *Vishwa Guru*. As a step toward this end, high performing Indian universities will be encouraged to set up campuses in other countries, and similarly, selected universities from among the top 100 universities in the world will be facilitated to operate in India through appropriate legislative framework. Furthermore, research collaboration and student exchanges between Indian institutions and global institutions will be promoted through special efforts. Given this premise, World University Rankings (WURs) of global ranking agencies, India Rankings (IRs) of National Institutional Ranking Framework (NIRF) of the then Ministry of Human Resource Development (now Ministry of Education) and Accreditation Grades of National Assessment and Accreditation Council (NAAC) of India assume central place in implementation of NEP-2020 vis-à-vis internationalization of Indian education to see India emerging as *Vishwa Guru*.

In this context, it is very important to recall one significant development that generated intense debate across the world and more so in India in 2014 when not a single Indian University/Higher Education Institution (HEI) figured in the World University Rankings -- the QS World University Rankings (QSWUR), the Times Higher Education World University Rankings (THEWUR) and the Academic Ranking of World Universities (ARWU). In this regard, India was thus found to be in a deplorable situation as against the proud status of ancient India. Above all, these WURs, IRs and Accreditation Grades will serve very useful and significant purpose in enlightening the Indian community in particular and the global community in general about their implications for implementation of NEP-2020 with special reference to internationalization of Indian education.

In fact, there is no consistency or uniformity in the criteria or parameters or performance indicators followed in the ranking

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methodologies of the QSWUR, the THEWUR and the ARWU. As a result, the world rankings assigned to the universities/HEIs by these global ranking agencies also differed a lot and attracted severe criticism from all quarters. On the other hand, the non-participant universities/HEIs viewed the criteria or performance indicators adapted by these ranking agencies as exclusionary and incompatible vis-à-vis their own goals, priorities, commitments, practices and contributions. Added to this, different countries including India expressed their resentment against the parameters or performance indicators used by these agencies in their ranking methodologies. These ranking agencies have however continued with their WURs every year.

Consequently, India has come up with 'India Rankings' based on National Institutional Ranking Framework (NIRF), initially accepted and launched by the then MHRD on 29th September 2015, which has become an annual exercise since then. Accordingly, India Rankings 2016, 2017, 2018, 2019, 2020 and 2021 have been released. Interestingly, the parameters and their weights used in NIRF are also not same as those of the above mentioned global ranking agencies. Thus, the criteria, parameters or performance indicators used in the ranking methodologies differed widely across the ranking agencies at both global and national levels (WURs and IRs), thus leading to diversified rankings. Implication is that, in the market-driven economy, these rankings of the universities/HEIs, both public and private, across the globe are quite likely to affect the stakeholders' considerations of their study and career destinations. But any such choice by them will be more rational and meaningful if they are aware of the comparative picture of the parameters or performance indicators used in the methodologies of WURs, India Rankings of NIRF and Accreditation Grades by NAAC. In view of the above, the following objectives are delineated for the purpose of this article.

- i) To identify and compare the criteria, parameters or performance indicators used in the methodologies of World University Rankings (WURs) by the global agencies, those used in India Rankings (IRs) of NIRF at national level and those used in assigning Accreditation Grades by NAAC;
- ii) To analyze the implications of WURs, IRs and Accreditation Grades and relevant issues and

challenges in respect of the Indian and global universities/HEIs; and

- iii) To set an agenda for effective debate on serious implications for evolving meaningful mechanism(s) at global and national levels for facilitating India's impending emergence as *Vishwa Guru* under NEP 2020.

Comparison of Methodologies followed in World University Rankings

Here, an attempt is made to compare the methodologies of the three well-known WURs namely the QSWUR, the THEWUR and the ARWU.

i) QS World University Rankings (QSWUR):

The QSWUR assesses universities on *six performance indicators* relating to research, teaching, employability and internationalization. To be eligible for inclusion, institutions must teach at both undergraduate and postgraduate level, and conduct work in at least two of five broad faculty areas (arts and humanities; engineering and technology; social sciences and management; natural sciences; and life sciences and medicine). The six performance indicators used by it along with their respective weights in the overall scores are as follows (<https://www.topuniversities.com/university-rankings-articles/world-university-rankings/world-university-ranking-methodologies-compared>).

- **Academic reputation** (40% of the overall score): Based on a global survey of academics, who are asked to identify the leading institutions in their field.
- **Employer reputation** (10%): Based on a global survey of graduate employers, who are asked to identify the institutions producing the best graduates in their sector.
- **Student-to-faculty ratio** (20%): An indication of commitment to high-quality teaching and support.
- **Research citations per faculty member** (20%): This is normalized by subject area, and reflects the impact of an institution's research.
- **Proportion of international faculty** (5%): A measure of an institution's success in attracting faculty from overseas.
- **Proportion of international students** (5%): A measure of an institution's success in attracting students from overseas.

The interactive results are filtered to show the scores for each of these six indicators, showing where each institution's comparative strengths and weaknesses lie.

QSWUR is an annual publication of university rankings by Quacquarelli Symonds (*QS*). The inaugural ranking was published in October 2014. In the QSWU 2019 Rankings (See <https://www.topuniversities.com/subject-rankings/2019>), the Rankings by Subject identifies the world's strongest universities in 48 individual subject areas. Massachusetts Institute of Technology (MIT) remained the best university in the world for a record-breaking eighth successive year in the QSWUR 2020 and ninth successive year in QSWUR 2021. Interestingly, not all of the participating universities/institutions could match MIT's consistency, with 117 of them falling in their ranks in 2020 annual rankings. A similar story is clearly visible in the performance of UK universities, with 56 of the 84 institutions dropping in rank at least by one place. While the University of Oxford moved up by one place to fourth in 2020 rankings, less renowned UK universities have struggled to keep pace with those around them (<https://www.topuniversities.com/university-rankings-articles/world-university-rankings/out-now-qs-world-university-rankings-2020>). The QSWUR 2021 feature 1,000 of the world's top universities, including 47 universities included for the first time ever. The big story in the 2021 rankings is the performance of Asian universities, with 26 featuring in the top 100 -- more than ever before. On the other side of the world, American universities are struggling. Despite being well-represented towards the top of the table, 112 of the 153 American universities in the 2021 rankings have performed worse than the previous year (<https://www.topuniversities.com/university-rankings-articles/world-university-rankings/out-now-qs-world-university-rankings-2021>).

ii) **Times Higher Education World University Rankings (THEWUR):** The THEWUR uses *13 performance indicators*, grouped into *five categories*. Institutions are excluded if they do not teach at undergraduate level, or if their research output is below a certain threshold level (<https://www.topuniversities.com/university-rankings-articles/world-university-rankings/world-university-ranking-methodologies-compared>).

- **Teaching (30% of the overall score)**

- Based on a reputation survey (15%)
- Staff-to-student ratio (4.5%)
- Doctorate-to-bachelor's ratio (2.25%)
- Doctorates-awarded-to-academic-staff ratio (6%)
- Institutional income (2.25%)
- **Research (30%)**
 - Based on a reputation survey (18%)
 - Research income (6%)
 - Research papers published per faculty member (6%)
- **Research citations (30%)**
 - Based on the number of citations a university's research obtains, normalized by subject area.
- **International outlook (7.5%)**
 - Based on international-to-domestic-student ratio (2.5%),
 - International-to-domestic-staff ratio (2.5%)
 - International Research Collaborations (2.5%).
- **Industry income (2.5%)**
 - Based on income earned from industry, relative to the number of academic staff employed, and adjusted for purchasing power parity (PPP).

Beginning with 2011, THEWUR are published annually. The published results can be sorted to show universities' scores for each of the five categories, but not for the individual indicators within each category.

The *THEWUR*, featuring more than 1,500 institutions, are accompanied by a series of subject-specific rankings to help students determine where to study and what to study: Arts and humanities, Business and economics, Clinical and health, Computer science, Education, Engineering, Law, Life sciences, Physical sciences, Psychology, and Social sciences. As per these rankings, University of Oxford has consistently topped the list since 2017 till date (<https://www.timeshighereducation.com/world-university-rankings/about-the-times-higher-education-world-university-rankings>). From QSWUR and THEWUR, it can be noted that Massachusetts Institute of Technology (MIT), which has been the world's best university for the ninth

successive year in the QSWUR 2021, remained in 5th rank in 2020 and 2021 as per THEWUR, though it could never top the list in THEWUR.

iii) Academic Ranking of World Universities (ARWU): The ARWU, also known as the Shanghai Ranking, was first published in June 2003 and updated on annual basis (<http://www.shanghairanking.com/aboutarwu.html>). ARWU uses *six performance indicators, all relating to research excellence*. The ranking considers all institutions with Nobel Laureates, Fields Medalists, highly cited researchers, papers published in Nature or Science, or a significant number of papers indexed by the Science Citation Index-Expanded (SCIE) or Social Science Citation Index (SSCI) (<https://www.topuniversities.com/university-rankings-articles/world-university-rankings/world-university-ranking-methodologies-compared>).

- **Alumni (10% of the overall score):** Based on the number of alumni of an institution who have won Nobel Prizes and Fields Medals, with greater weight given to more recent recipients.
- **Awards (20%):** Based on the number of staff affiliated with an institution who won Nobel Prizes in physics, chemistry, medicine and economics, and Fields Medals in mathematics, with greater weight given to more recent recipients.
- **Highly Cited Researchers (20%):** Based on an institution's number of highly cited researchers,

according to the latest list published by Thomson Reuters.

- **Papers in Nature and Science (20%):** Based on the number of papers published in these two influential journals, drawing on a four-year period. For institutions specialized in social sciences and humanities, this category does not apply.
- **Papers Indexed (20%):** Based on the number of papers indexed in the Science Citation Index-Expanded and Social Science Citation Index in the preceding calendar year, with a double weighting for papers indexed in the Social Science Citation Index.
- **Per Capita Performance (10%):** The weighted scores of the other indicators, divided by the number of full-time equivalent academic staff.

While Harvard University, Stanford University and University of Cambridge occupied 1st, 2nd and 3rd ranks respectively in ARWU rankings 2019, 2020 and 2021, Massachusetts Institute of Technology (MIT), University of California (Berkeley), Princeton University, University of Chicago and Yale University consistently maintained their 4th 5th, 6th, 11th and 12th ranks respectively in these three years' rankings (<https://www.mastersportal.com/rankings/2/academic-ranking-of-world-universities-shanghai-jiao-tong-university.html>).

Interestingly, MIT, which has been named as the world's best university for a record-breaking ninth

Table-1: Comparison of Performance Indicators and their Weights followed in the Methodologies of QSWUR, THEWUR and ARWU

Sl. No.	QS World University Rankings (QSWUR)		Times Higher Education World University Rankings (THEWUR)		Academic Ranking of World Universities (ARWU)	
	Indicator	Weight	Indicator	Weight	Indicator	Weight
1.	Academic reputation	40%	Teaching	30%	Alumni	10%
2.	Employer reputation	10%	Research	30%	Awards	20%
3.	Student-to-faculty ratio	20%	Research citations	30%	Highly cited researchers	20%
4.	Research citations per faculty member	20%	International outlook	7.5%	Papers in Nature and Science	20%
5.	Proportion of international faculty	5%	Industry income	2.5%	Papers indexed	20%
6.	Proportion of international students	5%	--	--	Per capita performance	10%
Total Score		100		100		100

successive year in the QSWUR, has been occupying 4th rank as per ARWU rankings 2019, 2020 and 2021. This shows how WURs vary for the participant universities/HEIs based on the methodologies followed by different ranking agencies.

Table-1 presents the comparative picture of performance indicators and their respective weights as used in the three World University Ranking methodologies.

Table 1 reveals that the performance indicators and their weights used in the above ranking methodologies varied widely. These are incoherent across these methodologies and, thus, themselves render incompatible for any comparison, except one set of indicators – ‘Research citations per faculty member’ (QSWUR), ‘Research citations’ (THEWUR) and ‘Highly cited researchers’ (ARWU) – that too with varying weights. Another set of indicators, which are remotely comparable across these methodologies include ‘Academic reputation’ (QSWUR), ‘Teaching’ (THEWUR) and ‘Alumni’ (ARWU) with totally different weights. We can also notice that the WURs of these three agencies are also not amenable for cross validation through triangulation of ranks by agencies. Moreover, applying an indicator for comparing any institution which is purely research-oriented with any other institution which is involved in both teaching and research or only in teaching is improper as their institutional priorities, objectives, commitments and achievements are inherently different.

India’s Position in and Response to World University Rankings

Higher Education sector had witnessed a tremendous increase in the number of Universities and other HEIs since independence. The number of Universities had increased 34 times from 20 in 1950 to 677 in 2014. As on 31st March, 2013, the sector had 45 Central Universities of which 40 were under the purview of MHRD and 51 Institutions of National Importance (IITs – 16, NITs – 30 and IISERs – 5) established under Acts of Parliament which were also under MHRD, plus 318 State Universities, 185 State Private universities, 129 Deemed to be Universities, and four Institutions established under various State legislations. The number of colleges also registered manifold increase of 74 times with just 500 in 1950 growing to 37,204 (<http://mhrd.gov.in/university-and-higher-education>). However, not a

single University / HEI could find a place in top 400 ranks in the Global Rankings (WURs) in 2014. Sum and substance is that, it all indicated a deplorable transition from the glorious history of Universities like Takshashila, Nalanda, Vikramshila and others to the current situation!

Experts have therefore voiced concern over not a single Indian higher educational institution figuring in the coveted top 200 list of the THEWUR 2016-17 also. India aced the rankings as far as South Asia was concerned, but only two universities from the country – the Indian Institute of Science-Bangalore (201-250 group) and the Indian Institute of Technology-Bombay (351-400 group) – could be seen in the top 400 of the 980-institution list. While the premier Bangalore institute moved up significantly in the list (it was in the 251-300 group in the previous year), other establishments like IIT-Delhi, IIT-Kanpur and IIT-Madras figured somewhere between ranks 401 and 500. IIT-Kharagpur and IIT-Roorkee, for their part, appeared in the 501-600 band. India got 19 institutes in the top 800, two more than the previous year, and 12 others between ranks 801 and 980. Though we may pat ourselves on the back because a record 31 Indian educational institutions – including 14 new names – could figure in the list, the picture does not look as rosy when we take the total area and population of India into consideration (<http://www.hindustantimes.com/education/experts-worried-about-lack-of-indian-representation-in-global-university-rankings/story-PnB8AeIYbrAEUxobloFpiP.html>).

Indian Response: ‘India Rankings’ of National Institutional Ranking Framework (NIRF): The then MHRD, Government of India initiated National Institutional Ranking Framework (NIRF) as the national level process in 2015 for ranking the Indian Universities and other higher education institutions. Sequel to the efforts, Department of Higher Education published NIRF India Rankings 2016 as a pioneering report, followed by India Rankings 2017, 2018, 2019, 2020 and 2021 of Higher Education Institutions on performance.

This framework (NIRF) outlines a methodology to rank institutions across the country. The parameters broadly cover ‘Teaching, Learning and Resources’, ‘Research and Professional Practices’, ‘Graduation Outcomes’, ‘Outreach and Inclusivity’, and ‘Perception’. Based on this framework, India

Rankings – 2016 were announced for Universities / Institutions and also for the specific disciplines of Engineering, Management and Pharmacy. For India Rankings 2017, though the main ranking parameters remained the same, there were a few significant changes in a few sub-parameters. Every large institution was given a common overall rank as well as a discipline-specific rank as applicable (<https://www.nirfindia.org/About>). While continuing these themes, NIRF added rankings to the fields of law, medicine and architecture in 2018 (<https://www.nirfindia.org/2018/flipbook/index.html#p=14>). However, data for India Rankings 2019 under category-specific and domain-specific ranking covered five broad generic parameters and 16-18 sub-parameters. Moreover, data on publications, citations and patents was taken

from Scopus (Elsevier Science), Web of Science (Clarivate Analytics) and Derwent Innovation. Besides using this data for ranking of institutions, the combined collection of data for nearly 4,867 institutions offers a unique opportunity for analysis and to get interesting and useful insights, such as rank order correlations across parameters and also the regional outlook (https://nirfcdn.azureedge.net/2019/pdf/Report/IR2019_Report.pdf).

The parameters on the basis of which universities and other higher education institutions have been ranked by NIRF in 2017, which have been continued in later years as well, are given in Table-2, which cover *five parameters* with *21 sub-parameters* (for over all ranks).

Table-2: Parameters of NIRF-MHRD India Rankings 2017

Sl. No.	Parameter	Sub-parameters (with distribution of marks)	Marks	Weight
1.	Teaching, Learning and Resources (TLR)	A. Student Strength including Doctoral Students (SS): 20 Marks	100	0.30
		B. Faculty-student ratio with emphasis on permanent faculty (FSR): 30 Marks		
		C. Combined metric for Faculty with PhD (or equivalent) and Experience (FQE): 20 Marks		
		D. Financial Resources and their Utilisation (FRU): 30 Marks		
2.	Research, Professional Practice & Collaborative Performance (RPC)	A. Combined metric for Publications (PU): 30 Marks	100	0.30
		B. Combined metric for Quality of Publications (QP): 40 Marks		
		C. IPR and Patents: Filed, Published, Granted and Licensed (IPR): 15 Marks		
		D. Footprint of Projects, Professional Practice and Executive Development Programs (FPPP): 15 Marks		
3.	Graduation Outcome (GO)	A. Combined metric for Placement, Higher Studies, and Entrepreneurship (GPHE): 40 Marks	100	0.20
		B. Metric for University Examinations (GUE): 15 Marks		
		C. Median Salary (GMS): 20 Marks		
		D. Metric for Graduating Students Admitted into Top Universities (GTOP): 15 Marks		
		E. Metric for Number of PhD Students Graduated (GPHD): 10 Marks		
4.	Outreach and Inclusivity (OI)	A. Percent Students from other states/countries (Region Diversity RD): 30 Marks	100	0.10
		B. Percentage of Women (Women Diversity WD): 25 Marks		
		C. Economically and Socially Challenged Students (ESCS): 25 Marks		
		D. Facilities for Physically Challenged Students (PCS): 20 Marks		
5.	Perception (PR)	A. Peer Perception: Employers and Research Investors (PREMP): 25 Marks	100	0.10
		B. Peer Perception: Academic Peers (PRACD): 25 Marks		
		C. Public Perception (PRPUB): 25 Marks		
		D. Competitiveness (PRCMP): 25 Marks		

Source: https://www.nirfindia.org/Docs/Ranking_Methodology_And_Metrics_2017.pdf

The above parameters and sub-parameters used in NIRF have greater relevance to universities and other higher education institutions in India. India Rankings 2016 prepared under NIRF announced the ranks of top 100 universities. Indian Institute of Science (IISc), Bengaluru was ranked as the first amongst them with a weighted score of 91.81 closely followed by Institute of Chemical Technology, Mumbai, formerly University Department of Chemical Technology (UDCT), University of Mumbai, which stood at rank 2 with a weighted score of 87.58. Ranks 3 to 8 are occupied by the traditional, multi-disciplinary universities led by Jawaharlal Nehru University (rank 3) followed by University of Hyderabad (rank 4), Tezpur University (rank 5), University of Delhi (rank 6), Banaras Hindu University (rank 7) and Indian Institute of Space Science and Technology (rank 8) with weighted scores ranging from 86.46 (JNU) to 78.83 (IISST). Birla Institute of Technology and Sciences (BITS, Pilani) was at rank 9 with a weighted score of 76.85 closely followed by Aligarh Muslim University at rank 10 with a weighted score of 6.62 (<https://university.careers360.com/articles/mhrd-rankings-2016-top-universities-in-india>).

NIRF India Rankings 2017, in which 1,479 institutions participated, had announced different rankings – overall, universities, colleges, engineering, management and pharmacy; thus expanded the categories of rankings further. In NIRF India Rankings 2017 too, IISc-Bangaluru topped the list. However, because of the changes made in the parameters in India Rankings 2017, as compared to that released in 2016, except a few, many of the Universities / institutions which were ranked in the top 30 in 2016 have not found a place for themselves in the 2017 rankings (<https://www.nirfindia.org/ranking2017.html>). Even in NIRF India Rankings 2018, in which 957 institutions participated, IISc-Bangaluru topped the list, followed by Indian Institute of Technology (IIT) Madras, IIT-Mumbai, IIT-Delhi, and IIT-Kharagpur (<https://www.nirfindia.org/2018/OverallRanking.html>). However, IIT-Madras stood first in India Rankings 2019 pushing IISc-Bangaluru to second position, followed by IIT-Delhi, IIT-Mumbai and IIT-Kharagpur in 3rd, 4th and 5th ranks respectively (https://nirfcdn.azureedge.net/2019/pdf/Report/IR2019_Report.pdf). The announcement of India Rankings 2020 which got postponed until further notice due to COVID-19 lockdown (<https://www.nirfindia.org/Home>), was

later accomplished. In NIRF India Rankings 2020, only 1,667 institutions participated, out of which IIT-Madras, IISc-Bangalore, IIT-Delhi, IIT-Bombay, and IIT-Kharagpur occupied top five ranks in that order (<https://www.nirfindia.org/2020/OverallRanking.html>). Whereas in India Rankings 2021 number of participated institutions came down to 1,657, IIT-Madras and IISc-Bangalore, retained their 1st and 2nd ranks, IIT-Bombay improved its rank (3rd rank) pushing IIT-Delhi to 4th rank and IIT-Kanpur occupied 5th rank pushing IIT-Kharagpur to 6th rank (<https://www.nirfindia.org/2021/OverallRanking.html>).

An important point to be noted here is that, like in WURs, in NIRF India Rankings of the universities / HEIs too, fluctuations in their annual ranks can be found from year to year. Both these rankings (WURs and IRs) are competitive rankings based on relative assessment of performance of the participant institutions of the particular year.

Grading by National Assessment and Accreditation Council (NAAC)

National Assessment and Accreditation Council (NAAC) of India facilitates ‘the volunteering institutions to assess their performance vis-a-vis set parameters through introspection and a process that provides space for participation of the institution’. Thus, unlike WURs and all India Rankings of NIRF of the participant institutions, NAAC’s Accreditation Grade is individual institution-centric. HEIs having a record of at least two batches of students graduated, or been in existence for six years, whichever is earlier, are eligible to apply for the process of Assessment and Accreditation (A&A). NAAC has identified a set of seven criteria to serve as the basis of its assessment procedures. NAAC has categorized the HEIs into *three major types* (University, Autonomous College, and Affiliated/Constituent College) and assigned different weights to these criteria under different key aspects based on the functioning and organizational focus of the three types of HEIs. (<http://naac.gov.in/index.php/assessment-accreditation#criteria>). The broad criteria and their varying weights for different HEIs are as given in Table-3.

Key Indicators (KIs): Under each Criterion a few KIs are identified. These KIs are further delineated as Metrics which actually elicit responses from the HEIs. Based on the responses and the relevant Cumulative Grade Point Average (CGPA),

the institutional grading is assigned in the form of letter grade -- A++, A+, A, B++, B+, B, and C for accredited status, and D for 'not accredited'. (<http://naac.gov.in/index.php/about-us#vision>).

All the WURs of global agencies, India Rankings of NIRF and Institutional Grades of NAAC discussed above have serious implications for selecting 100 top ranking Indian and global universities as a part of internationalization of Indian education and for emergence of India as *Vishwa Guru* under NEP 2020.

Implications of WURs, IRs and Accreditation Grades for India's Impending Emergence as *Vishwa Guru* under NEP-2020

WURs, India Rankings of NIRF and Institutional Grades of NAAC have their implications for internationalization of Indian education. Major implication is that, in order to be competitive, all Universities/HEIs need to positively adapt to the parameters or indicators of both WURs and India Rankings (IRs) and strive hard to sustain and upgrade their respective rankings. This is so because, in the market-driven world, these rankings will have their impact on the stakeholders of educational systems. *Firstly*, all the career-minded students intend or prefer to seek admission into the top-ranking prominent universities in the world. *Secondly*, these rankings would also affect the attitudes and practices of the potential employers toward the products of the concerned universities / HEIs. As a result, acceptability or credibility of the concerned graduates among the public at large will also be impacted accordingly. *Lastly*, while the top ranking universities/HEIs take undue advantage, those with poor or no rankings become vulnerable

in their competition to attract the students and to get research funding and support from Government and other concerned agencies. There is likelihood of polarization of universities/HEIs into two broad groups – the top ranking ones and the rest.

Other crucial implications include: Whether all the Indian universities / HEIs participating in the ranking processes should be only those which have obtained their accreditation grades by NAAC prior to their participation? Whether the participation of universities / HEIs in the process of rankings should be made universal and mandatory for all those which are accredited? Whether uniformisation of the criteria or indicators for all ranking agencies at national and global levels is necessary and possible at all? Otherwise, what is the objective mechanism to select 100 top ranking global universities as per NEP 2020? How to determine high performing Indian universities if many of them got A++ accreditation Grade, yet they are not finding a place in WURs, or are having lower ranks in IRs of NIRF than those with lower accreditation Grades, but with high IRs? How to negotiate the ranks in such crucial instances?

Towards Single Acceptable Agency or Mechanism for World University Rankings

Should there be one and only one dedicated, empowered and mandated ranking agency at global level, and only one national agency in each country at national level for all universities / HEIs all over the world? If yes, whether there should be mandatory participation of all the eligible universities / HEIs in the processes of both WURs and respective National Rankings (NRs) of NIRFs simultaneously with uniform periodicity?

Table – 3: Key Aspects /Criteria of NAAC assessment

Sl. No.	Aspect / Criterion	University	Autonomous College	Affiliated UG College	Affiliated PG College
1	Curricular Aspects	150 (U)	150 (Au)	100 (Aff UG)	100 (Aff PG)
2	Teaching-learning & Evaluation	200 (U)	300 (Au)	350 (Aff UG)	350 (Aff PG)
3	Research, Innovations & Extension	250 (U)	150 (Au)	110 (Aff UG)	120 (Aff PG)
4	Infrastructure & Learning Resources	100 (U)	100 (Au)	100 (Aff UG)	100 (Aff PG)
5	Student Support & Progression	100 (U)	100 (Au)	140 (Aff UG)	130 (Aff PG)
6	Governance, Leadership & Management	100 (U)	100 (Au)	100 (Aff UG)	100 (Aff PG)
7	Institutional Values & Best Practices	100 (U)	100 (Au)	100 (Aff UG)	100 (Aff PG)

Source: <http://naac.gov.in/index.php/assessment-accreditation#criteria>

Which is the agency that can be globally accepted by different countries for carrying out the process of WURs? What is the statutory or legal mechanism under which such single global ranking agency can be established and made fully functional or effective across the world? How independent, fair, objective and successful can it be in accomplishing its task within any given periodicity? Only meaningful solutions to these questions will be able to minimize the conflicts in ranks of the universities / HEIs participating in the process at both global and national levels.

Nevertheless, assuming that a single global agency for WURs and single national agency in each country for NRs (like IRs of NIRF in India) has become a reality, still the challenge will not be over at a particular country level. For example, in India, IRs of NIRF is done by the Ministry of Education every year. On the other hand, NAAC assigns appropriate Accreditation Grade to each of the HEIs such as colleges, universities and other recognised institutions every five years. Now, the question is, given the NAAC grade, is there any need for India Rankings of NIRF or vice-versa? If yes, what is the mutual significance of A++, A+, A, B++, B+, B, and C Grades of NAAC and IRs of NIRF if they reflect mutually conflicting or contrasting status of any university/ HEI? Further, if there are universities/institutions each with A++ Grade and each of them got lower rank in IRs in comparison with those having higher ranks in IRs but with lower accreditation Grades, then how to determine top performing 100 universities/ HEIs? Even if such determination or negotiation of an institutional position is possible at national level, then how to consider their varying rank positions in WURs at global level? These are just some of the major questions, the answers to which are very hard to find! However, any meaningful solution that might be arrived at should be helpful in building required resilience in the universities/HEIs across the globe for raising their educational standards or quality to the expected benchmarks at both national and global levels.

To conclude, the above imminent implications call for timely and vogue solutions for determining 100 top-ranking autonomous universities/HEIs of India and those abroad as well. It is only the top brass of the implementation machinery of the National Educational Policy–2020 in India who can evolve and put in place an effective mechanism in this regard. It can only be expected that a sound legislative framework that can ensure effective

addressing of the above issues and challenges might be in place soon. Hoping to see India's emergence as *Vishwa Guru* in the ensuing policy implementation!

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Higher Education 4.0: Digital Revolution for Blended Learning in India

Prasenjit Roy* and Asheesh Srivastava**

Educationists, policymakers, intellectuals, and think tanks across the globe are reimagining and speculating the future educational landscape in the era of the digital ecosystem. Blended learning is an innovative instructional approach that will reduce educational costs, personalize students' learning experience, and raise student achievement. The current Pandemic of COVID-19 has changed the landscape of the teaching-learning system in India. Digital platforms or the virtual mode becomes the necessary and only option to foster and continue formal or informal education. Higher education 4.0 demands computing skills, digital competency, and techno-savvy ability to handle the future intelligent machine. The synchronous and asynchronous learning approach becomes a very pertinent part and parcel of blended learning.

We, human beings experienced many challenges and many deadly pandemics in the past that can be traced by looking into history. Since nature has its own rule, it will balance the whole ecological system at its own pace. But the fact is current pandemic pushes the world into a new paradigm in all dimensions and facets of our lives, especially in the teaching-learning process. Interestingly, India took leapfrogging steps to the digital world at a significantly faster pace with maximum adoption of technology in Education. In spite of the digital divide and inequality, the Indian Government and the stakeholders in academics responded and adopted technology in education at the maximum level. Digital competency and techno savvy skills among all stakeholders enhanced in an unprecedented level. In contrast, teachers become more aware of the techno and digital pedagogy to foster online teaching-learning. University Grant Commission on 20th May, 2020 proposed the blended mode of teaching in a higher education institution. It emphasized 40 per cent online mode and 60 per cent

offline mode for the academic courses. It reflects the concern of stakeholders in higher education institutes to promote more and more adoption of technology in Education. While if we see the roadmap of National Education Policy-2020, then we will see that one of the core principle of it is the extensive use of technology in education.

Concept of Higher Education 4.0

Higher Education 4.0 is all about giving this new generation of 'digital connoisseurs', the skills, methodologies, learning, and knowledge they will need to succeed in the fast-paced future (Goh and Abdul-Wahab, 2020). One of the key features of Higher Education 4.0 is the learner-centered approach of teaching and learning with flexibility and greater autonomy in learning. Moreover, Education 4.0 is highly influenced and governed by the industrial revolution 4.0. While, one of the core principles of Education 4.0 is learning anytime and anywhere and thereby personalized learning becomes integral part of it. Moreover, blended learning is an innovative instructional methodology that allows learners to learn from anywhere and anytime.

Nevertheless, Higher education 4.0 talks about heutagogy, peergagogy, cybergogy, fluid and organic curriculum, cyber security and smart campus which are essential nowadays (Chea and Huan, 2019). The digital transformation of classroom lectures to blended learning in the 21st century Education ecosystem becomes pertinent (Jones and Sharma, 2021). 21st century global world demands digital competency to deal with machines, instruments, digital libraries, digital health care facilities, digital or E-governance, assessment, evaluation, and embracing blended learning systems. Teaching and learning approaches, innovation, and value-added student experiences which use technology and these comes under the preview of the concept of Higher Education 4.0 (Goh and Abdul-Wahab, 2020).

Theoretical Underpinning of Blended Learning in Higher Education Ecosystem

Blended learning is a practice of using both online and in-person learning experiences when

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teaching students. In other words, it combines offline (conventional) and online learning in such a way that each complements the other. Blended learning also called hybrid learning and mixed mode learning. Basically it is an instructional methodology, a teaching and learning approach that combines face to face classroom methods with technology mediated activities to deliver instruction (University Grant Commission, 2021). This pedagogical approach leads to the integration of synchronous and asynchronous learning tools thus providing an optimal possibility for the arrangement of effective learning processes. In a true blended learning environment, both the student and the teacher should be physically located in the same space (University Grants Commission, 2021). Blended learning is a mix of instruction modalities, instructional designs, and delivery media (Graham, 2006). It blends traditional and innovative thus synergizing the learning Endeavour (Chen and Jones, 2007).

Core Components of Blended Learning

Hardware

It includes many physical devices like laptops, computers, smart phones, TABs, Webcam, Projector, Smart board, Voice recorder, Microphone, writing pads, and many more.

Software

Basically, software helps to enable the learning environment. We need the software or software applications that facilitate Synchronous learning like Zoom, Google meet, Skype, Webex, Microsoft team, Go Tomeeting and many more. Synchronous learning happens during real-time live face-to-face classes. At the same time, another component of Software is asynchronous learning, which enables learners to learn anytime and anywhere at their own pace. It helps to build the content knowledge and allows students to apply learning in creative ways. Pre-recorded lectures videos and e-content are beneficial for the students to learn as per their need and free time. Learning management system plays a vital role in asynchronous learning, which can be facilitated by Moodle, Google Classroom, Edmodo, Canvas, etc.

Humanware

The competencies of teachers for Blended learning. It includes many aspects such as excellent subject content knowledge, competency to develop

the e-content for blended class, effective delivery strategies, verbal and nonverbal presentation skills, teamwork or collaborative spirits, engagement skills, and abilities to sustain motivation and interest of the learners.

Nevertheless , another vital component is the pedagogical approach, and which is known as the flipped classroom Pedagogy. Flipping the classroom (also known as the inverting a classroom) is a pedagogical approach to teaching. Where course materials are introduced outside of the class, and in-class time is re-purposed for inquiry, application, and assessment to meet the needs of individual learners (University Grants Commission, 2021).

Features and Advantages of Blended Learning

The essential features and advantages of a Blended Learning environment are as follows:

- Enhance the engagement of students in the teaching-learning process effectively.
- Increased the teacher and student interaction.
- Higher responsibility for learning.
- Flexible and better managing of time to learn.
- Better and enhanced learning outcomes.
- Effective and more flexible teaching and learning environment.
- Promote self-learning and guide or motivate to continuous learning.
- Opportunity and scope for teamwork, collaboration and experiential learning.
- Increased interaction among peers, teachers and among all students.
- Digital learning skills enhanced and built the foundation for lifelong learning.
- Blended learning provides the learning experiences and learning resources repeatable, reliable, and reproducible.

Resources in Blended Learning

Quality teaching learning contents and materials are very vital aspects of the Blended learning as it will enable and foster effective learning experiences. Therefore the followings are the sources from where one can get the resources:

- **OERs**-Open educational Resources (OERs) are largely freely accessible which includes articles,

e-books, tutorial content, recorded lectures, educational videos, e-contents, text, graphics, animations, simulations, Gaming, interactive multimedia and many more.

- **MOOCs**-It stand for Massive open online courses. SWAYAM is one such MOOCs platform. It facilitates many courses across the discipline. Many university made compulsory for completing certain credits of their course through SWAYAM platforms.
- **E-books**-Many e-books or kindle versions of the books available in the national digital library, many open-access platforms, many university websites provide e-books, and also available at e-library or digital library.
- **Educational Videos**-Many lectures of eminent scientists, professors, teachers, scientists are available in YouTube, Teacher tube and many websites which can be easily downloaded for learning.
- **Educational Podcast and Vodcast**-Nowadays many recorded educational lectures are being uploaded both in audio and video format in many websites and youtube, which can be downloaded. Many of the podcasts and vodcasts share the experiences of interviews of many competitive exams like NET-JRF, UPSC or often describe the strategies for studying or any topic related to academics across the disciplines.
- **E-lectures**-Many international and national conferences, webinar, symposium or e-symposium, takes place across the world. Moreover, many lectures of eminent professors and teachers are delivered across the country in different platforms .Which are recorded and uploaded in the websites or different digital platforms.

Models of Blended Learning

There are many models that prevail in Blended learning. According to a recent concept note of the University Grant commission published on blended learning on 20th May 2020, proposed the following seven models

- **Blended Face to Face Class**-This model is based on face-to-face classroom interaction but before this learner does online activities, quizzes, and

assessments at home . While classroom interaction for more higher-order learning such as healthy discussion, teamwork or group activities.

- **Blended Online Class**: In this model, most classes are done online, but there is limited scope of in-person activities such as lectures or lab.
- **The Flipped Classroom**-Students watch videos, record lectures or e-content at their home and come to class for interaction, discussion, or complete projects or group works. This will promote higher-order thinking skills and creativity among the students.
- **The Rotation Model**-It consists of many sub-models, mainly station rotation, lab rotation, and individual rotation. In station rotation, students need to rotate between stations in the classroom as per teacher instruction and other work on the educational institute's campus. While in the lab rotation model, students rotate among locations in campus provided at least one of it must be the online lab. In case of the individual rotation model students turns as per the customized schedules for learning.
- **The Self Blend Model** –In this model, apart from the traditional face-to-face classroom of a course students at their own interest chose online courses and are not directed by teachers which online they have to enroll or join. Students independently chose the cause and learned.
- **The Blended MOOC**-It is a flipped classroom where in-person meetings take place to supplement the Massive open online courses. Students access the MOOC material from a web source or concerned website; then, after learning from that material, students come to a class for further discussion, in-class activities, and engaging actively in the classroom teamwork or group activities.
- **Flexible Mode Courses**-In this model autonomy is given to the learner to choose the mode of learning, both options available online and in person. For most learning activities in a course, they have the option to chose instructional mode.

Why We are Adopting Blended Learning in India

Digital or online learning is the reality in the era of Higher Education 4.0. We cannot avoid the

technology in education, it is now become the necessity, not the choice. If we critically analyze the funding and budgeting or say to say grants for the education of total GDP, it is less than 4% since independence. In contrast, Kothari commission (1964-66) and National education policy 2020 say for 6% GDP to be needed for Education in the country. But unfortunately, we fail to do so having plenty of reason and political interests. While Gross Enrollment in Higher education in India for 2019-2020 as per the All India Survey in Higher Education is 27.1 percentage (Ministry of Education, 2021). However, National Education Policy 2020 proposed to achieve 50% within 2030. But the reality is that to achieve it we need to rely on the technology and blended learning is the major initiative and seems to better option.

Nevertheless, many of the courses can be run fully on digital platform or online mode. There are several reasons to choose blended learning as the replacement instructional design. First, it is a common type of innovative instructional design in education, with plenty of practice-based evidence that it is an effective instructional design (Watson, 2008). Second, it has a level of synergy that other instructional designs lack due to its many educational modalities and design components. That synergy has received only a basic analysis to date (Jones and Sharma, 2021). A constructivism-based blended learning technique in higher education is a novel concept that combines the advantages of both traditional classroom instruction and ICT-supported learning. Nevertheless, Constructivism-based blended learning shifts the information transfer paradigm from teaching to learning, putting learners in charge of discovering, developing, practicing, and validating the acquired knowledge in social collaboration with peer groups and teachers (Mal and Adhya, 2020).

Digital Divide and Blended Mode of Learning

Access and affordability of technology is remaining a concern in developing countries like India. Plenty of factors created the digital gap among the different strata and the learners across the country. The major causes of the digital divide are low internet penetration in different parts and areas in India; secondly, socio-economic inequality; thirdly, social mobility and education, and the fourth one is language barriers. Apart from this physical disability, spatial location, geographical position, policies, culture, and lack of positive mindset or the acceptance of technology

cause the digital gap . Moreover, a positive attitude and rational with judicious use of technology is the need of the hours to mitigate and reduce the digital gap.

Issues and Challenges in Blended Learning Mode

While we are moving towards the blended mode of teaching and learning in India, there are specific challenges and issues associated with it, which need to be addressed and take care of for effective strategic learning in Blended mode. These issues are as follow:

- **Infrastructure Challenges:** India is a diverse country in geographic landscape, language, demography, socio-economic condition, and so on. Remote areas where Network, Internet facility, Cyber cafe and other essential elements for Blended learning are needed should be taken care. E-inclusion or digital divide need to be addressed as far as India's socio-economic and other diversities are concerned. It needs to ensure the system availability for the Learners from the economically weaker background.
- **Teachers' Techno Competency and Techno Pedagogical Skills:** Many good teachers are competent enough in face-to-face and traditional teaching, but many of them are not techno savvy and not techno friendly. More burden on teachers to prepare educational E-content and their anxiety to use the technology is an issue.
- **Quality Open Educational Resources and E-content:** How to identify the authentic and best resources for specific content for teaching in Blended mode. Nevertheless, the Quality Open educational resources and E-content at regional language to address respect for diversity and respect for local context is a concern.
- **Technical and Virtual Platform's Issue:** Technical system of devices, Cyber security and cyber etiquettes concerning data repository, e-resources, and online assessment and digital pedagogy these are the prime concerns.
- **Diversity in Disciplines and Competency Based Course:** There is need more specific teaching framework and strategy to address Competency based disciplines like Music, arts, Engineering, teaching internship and many more. Design of E-content as per the diverse discipline need to planned properly while executing blended mode.

- **Ethical Issue:** Disciplines, behavior, Cultural ethos, Guru-Shishya or Teacher-student relations are few concerns associated with Blended mode teaching.
- **Technology Domination:** It is to be kept in mind that technology should be an aid to education and not dominate education or the learner.
- **Students Motivation and Interest:** Students are the main stakeholder therefore their enthusiasm, motivation and interest need to be maintained across the discipline.
- Government Initiatives and effective policy to address Blended learning as a high priority to foster teaching learning.
- Rationale and Judicious use of Technology.
- Effective teaching and Pedagogical framework.
- Monitor, refine and repeat to enhance its effectiveness.

UGC recently proposed the IPSIT Model for higher education institutes in India in order to successfully implement the Blended learning across the country. IPSIT stands for Identify Resources and learner centered activities, Provide resources and announce activities on Learning Management systems, Scaffolding and support to learners, Identification of learning gaps and feedback, and Testing.

Implementation Strategies for Blended Learning

Since implementation of any programme and educational or instructional approach in an teaching learning environment. Therefore, in order to implement the Blended learning in Higher education, we need to focus on the following strategies

- Proper planning and Roadmap.
- Ratio of online and offline mode that is proposed by University Grants Commission in 40 percent online and 60 percent offline mode, gradually need to increased in the online percentage suppose initially starts with 15 percent in online then subsequently increase but not all of a sudden.
- Active involvement of all stakeholders in academics with taking the efforts in blended learning .
- Set clear and effective learning goals.
- Quality and relevant teaching resources.
- Ensuring the system work for students and teachers.
- Training of teachers to familiar with latest technology in education which enable synchronous and asynchronous learning.
- Innovative trends in assessment and evaluation needed like open book examination, continuous and comprehensive evaluation, out of box thinking, e-portfolios, creative products, group examinations for conventional theory papers.
- Use of artificial intelligence in tools for proctoring and assessment.
- Need to reduce digital gap or promoting E-inclusion.
- Development of E-content at regional or local language.

Concluding Remarks

Blended learning can provide diverse experiences within a short interval of time which may not be possible in real-time as far as cost and time is a concern, for example, science experiment via virtual lab, ocean ecosystem view or world view via virtual mode. Exposure to the global Scenario with updated and current contents. It also provides opportunity to enhance computational and digital skills crucial for 21st Century. Access, availability to connect to the best global teachers and experts in a single frame. Presently in Higher education Gross Enrolment Ratio (GER) is about 27.1 per cent while National Education Policy-2020 proposed 50 Per cent of GER within 2030. But so far the funding or budgeting for education is concern, it is very difficult to achieve its target without looking for effective blending and learning through digital platforms. It is obvious that Blended learning mode having potential to bring revolution in the world of computational technology, digital skills, world-class OER, lifelong learning which are pivotal for the 21st century. Nevertheless, as NEP-2020 talks about the uniform standard of education throughout the county which is can change the entire landscape of education system in India. Moreover, restructure in curriculum and instructional design as per the need of Higher Education 4.0 otherwise the entire concept of Blended mode of teaching-learning seems to be an idealistic and elusive notion. Training of teachers and their orientation to handle and use technology. All the stakeholders need to have a positive attitude towards technology in order to gain digital competency and effective implementation of Blended

learning mode. More and more e-content need to be developed in regional or vernacular language to address and respect the diversity and local context. Better learning management system and software needed to enable synchronous and asynchronous learning. One of the vital issue is the digital divide so far the diversity in socio-economic geographic location, disability, language, education barrier and low internet penetration is concern. Effective mode only possible when there is very minute digital divide or if we could manage to reduce at maximum level. There is need more specific teaching framework and strategy to address competency based disciplines like Music, arts, Engineering, teaching internship and many more while implementing Blended learning mode in Higher education institutions. However, since India made a leapfrogging step at digital and online learning since the outbreak of current COVID-19 pandemic, therefore we need effective blue print and roadmap for better teaching learning in digital Higher education 4.0 ecosystems.

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Accelerated Technology Disruption in Education Sector[#]

Ranjana Mary Varghese*

Disruption was everywhere when COVID 19 hit the country. It has affected all walks of life and very specifically have changed the face of education. A sellers' market was created in EdTech space and institutions hastily adopted to various commercially available digital learning solutions. The COVID-19 pandemic has therefore also created a sellers' market in ed-tech. Even before COVID-19, Ed-Tech has been redefining and reducing the various teaching and learning concepts. CT was considered as a magic wand which could improve teaching, learning, skill development etc from 1980s. Users are getting distressed when the education website keeps on asking personal details each time they login to various online learning platforms. The data capturing keeps repeating in all the websites.

This gains further importance and a matter of concern with the new "The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021" taking effect a few days back. With the second wave of pandemic and various other epidemics identified in various states of India, the education domain and institutions would continue to function on an online mode for the academic year 2021.

The conventional classroom learning and teaching methods are augmented and replaced by technology powered online education, which has made the various EdTech apps very popular. The high demand and the diversity in educational systems also saw the entry of many novel EdTech (Education Technology firms and startups) companies, with plenty of learning programs and applications. This disruption created a lot of bewilderment amongst the parents, students and teachers. The EdTech companies are capitalizing the present chances and making money with customized products from self-learning resources, collaborative scholastic contents, virtual classes, customized tuitions, student activities, trial tests

and many more. Datafication of education keeps focusing on goals like improving the engagement of student or personalized learning. On the other hand they also harness online platforms as profit generating engines working based on the collection and usage of mass data of users.

India's EdTech industry is growing at an exponential pace, and has become the second biggest in the world. EdTech business in India is expected to touch \$3.2 billion by 2022, the least affected due to the Pandemic. Private equity and Venture Capital funding in EdTech industry in India have been on a significant rise with an approximate of \$1.5 billion as on September 2020, which is a 4x surge than in 2019. These companies have leveraged the exponential technologies, intelligent applications and future systems such as Virtual reality, augmented reality, Artificial Intelligence, Computer Vision and many more. They bring in a personalized learning system and make learning more fun, and help learners to understand the complex concepts with ease.

Educational Technology enables scale and reach at lower cost and in a faster way, which was not possible earlier with the traditional methodologies. Education has become affordable and reachable using a direct to device model. EdTech partnerships help in being innovative and offer speedy solutions for staying afloat in the post-COVID environment. Flexibility and self-paced learning offered by the Ed Tech providers are accelerating up skilling and reskilling in various technologies, skills and capabilities. The level playing field has given an opportunity for every student an equal opportunity to obtain knowledge, skill and expertise. Geographical barriers have been broken down and allow students to have access to high value learning from top institutions faster, better and cheaper.

Roles of teachers have changed significantly in the new paradigm. Teachers have to transform themselves to be facilitators and curators, where the teachers were not trained and skilled on the new ways of technology powered learning and teaching.

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This was a difficult proposition to educators, as they have to up skill not only on technology, but also on the technology enabled teaching with no direct one to many interactions cited in a real classroom. Remotely managing the attention and discipline of the students, with no or minimal visibility, added more challenges and pressure to the teachers.

Adaptive Learning

Much as the same, how Amazon or Flipkart brings out AI generated recommendations based on the consumer buying behavior, Adaptive learning is a technology-based or online educational system for delivering personalized learning to address the individual needs of a student with customized contents. These new age technologies help analyzing a student's performance in real time and contextualize the teaching/ learning methods based on those derived insights. The question here is to understand the value and the benefits delivered to the students. There are enormous benefits associated with Adaptive learning. The algorithm devises a personalized learning plan. This requires regular and consistent on-screen engagement with the respective academic programs, course contents, educational materials and continuous assessments. Adaptive learning helps teachers personalize the content and programs, so concepts can be introduced in modules based on the individual needs of each of the students.

But the impacts of this new revolution and transformation in education domain are much more than that. The current Kindergarten, Middle and Senior School system in India is one of the biggest one in the world with about 1.4 million and more schools and 250+ million pupils registered. As per August 2020 Indian Education Sector Industry Report of IBEF, India has already grown into the second main market for e-learning in the world, after the United States of America. In spite of many directives from various State governments regarding prescribed number of screen time or online engagement for the school students, it is found that, the parents who can afford the new age learning solutions are enabling learning for their kids using technology, and are beneficiaries of Adaptive learning. Adversely, India stands at the 115th position in education in the Legatum Prosperity Index 2020, compared to Singapore which is in first position, followed by the United

States of America in Second position; India was at 104 in 2018.

The schools and colleges are also providing many online learning programs, digital conferences and webinars related to various knowledge and skill development aspects to engage with the students during lockdown, in collaboration with this new generation. EdTech companies. It is imperative to raise the concerns on "who will be regulating these EdTech companies and who will be reviewing, moderating and approving the content of these Adaptive learning solution providers?"

The fact is that, the major anxieties go further than content and outlines.

There are a number of significant challenges in the current online only teaching and learning activities, and are not limited to physical, ethical, psychological, behavioral, and financial, employment, infrastructure and technology. Some of the key aspects such as Data Security, Data Privacy, Social and Ethical challenges are to be addressed swiftly in this online education system. The confidentiality policies of many of the EdTech businesses are hesitant and ambiguous. Many times, the privacy policies assume that the consent lies with the user, and so is the responsibility. Most of the customers and end users of these new age EdTech players are neither informed, made aware, educated nor having the legal knowledge enough, before giving consent to these privacy policies.

The increasing cost of education, concerns about the financial stability in these unprecedented times, results and accountability of the educational institutions, new age skill requirements of the educators etc. have made the parents to approach the services provided by online software and educational technology. Though the virtual education and the Ed Tech firms are making education and education more exciting, a major area of anxiety is on, how the user's data is obtained, kept, treated, used and possibly monetized. Hateful use of this delicate data by the unauthorized folks and groups, could effect in social engineering, monetary crimes & deceptions, cyber bullying, user tracking, individuality theft, or other ways for targeting kids.

These lead to the common citizens to raise a (natural) question on the ethical concern on the courses offered by EdTech, especially at K-12 level.

In May 2020, Unacademy, one of the major EdTech companies of India, was penetrated by cyber risk actors and danger groups. Most of the individually identifiable facts of the users of Unacademy, was put up for sale on the dark web. While the proactive steps from the Government towards technological and social advancements are welcomed, it is vital to take measures to guard, regulate and rule the overwhelming pile of individual data of the pupils, parents and other users. As the user base of the EdTech companies are increasing exponentially, the need of a strong power and directive from the administration is inevitable to depose the apprehension about the confidentiality concerns, absence of transparency and answerability on the scholastic contents distributed through these channels.

This disturbance in education area is also raising ethical and social worries.

The potential threat of privacy and data security issues is a significant concern for everyone. But there are enormous obscured challenges and imperceptible concerns on the social aspects of the students. The role of an ethical approach in the education industry is vital to develop responsible citizens. Some of the key parts of concerns in the societal and moral aspects are:

- Biased content transfer
- Hidden influence on job decisions
- Minimal or no historic data availability for well-organized data modeling and machine learning, which caused incorrect profiling of the students
- High unemployment of regular and orthodox educators
- Lack of sufficient up skilling and reskilling of the educators
- Standardization and moderation of learning material without supervisory approvals

The “off the shelf” content, delivered through the new generation EdTech platforms, rarely reviewed and approved by a central governing body, nominated by the state and central governments. It is paramount for parents and students to clearly understand the milieu of the various EdTech organizations, their respective platforms, the content offered etc. One of the key perspectives may be looked at is whether the Educational Technology organization is created on “a vision of learning

and use the power of technology to achieve their goal” or “one with Technology first approach and use education as a means to test their innovations, and then to monetization”. Hence though there are plenty of these Edtech providers of which some deliver online course libraries, some with training labs, choosing one which matches your requirement is a hurdle.

The providers and the learners should also be taught to become responsible digital citizens. Digital Citizenship is defined as the harmless, ethical, accountable, and conversant use of technology.

India PDP Bill – The Role in the Education Sector

The Section 16(2) the PDP Bill, 2019, says that the data fiduciary shall, before handling any personal data of a student, confirm their oldness and get the agreement of their parent, in a manner which is stated by rules by the Power under the Act. Moreover, as per Section 11(5), the liability of proof that permission has been given by the data principal for handling of the personal data under this section shall be on the data fiduciary.

In order to honor the fundamental *Right to Privacy*, it is important for the respective platforms to provide clearness and disclosure about its policies and terms. It is the respective EdTech organizations responsibility and accountability to ensure that classy systems, contexts and programs are implemented to proactively guard against instances of cyber-attacks, data cracks and data violations. It is also vital to frame a structure on the PDP Bill that is well prepared to manage policy changes while safeguarding a constant guard of data security and data privacy rights. In case of non-compliance with this provision, there is monetary penalty as proposed by the impending PDP Bill 2019. More the students use technology to aid their learning, educational institutions need to ensure that students privacy is protected continuously even while allowing the usage of appropriate data for personalized learning. This has to be extended to the family and teachers as well.

Unfortunately, due to the technical and legal intricacies, lack of awareness and indispensability, a majority of the Indian population will stay unaware of this issue and not do much about it other than accept the terms being forced upon them.

Additional laws and clauses may be considered to be incorporated to protect the interest and rights of the end users of these digital platforms and educational systems, in case of a data breach and privacy violation incident.

The mode forward and the necessity for quantifiable controls for addressing the challenges.

Privacy Check

Parents, students and the end users should be aware of these challenges in the new age educational systems. They should be educated, informed and made aware on the various dangers and challenges related to the app based education and learning. Educational institutes and government sections should enable awareness drives, conduct periodic checking and initiate performance appraisals of these next generation academic programs.

Government should establish grievance redressal units to address the concerns and challenges faced by the parents, students and end users, with proper communication channels, guidelines and resolution frameworks.

Parents, students and end users should be provided with the coordinates of the Data Confidentiality and Legal Agencies of the EdTech organizations and also well recognized procedures and policies on how the facts is being collected, kept, administered, investigated and used.

The EdTech companies should be required to follow additional due diligence, including the appointment of an officer, who can act as a nodal officer and also as a grievance officer. The EdTech companies also should ensure that a proper content review and moderation before choosing a publisher and the course materials.

Regulatory System

There are no or minimal number of boards or certification authorities or controlling bodies in India today for governing the fore said challenges and growing anxieties in the ever changing educational sector. A definite regulatory outline has to be in place to cope the ethical feature of forced education, behavioral and psychographic files drainage, content ruling, standards, agreements etc.

With the lengthy procedure of passing the Data Protection rules in India, honorable judiciary systems may supervise and provide essential rules

to safeguard that the EdTech businesses and the next generation educational service providers implement schemes and procedure to address many of the fears and encounters briefed above. Many liberal steps are already taken by many nations on the Data Privacy and Data Protection of their clients. GDPR (General Data Protection Regulation) by European Union is a prominent example of a strong supervisory outline taking care of the data confidentiality management of its citizens.

Pandemic shaped a watershed instant which changed learning. It is important to carefully evaluate the Edtech strategies across all courses. As much as it altered education, technology in learning opened up a doorway to the confidentiality of learners. It is therefore important to scrutinize the way in which Education technology is cutting and regulating the new trail of learning.

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Re-interpretation of W B Yeats' Poem 'The Ballad of Father Gilligan' in the Light of Pandemic COVID-19 to Inculcate Value Education among Students of Higher Education

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Literature forms an important part of our education. It enhances our understanding of life. Great literature transcends borders of nations, race, caste religion and time. At present our minds are preoccupied with pandemic COVID-19. So, it is high time to reread and reinterpret great works and try to find out answers to contemporary issues and difficulties. The poem, *The Ballad of Father Gilligan*, describes the duty of reverend father Gilligan. The present analogical study attempts to reinterpret the poem in the light of contemporary situation of spread of Pandemic COVID-19 and found that the poem is applicable to the present situation of pandemic and it gives various lessons as how we should behave in the present disastrous time and thereby helps to inculcate value education among students of higher education.

The Ballad of Father Gilligan

*The old priest Peter Gilligan
Was weary night and day;
For half his flock were in their beds,
Or under green sods lay.*

*Once, while he nodded on a chair,
At the moth-hour of eve,
Another poor man sent for him,
And he began to grieve.*

*'I have no rest, nor joy, nor peace,
For people die and die';
And after cried he, 'God forgive!
My body spoke, not I!'*

*He knelt, and leaning on the chair
He prayed and fell asleep;
And the moth-hour went from the fields,
And stars began to peep.*

*They slowly into millions grew,
And leaves shook in the wind;
And God covered the world with shade,
And whispered to mankind.*

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*Upon the time of sparrow-chirp
When the moths came once more.
The old priest Peter Gilligan
Stood upright on the floor.*

*'Mavrone, mavrone! the man has died
While I slept on the chair';
He roused his horse out of its sleep,
And rode with little care.*

*He rode now as he never rode,
By rocky lane and fen;
The sick man's wife opened the door:
'Father! you come again!'*

*'And is the poor man dead?' he cried.
'He died an hour ago.'
The old priest Peter Gilligan
In grief swayed to and fro.*

*'When you were gone, he turned and died
As merry as a bird.'
The old priest Peter Gilligan
He knelt him at that word.*

*'He Who hath made the night of stars
For souls who tire and bleed,
Sent one of His great angels down
To help me in my need.*

*'He Who is wrapped in purple robes,
With planets in His care,
Had pity on the least of things
Asleep upon a chair.'*

William Butler Yeats

The poem *The Ballad of father Gilligan* is a religious poem written by Famous poets W.B. Yeats which has been prescribed to third year B.A. course of Savitribai Phule Pune University and published by Orient Black Swan in the text book edited by Dr. Ashok Chaskar. It presents the character of old, dutiful and honest reverend father Peter Gilligan. The poem describes the duty of reverend father Gilligan to visit persons on death bed to tell them stories from the Bible so that their soul leaves peacefully. In the present study the researcher has reread and

reinterpreted the poem in the light of contemporary situation of spread of Pandemic COVID-19 and found that the poem is applicable to the present situation of pandemic and it gives various lessons as to how we should behave in the present disastrous time. There is an analogy between the teaching of the poem and the need of lifestyle in the present pandemic situation.

An Overview of Pandemic- COVID-19 Situation

The entire world today is going through a very difficult time because of severe spread of Pandemic i.e. COVID-19 third wave. The entire world is at a standstill and all physical activities are stopped and people are imprisoned in their homes due to impeding of lock down so as to stop the spread of this pandemic. The government has laid down guidelines of wearing masks, using sanitizer and maintains physical distancing which is called social distancing. It is a kind of manmade disaster that has resulted from unprecedented material progress, decline of values and cut throat competition with an aim to surpass in the development at the cost of loss of Nature and humanity.

Literal Meaning of The Poem *the Ballad of Father Gilligan*

The poem *The Ballad of father Gilligan* is a fine ballad having all the features of ballad poetry. It begins with the description of the service of father reverend Gilligan that after visiting many dying persons he is very exhausted. He has been working day and night for visiting persons on death bed and consoling them by telling sermons and stories from the Bible. Father Gilligan's work has increased since many people in his town are dying. The poet has used the image of the flock for his town people. "*For half of his flock were in their bed.*" When fatigued father Gilligan was sitting on his chair at midnight, a poor man came to invite him to visit his house for a dying person. Since Father Gilligan was already tired he made a complaint to God. "*I have no rest nor joy, nor peace, For people die and die*" But soon the Father realizes his mistake in complaining and he cries to God to forgive his mistake, "*My body spoke not I*" and he kneels down and praises God but very soon he goes to sleep. The evening passes and the stars begin appearing in the sky and it is said that "*God covered the whole world with shade and whispered to mankind*"! Next morning old priest Father Peter Gilligan is awakened by sparrow

chirping. He suddenly stands on the floor and realizes that he couldn't visit the dying person because he slept on the chair. He rides on his horse as he never rode. When he comes to the door of the sick man his wife opens the door and asks "*Father! you come again!*" When the father asks her, "*And is the poor man dead?*" The wife answers "*he died an hour ago.*" Father Gilligan becomes nervous and starts swaying to and fro. The wife says "*When you were gone, he turned and died as merry as a bird.*" After listening to this father Gilligan realizes that God has sent his angel in disguise of Father Gilligan and he has told stories and sermon from the Bible to the dying person and therefore the person died peacefully as happy as a bird. So Father Gilligan kneels and praises God because God has helped him in his need. "*He who is wrapped in purple robes with planets in his care had pity on the least of things.*" This means that God has sent his angel to help father Gilligan and so God is caring for every person in the world who helps others.

Thus, the poem gives a message that *God helps those who help others*. It follows the parable – *Service to man is service to God*. The poet is thus a strong believer of Christianity and the parable of Christianity to help people is God's service. The poem highlights that God's grace is omnipresent in the difficult time.

Reinterpretation of the Poem *the Ballad of Father Gilligan* in The Light Pandemic

The reinterpretation of the poem shows that it is applicable in the present pandemic situation. Like Father Gilligan, every one of us should be dutiful and honest in the social work of helping the corona positive patients, their parents, jobless workers/ laborers and poor daily wage workers who have lost their earnings. Remember the fundamental idea of the poem that *God will help those who help others*. So, it is essential to be cooperative and generous with people. We should become like Father Gilligan and help poor and needy people around us during this pandemic period. Today many people are suffering from psychological problems like frustration, nervousness, anxiety, depression, unknown fear, trauma of being sick, loneliness, sleeplessness etc. They need urgent help and we should provide them whatever kind of help that is possible for us. As Velázquez, has rightly said, "*The frustration of feeling useless is considerable and it is difficult to*

hide it. We remain at home to write our own articles, to read, to give classes and webinars, but we would like to do more while the world sinks.” (Velázquez, 2020) During this pandemic the beggars need food, water, clothes and we can help them by providing food packets, water and clothes. It is possible that people in an apartment will prepare extra food apart from everyday requirements which can be distributed among the beggars by representatives. We can fight with this pandemic not individually but with united efforts of all people in the society. For example, in case of wearing masks an individual’s wearing mask will not suffice but the entire community efforts in wearing masks will definitely help to stop the spread of this COVID-19 virus. Virtues of cooperation, support and caring need to be rewarded. The post COVID-19 world will be known by the great service by COVID-19 WARRIORS including doctors, nurses, medical practitioners and helpers, chemists and druggists who are working day and night to save the lives of Corona positive patients. They will be known as angels of God spreading humanity by sacrificing family and friends for the sake of duty during the fight with the pandemic - Corona. As Navya Maheshwari has rightly said “*The post-pandemic stage will see the unfolding of a new human race; the ideologies of the people will die from what it was before this pandemic took place. People are now ready to make sacrifices on a personal level for the betterment of society.*” (Maheshwari, 2020) The role of doctors toiling to save the patients can be compared with Reverend Father Gilligan. The only difference is that Father Gilligan is working hard to tell sermons to the dying persons without caring for his body and the doctors are toiling hard to save the lives of Corona patients in hospitals.

The speech of reverend Father Gilligan is expressed as soft and polite in the poem. During a midnight when a call comes from the house of a dying person, his words are harsh but he immediately feels sorry for it and he cries to God to forgive his mistake and says, “*My body spake not I.*” We should take it as a lesson from this poem that now we should be polite and feel sorry for our harsh words to people. The words of Father Gilligan are described, “*And is the poor man dead?’ he cried.*” It shows that he was a very kind-hearted person. So there is a need to detoxify our speech and we should reduce the use of cuss words in our communication. Let’s make a promise to ourselves that I will never talk rudely to my parents,

friends and relatives because I don’t know who will help me in disguise in the difficult time. We should try to observe people around us and imbibe their virtues like Father Gilligan. The Corona warriors are putting their life at risk and working hard to save our life. So our approach should be humanitarian and we should keep aside all enmity and hatred towards people.

Father Gilligan kneels after committing the mistake of complaining to God. “*He knelt, and leaning on the chair.*” This incident teaches us to kneel down our ego and be sorry for the wrong things that we have committed. It is time to say no to ego because this pandemic has taught us that after death the dead body is also cremated in the absence of relatives and no special treatment is given even to the dead person who was millionaire. Like Father Gilligan we should be ego-free person.

There is a message in the poem that whatever you do, do it with full involvement and with dedication just like Father Gilligan. Help people with full involvement and dedication and don’t make show off. “*He Who hath made the night of stars For souls who tire and bleed.*” These lines highlight the poet’s belief in God’s existence and the power of prayer to him. The poem depicts that Father Gilligan prays to God in the difficult time so it is a kind of message to us that we should pray to God in this difficult situation which will definitely help us to overcome from the mental stress and depression of the pandemic and the impending lockdown period.

The poet mentions that the old priest Father Gilligan is awakened by sparrow chirping. This shows that the father is the lover of nature. His morning is spent in the company of birds. This is a kind of message for all of us that during this lockdown period when we are imprisoned in our home, we should also try to wake up early and listen to the sparrow chirping. Instead of beginning our morning with daily chores and hurrying to go on our job now, lock down is a kind of opportunity to enjoy the company of nature. In the daily routine there was no time to listen to the sparrow chirping but now in the seclusion of lockdown we can definitely come close to Nature.

The poem teaches us to be sympathetic and caring towards animals. Father Gilligan is presented as generous towards his horse and it is said that when he drives his horse, he is caring. It is said that “*He roused his horse out of its sleep, And rode with little*

care.” The same generosity and kindness is necessary today while fighting with the pandemic Covid-19. We should be sympathetic towards animals and birds. We can feed them with food and water since we have good time available in this lockdown. Father Gilligan wakes up early morning this also means that he was conscious about his health. The poem thus teaches us to wake up early morning and take care of our health because he who has good health has hope and he who has hope has everything in life. So, during this pandemic period, it is our duty to take best care of our mind and body. Regular workout and exercise staying at home will make our body fit and regular meditation will make our mind and heart peaceful. Health is wealth goes the saying so it is urge to take special care of our body and mind and stay fit. Smiling will help to boost our heart and forget all the tensions and worries. So it is the need of the time that we should smile and also make our family members smile by telling them happy anecdotes, incidents and jokes. No money is required to smile but the smile definitely gives happiness that cannot be purchased by millions of rupees.

Conclusion

To conclude the poem *The Ballad of Father Gilligan* is applicable in the present pandemic situation and teaches us various lessons as how should we behave? It definitely highlights the importance of value education and virtues of cooperation in our life during this pandemic situation. It teaches us the parable that God helps those who help others, so we should stop complaining and start helping people around us. Let’s conclude the analogy with the poem by famous actress Sophia Loren-

“When I got enough confidence, the stage was gone.....
 When I was sure of Losing, I won.....
 When I needed People the most, they Left me.....
 When I learnt to dry my Tears, I found a shoulder to Cry
 on.....
 When I mastered the Skill of Hating,
 Someone started Loving me from the core of the
 Heart.....
 And, while waiting for Light for Hours when I fell
 asleep, the Sun came out.....
 That’s LIFE!! No matter what you Plan, you never know
 what Life has Planned for you..... Success introduces
 you to the World.....
 But Failure introduces the World to you.....
 Always be Happy!! Often when we lose Hope and think
 this is the end...
 God smiles from above and says, “Relax Sweetheart; It’s
 just a Bend, not the End..!”

(Sophia Loren)

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Sustainable Infrastructure: A Path for the Future

T R Piplani*

Infrastructure sector is a key driver for the Indian economy. The sector is highly responsible for propelling India's overall development and enjoys intense focus from Government for initiating policies that would ensure time-bound creation of world class infrastructure in the country. Infrastructure sector includes power, bridges, dams, roads, and urban infrastructure development. Infrastructure is necessary for growth. It provides services that allow society to function and economies to develop, from transportation infrastructure to electricity-generation & hydropower facilities, and water supply and hygiene networks. Infrastructure is thus placed at the centre of efforts to achieve the Sustainable Development Goals (SDGs). Infrastructure should not be considered as a single asset, such as a power station, water, or hospital network, but rather as part of a system with a portfolio of assets that cumulatively have significant ability to accomplish the three spheres of the SDGs, i.e., economic, environmental, and social sustainability.

At its narrowest, sustainable infrastructure can refer to 'green' or 'smart' buildings. More broadly it can encompass a wide range of initiatives with a specific focus on energy, water and land management; green areas; smart technology and the use of sustainable, durable building materials. It can also refer to existing infrastructure which is retrofitted, rehabilitated, redesigned and reused. Whatever definition is used, sustainable infrastructure is generally considered to approach development from a holistic viewpoint and based on global and domestic sustainable development goals and durability and having regard to social, financial and political issues, public health and wellbeing, as well as economic and environmental concerns.

Sustainable infrastructure has overlapping benefits from physical, environmental, economic and social perspectives. From a base environmental perspective, sustainable infrastructure aids climate

resilience, which ultimately helps economic resilience.

The world will have to invest \$90 trillion in sustainable infrastructure by 2030, according to estimates by The New Climate Economy. According to the latest population survey conducted by the United Nations (UN), it all suggests that in 2030 we will have more cities and mega cities than ever, housing 60% of humankind.

As cities grow, many of their inhabitants gain opportunities, prosperity and well-being, but that growth also significantly upsets the social, economic and environmental balance.

Only with a coordinated approach and action at the global, regional, national and local levels, can success be achieved. It is essential, therefore, to make cities an integral part of the solution in fighting climate change. Many cities are already doing a lot by using renewable energy sources, cleaner production techniques and regulations or incentives to limit industrial emissions. Cutting emissions will also reduce local pollution from industries and transport, thus improving urban air quality and the health of city dwellers.

The concept of sustainable infrastructure refers to equipment and systems that are designed to meet the population's essential service needs including roads, bridges, telephone pylons, hydroelectric power stations, etc. based on all-round sustainable principles. This means the infrastructure is environmentally friendly from end to end, and that includes economic, financial, social and institutional factors.

With urban areas growing exponentially, especially in emerging countries, sustainable infrastructure is showing its worth as a more efficient, productive and environmentally friendly options. Furthermore, according to the World Bank, these facilities prove more profitable as they make for more reliable services and greater resilience to extreme weather events, as well as lessening the impact of natural threats to people and the economy.

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Replacing old urban infrastructure for new modern and sustainable elements will make cities more inhabitable and inclusive. This would require a multi-trillion dollar investment worldwide over the next decade. But if we do things right, it would also see us on the road to economic growth.

Neglecting sustainable infrastructure investments can result in dire environmental and social impact. In some Emerging Asian cities, rapid urbanisation has led to traffic congestion, reduced green spaces, increased waste generation and sinking land area, due to excessive groundwater extraction. These are challenges governments are still trying to resolve, and highlight the need for sustainable infrastructure as Emerging Asia continues to develop.

Projects are becoming more attractive as costs of sustainable infrastructure continue to fall over time. Similarly, the positive externalities generated from sustainable infrastructure, such as increased commercial land value, emphasises the commercial benefits sustainable infrastructure can bring to businesses and governments. However, such economic, social and environmental benefits need to be more consistently acknowledged and reflected in decision making. This highlights a greater need for partnerships between businesses and governments to coordinate and develop stronger mechanisms, in order to ensure the benefits of sustainable infrastructure can be captured by society.

The most significant part in contributing to a country's innovation is played by universities and education, and India has achieved strides in this area. Availability to knowledge and, as a result, the improvement of education for everybody has improved as a result of pervasive access to internet.

Indian Government has brought various initiatives towards the enhancement of innovation, infrastructural & industrial sector.

The infrastructure sector has become the biggest focus area for the Government of India. India plans to spend US\$ 1.4 trillion on infrastructure during 2019-23 to have a sustainable development of the country. The Government has suggested investment of Rs. 5,000,000 crore (US\$ 750 billion) for railways infrastructure from 2018-30.

Assets pertaining to sustainable infrastructure and industries play a critical role in enabling citizens with the facilities they require, increasing quality of life, and safeguarding the environment. The requirement for durable and sustainable infrastructure is critical.

India's efforts towards channelizing more resources for research and development are rooted in the belief that widely-accessible and environment friendly engineering solutions will need an ecosystem to sustain them and require the best and brightest minds to steer the sails.

To address these issues, India is hosting for the first time the Civil Engineering Conference in the Asian Region popularly known as CECAR with the core theme "Sustainable Design and Eco-Technologies for Infrastructure" by including the following Sub-Themes appropriately:

I. Civil Engineering Education

1. Sustainability of Civil Engineering Education in the context of UN SDG
2. Ethics an important component of Civil Engineering curriculum.

II. Infrastructure Design and Construction Technologies

1. Innovative Infrastructure, design practices and construction technology for sustainability.
2. Infrastructure development for smart and sustainable cities and affordable housing for developing economies.

III. New Construction Materials

New construction materials and sustainability of infrastructure.

IV. Geo Technical Engineering

Geo technology management, operation & safety.

V. Transportation

1. Eco-technologies in pavement design & construction of roads & airports.
2. Traffic Management, operation & safety.
3. New frontiers in Railway technology.

VI. Environmental Engineering

1. Green building concept, design & construction technology & their impact on carbon rating.

2. Landfill management technology for energy production.
3. Industrial waste treatment technologies & water pollution.

VII. Water Resource Management

1. Water resource management techniques & technologies.
2. GIS and water shed management techniques.

VIII. Renewable energy

Renewable energy, its storage & use.

IX. Application of IT & modeling

1. Application of IT in Civil Engineering projects.
2. Modeling for efficient design of Civil Engineering projects.

X. Disaster Management

Disaster preparedness, mitigation & rehabilitation.

This will be a platform to inspire and engage the infrastructural fraternity across India and Globally through observation, experimentation and fructification of ideas via inferences and model-building. A marriage between innovation and technology that fosters critical and design thinking will be an important outcome in unearthing the possibilities for sustainable development.

This will be a catalyst in attracting FDI flows into India and facilitate Technology Transfers to actualize Hon'ble Prime Minister Shri Narendra Modi's vision to enhance India's global competitiveness through next-generation infrastructure, seamless multi-modal connectivity, movement of goods and people and enhance the ease of living as well as the ease of doing business by enhanced synergies also creating multiple employment opportunities. It can be a booster dose for Giant Stride in India's \$5 Trillion Economy Goal.

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Education : The Potent Tool of Change in Nation Building

Ram Nath Kovind, Hon'ble President of India delivered the Convocation Address at the 5th Convocation Ceremony of The Central University of Kerala, Kasargod on December 21, 2021. He said, "Education, as Sri Narayan Guru reminded us, could uplift the quality of the student's life and thus also of society. The great sage and social reformer used to inspire people with his lines like '*Vidyakondhu Prabuddha Ravuka*' which signifies, 'Get enlightened through education'. The lives of great men and women, especially the leaders of our freedom movement, highlight the simple truth that schools and colleges are the most important sites of personal and social transformation. These are the workshops where the destiny of a nation is shaped." Excerpts

It gives me immense pleasure to be among you today on the occasion of the fifth convocation of the Central University of Kerala. At the outset, let me congratulate the graduating students, and also the teachers and the staff of the university.

I always feel glad to be among students, especially on an occasion like this, which is a major milestone in your life's journey. Indeed, it is a memorable day not only for you but also for your family. You have completed a programme of higher education, and that has empowered not only you but your family too. When you realise that the whole nation is your family, your achievement today invariably contributes to the nation-building mission. Some of you will pursue further education and some may take to professional career. I wish you all success and hope that you will keep in mind the interest of the nation in whatever you do.

When I am in an educational campus, I experience a vibrancy which is rare to find in any other place. Education, as Sri Narayan Guru reminded us, could uplift the quality of the student's life and thus also of society. The great sage and social reformer used to inspire people with his lines like "*Vidyakondhu Prabuddha Ravuka*" which signifies, "Get enlightened through education". The lives of great men and women, especially the leaders of our freedom movement, highlight the simple truth that schools and colleges are the most important sites of personal and social transformation. These are the workshops where the destiny of a nation is shaped.

The liveliness and energy that I experience in educational places like this beautiful campus come from the possibilities of social empowerment. Here is a place where ideas are nurtured, taught and learnt. In this process, the atmosphere gets energised with the vitality of thoughts to give birth to new ideas. This unbroken cycle of knowledge is essential to empower the society and the nation.

Ladies and Gentlemen, In the promotion of education, then, the task of the government is to help create the right environment in which the young minds will be fired with creativity. The National Education Policy of 2020 is a well-planned roadmap to develop an eco-system that will nurture the talent of our young generation. The NEP aims to prepare them for the world of tomorrow, while also equipping them with the best of our own traditions. India is, after all, the land of Nalanda and Takshshila, of Aryabhata, Bhaskaracharya and Panini. Gandhiji compared the indigenous educational system with a beautiful tree that perished under colonialism. An effort is being made to rediscover its best aspects so that India makes a contribution to the world that it alone is destined to make.

At our annual conferences, I have had the occasion to discuss the implementation of the NEP with vice-chancellors of central universities and directors of other educational institutions. The consensus is that this reorientation of our educational policy was long needed, and that it has the potential to turn India into a hub of knowledge. I believe that the most outstanding feature of the NEP is that it aims to promote both inclusion and excellence. Through its varied curricula, NEP promotes liberal as well as professional education, because each stream of knowledge has a role to play in society and in nation-building.

That way, the NEP can become instrumental for India to harness and reap the demographic dividend. The growing population of our country makes it incumbent upon us to nurture the next generation talent. When the younger generation is provided with skills and knowledge required for success in the world of the twenty-first century, they can do miracles.

The 21st century is described as knowledge century. Knowledge power will determine the place of a nation in the global community. In India, Kerala has led the other states on the critical parameters of

literacy and education. This has enabled Kerala to be a leading state on several other parameters of excellence too. As you all know, Shri P. N. Panicker had worked tirelessly to increase literacy in Kerala which has the highest literacy rate in the country. I will be unveiling the statue of the Late P.N. Panicker on the coming Thursday, December 23. Shri Panicker is an icon whose commitment to education should inspire everyone, especially the youth.

In the context of Kerala being a leading state in the area of learning and education, let me share with you a recent development about which some of you may be already informed. The Union Government has recommended names of three cities from the entire country for being listed in UNESCO's Global Network of Learning. Out of them two cities are from Kerala. These two cities are Thrissur and Nilambur. Being part of this Global Network supports the achievement of the Sustainable Development Goals, especially the goal of ensuring inclusive and equitable quality education and promoting life-long learning opportunities for all.

As far as gender equity is concerned, Kerala not only has favourable sex ratio, it has also been on the forefront of women empowerment. I am not surprised at all that all the three gold medal winners in today's convocation happen to be our daughters. I am also glad to note that the number of daughters who have received degree is nearly thrice the number of boys. I have been told that our daughters constitute 64 per cent of the total number of students in the university. I have been observing this growing empowerment of daughters through education in other parts of the country also. In this empowerment-through-education of our daughters, I see the India of the future which will become a knowledge power with rich contribution from our daughters.

Dear Students, This convocation day takes place amid an extraordinary global crisis. The Covid-19 pandemic has been unprecedented in the modern era. As the virus keeps mutating and throwing up new variants, scientists are grappling with the situation and trying to find a cure to come out of these troubled times. But every crisis comes with opportunities. Your education was affected early last year, but technological solutions were put in place in no time and now you have successfully completed your courses. In the process, you must have learnt many lessons beyond your syllabus. You have learnt better ways to respond to difficulties and challenges.

It has been an extraordinary crisis for the nation too. So many lives have been cut short that it will take a long time for us to come out of this collective grief. Yet,

there has been a lot to be grateful for. Many lives have been saved too. Our 'Corona Warriors' exemplified the best human values. Our doctors and scientists rose to the challenge. Our Government has been efficiently overseeing the largest vaccination exercise in history.

Dear Students, I love visiting Kerala because of its incomparable natural beauty and the warmth of the people here. The lush green fields, the beaches and backwaters, hills and woods, the ocean and other fascinating aspects of nature in Kerala have attracted people since ancient times. The beauty of Kerala has inspired rich poetry over the centuries. Mathruvandanam is among more popular poems written by Vallathol who is respected as one of the greatest poets of India. The poem is remarkable for the description of Mother Nature and for its patriotic sentiments. In the beginning of the long poem, Vallathol inspires us to salute the Motherland who is revered and who showers her blessings upon us:

Bow to the mother, bow to the mother, Bow to her who is great, Bow to her who grants boons. This great poem by Vallathol also reminds me of our National Song '*Vande-Mataram*'.

Ladies and Gentlemen, Kasargod is the very crown of 'God's Own Country' as it is the northernmost part of the state. Your campus too is a beautiful site. The richness of this environment comes not only from such physical features, but also from the life in it. That is what makes Kasargod rich in biodiversity. Kasargod also has multiplicity of rich and diverse languages and dialects. Did you ever wonder about the link between the two? Experts tell us that the two kinds of diversity, of species and of languages, go hand in hand. The 'linguistic harmony' and the pristine natural beauty that Kasargod takes pride in are connected.

This is a priceless heritage the previous generations conserved and protected for you. It is now your responsibility to ensure that the generation after you will be able to rest their eyes on this beauty. How will you do it? If you carefully listen, nature will show you the way. Its advice, in one word, is harmony. Live in harmony with the environment, just as the seven languages are living in harmony with one another.

Ladies and Gentlemen, I again congratulate the students and scholars for their achievements. I also congratulate teachers and the non-teaching staff to make this possible for the students. The vice-chancellor and his team deserve to be congratulated too. My best wishes are always with you in all your endeavours. I wish you all Merry Christmas and a very happy new year.

Thank you.
Jai Hind!

CAMPUS NEWS

Online Periodic Lecture Programme

A two-day Online Periodic Lecture was organized by the Department of Tamil, GTN Arts College, Dindigul, Tamil Nadu in collaboration with Indian Council of Philosophical Research (ICPR), New Delhi during January 06-07, 2022. More than 400 students and 25 Teachers were actively participated and interacted with the guest speakers. The Programme was inaugurated and presided over by the Principal, Dr. P Balagurusamy. The Organising Secretary, Dr. S Sujatha, Head, Department of Tamil welcomed the gathering and explained about the Programme.

Resource Person, Dr. M Bharani, Assistant Professor, Department of Philosophy, Annamalai University, Chidambaram spoke on the topic 'Epistemologies Adopted by Sri Ramanuja to Prove his Individual Convictions Concerning God and Nature'. Philosophy (from Greek: φιλοσοφία, *philosophia*, 'love of wisdom') is the study of general and fundamental questions, such as those about existence, reason, knowledge, values, mind and language. Such questions are often posed as problems to be studied or resolved. Some sources claim the term was coined by Pythagoras (c. 570 – c. 495 BCE); others dispute this story, arguing that Pythagoreans merely claimed use of a preexisting term. Philosophical methods include questioning, critical discussion, rational argument, and systematic presentation.

Historically, philosophy encompassed all bodies of knowledge and a practitioner was known as a philosopher. From the time of Ancient Greek philosopher Aristotle to the 19th century, 'natural philosophy' encompassed astronomy, medicine, and physics. For example, Newton's 1687 'Mathematical Principles of Natural Philosophy' later became classified as a book of physics. In the 19th century, the growth of modern research universities led academic philosophy and other disciplines to professionalize and specialize.

Resource Person, Dr. E Ravi Kumar, Assistant Professor, Department of Saiva Siddhanta Philosophy, Madurai Kamaraj University, Madurai spoke on the topic 'The Epistemologies of Sankara

and Saiva Siddhanta'. The *Visishtadvaita* is so called because it inculcates the *Advaita* or oneness of God, with *Visesha* or attributes. It is, therefore, qualified monism. God alone exists. All else that is seen are His manifestations or attributes. God or Lord Narayana of Sri Ramanuja is a complex organic whole—*Visishta*—though it is one. Hence, the name *Visishtadvaita*. According to Sri Sankara, all qualities or manifestations are unreal and temporary. They are a result of *Avidya* or ignorance. According to Sri Ramanuja, the attributes are real and permanent. But, they are subject to the control of the one Brahman. God can be one despite the existence of attributes, because they cannot exist alone; they are not independent entities. They are *Prakaras* or the modes, *Sesha* or the accessories, and *Niyama* or the controlled aspects, of the one Brahman.

Ramanuja's celebrated system of philosophy known as *Visishtadvaita* or qualified monism is *Advaita* or non-dualism with a qualification or *Visesha*. It admits plurality. Sri Ramanuja's Brahman or Lord Narayana subsists in a plurality of forms as souls (*Chit*) and matter (*Achit*). Hence, it is called *Visishtadvaita* or qualified non-dualism. *Visishtadvaita* philosophy is *Vaishnavism*. The *Sampradaya* of Ramanuja's cult or creed is known as Sri *Sampradaya*. His followers are *Vaishnavas*. Ramanuja systematised the philosophy of Vaishnavism. Ramanuja's religion is called Sri *Vaishnavism* because 'Sri' or the Goddess Lakshmi is made to have an important function to perform in the salvation of the soul. Sri Sankara's philosophy is too high, subtle and abstruse for the vast majority of persons. But Sri Ramanuja's philosophy is suitable for those in whom the devotional element preponderates. In Sri Ramanuja's system of philosophy, the Lord (Narayana) has two inseparable *Prakaras* or modes, viz., the world and the souls. These are related to Him as the body is related to the soul. They have no existence apart from Him. They inhere in Him as attributes in a substance. Matter and souls constitute the body of the Lord. The Lord is their indwellers. He is the controlling Reality. Matter and souls are the subordinate elements. They are termed *Viseshanas*, attributes. God is the *Viseshya* or that which is qualified.

Resource Person, Dr. TRavichandran, Assistant Professor, Department of Gandhian Thought Gandhigram Rural Institute, Gandhigram spoke on the topic 'The Epistemological Bases of Popular Hinduism'. Hinduism is a branch of philosophy that investigates the origin, nature, methods, and limits of human knowledge. Hinduism is an Indian religion and *dharma*, or way of life. It is the world's third-largest religion, with over 1.2 billion followers, or 15–16% of the global population, known as Hindus. The word *Hindu* is an exonym, and while Hinduism has been called the oldest religion in the world, many practitioners refer to their religion as *Sanātana Dharma* (Sanskrit सनातन धर्म, lit. "The Eternal Dharma"), which refers to the idea that its origins lie beyond human history, as revealed in the Hindu texts. Another, though less fitting, self-designation is *Vaidika dharma*, the 'dharma related to the Vedas.'

The six *darśanas* are: *Nyāya*, *Vaiśeṣika*, *Sāṅkhya*, *Yoga*, *Pūrvamīmāṃsā*, and *Vedānta*. As a rule, systematic Indian philosophy (Hinduism, Jainism and Buddhism) was recorded in Sanskrit, the pan-Indian language of scholarship, after the end of the Vedic period. Epistemology is called *pramāṇa*. It has been a key, much debated field of study in Hinduism since ancient times. *Pramāṇa* is a hindu theory of knowledge and discusses the valid means by which human beings can gain accurate knowledge. The focus of *pramāṇa* is how correct knowledge can be acquired, how one knows, how one doesn't, and to what extent knowledge pertinent about someone or something can be acquired. Ancient and medieval Hindu texts identify six *pramāṇas* as correct means of accurate knowledge and truths:

- i. *Pratyakṣa* – Direct perception
- ii. *Anumāṇa* – Inference or indirect perception
- iii. *Upamāṇa* – Comparison and analogy
- iv. *Arthāpatti* – Postulation, derivation from circumstances
- v. *Anupalabdi* – Non-perception, absence of proof
- vi. *Shabda* – Word, testimony of past or present reliable experts

Each of these is further categorized in terms of conditionality, completeness, confidence and possibility of error, by the different schools. The schools vary on how many of these six are valid paths of knowledge. For example, the *Cārvāka nāstika*

philosophy holds that only one (perception) is an epistemically reliable means of knowledge, the *Samkhya* school holds that three are (perception, inference and testimony) while the *Mīmāṃsā* and *Advaita* schools hold that all six are epistemically useful and reliable means of knowledge. Dr. P Ravichandran, Head and Associate Professor of Economics proposed the vote of thanks.

Online Faculty Development Programme

A five-day Online Faculty Development Programme on 'Artificial Intelligence for IoT Services in Cloud: Techniques and Applications' is being organized by the Department of Information Technology, Dr B R Ambedkar National Institute of Technology Jalandhar, (Punjab) during February 28–March 04, 2022. The faculty, research scholars of engineering and technological institutions, persons from the industry, etc. may participate in the event. The participants from academics/industry will also be benefited and the course will be a guide to learn and carry out research activities. The objective of FDP/workshop is to present a clear understanding for today's technologies based on Next Generation Smart Computing Paradigm. Prominent interactive sessions with experts will be conducted in different domains of research such as Cloud Computing and its Services, Fog/Edge Computing and its Applications, Internet-of-Things, Big Data & Analytics, Artificial Intelligence and many more. By doing the FDP course, participants will learn to develop a smart system incorporating the thrust areas and will learn about applications that may ease our day to day and real-life activities. The user will also adapt new trends of accessing and retrieving the data and analyze it from a remote location where he/she gets smart concepts offered. The Topics of the programme are:

- Artificial Intelligence.
- Cloud Computing and its Services.
- Fog/Edge Computing and its Applications.
- IoT Architecture and Protocols.
- Machine Learning APIs in Cloud.
- Smart e-Healthcare.
- Smart Agriculture.
- Big Data and Analytics.
- Machine and Deep Learning.
- Case Studies on Cloud and IoT Applications.

For further details, contact Coordinators, Dr. Mohit Kumar / Dr. Nisha Chaurasia, Department of Information Technology, Dr B R Ambedkar National Institute of Technology Jalandhar, Grand Trunk Road, Amritsar Bypass, Jalandhar -144011 (Punjab), Mobile No: 09759950380/ 07000591658, E-mail: kumarmohit@nitj.ac.in/ chaurasian@nitj.ac.in. For updates, log on to: https://www.nitj.ac.in/events_registration/fd_p_artificial_intelligence/login

International Conference on Contemporary Issues in Management

A two-day International Conference on ‘Contemporary Issues in Management’ is being organized by the International School of Management Excellence (ISME), Bengaluru during February 25-26, 2022. The event will be a platform for industry practitioners, academicians, entrepreneurs and research scholars to come to together, to learn, share and discuss current and emerging topics in management with thought leaders, technologists, and learning experts.

Contemporary management issues often trigger in us the need to think differently from customary and time tested management practices. In a dynamic environment, new issues create the need to develop and enhance tools and practices that facilitate more adaptive responses to emerging issues when they surface. Contemporary issues are particularly relevant to the present time of pandemic where it is important for all organisations world-wide to embrace the continuous changes in technology, economy, environment, and government policies across all sectors while remaining focused on the organisational mission and goals to remain competitive. The rise in technology adoption by businesses and consumers, economic fallout of the pandemic across the world, the rise of China as a global belligerent force and government policies moving towards a more nationalist agenda are some of the more recent changes that confront businesses and management today. The Tracks of the event are:

TRACK 1: Political and Economic Environment

- Reverse Globalization.
- Reviving Economies after COVID.
- Circular Economy.
- Disposable Income
- Environmental Expectations

TRACK 2: Business Excellence and Sustainability: Manufacturing, Services and Agricultural Sector

- Industrial Revolution 5.0.
- Indian Industry being Self-reliant.
- Renewable Energy.
- Impact of Contactless on Service Sector.
- Growth of Wellness in Healthcare.
- Business Sustainability Management during Pandemic.
- Supply Chain Transformation in Agricultural Sector.
- Reverse Supply Chain.

TRACK 3: Functional Areas of Business

- Adversity Quotient during Challenging Time.
- Employee Engagement and Motivation During and Post COVID.
- Emerging Work Force Trends in New Normal (Hybrid, WF 4.0).
- AR,VR and AI ,ChatBot in Marketing.
- Marketing to GenZ.
- Shift in Media Practices.
- Changing Consumer Buying Behavior during COVID.
- Factory Automation for Remote Operations.
- New Business Models and Evolution of SCM.
- Omni Channel.
- Regulatory Ecosystem for Fintech – P2P Lending, Crowd funding, Payments, Crypto Currencies.
- Artificial Liquidity and its Impact on Stock Market.
- Trends in Startup Financing.
- ESG- Environment Sustainability and Governance in Finance.

TRACK-4: Management of Technology

- Responsible AI.
- Cloud Adoption and Risk Management.
- Remote Management of Technology Infrastructure.
- Emergence of Data Engineering and Data Technology.

- Cyberbullying and Cyber Crime.
- Internet Addiction.

TRACK-5: Redefining Management Education

- NEP and its Impact.
- Paradigm Shift to Hybrid Learning.
- Psychological Implications of Online Learning.
- Edtech.
- Digital Divide and its Impact.

For further details, contact Organising Secretary, International School of Management Excellence (ISME), 88, Chembanahalli, Near Dommasandra Circle, Sarjapur Road, Dommasandra, Bengaluru-562125 (Karnataka), E-mail: cim.22@isme.in. For updates, log on to: www.isme.in

National Conference on Open Source Data Science

One-day National Conference on 'Open Source Data Science' is being organized by the Department of Computer Science and IQAC, Thakur College of Science and Commerce, Mumbai on March 05, 2022. The event is for academicians in the field of Computer Science, ICT and Data Science, R&D centers, industry who want to share their research work as well as share their research ideas, knowledge and skills with the world. The Topics of the event are:

- Data Visualization.
- Exploratory Data Analysis.
- Data Manipulation.
- Modelling Process in Data Science.
- Machine Learning.
- NLP.
- Deep Learning.
- Big Data and Analytics.
- Any Other Relevant Topic.

For further details, contact Organizing Secretary, Dr. Girish Tere, Department of Computer Science, Thakur College of Science and Commerce, Thakur Village, Kandivali East, Mumbai- 400101 (Maharashtra), Mobile No: 099920319945, E-mail: tcscncosds@gmail.com. For updates, log on to: <https://sites.google.com/view/tcscncosds>.

International Multidisciplinary Conference on Research Methodology

One-day Online International Multidisciplinary Conference on 'Research Methodology in Sciences, Library Science, Commerce, Pure Sciences, Management and Home Sciences, Sports Sciences, Engineering and Technology in Higher Education System in India' is being organized by the Department of Arts, Commerce and IQAC of Konkan Unnati Mitra Mandal's Vasantnao Naik College of Arts and Commerce, Raigad, Maharashtra on January 30, 2022. The event aims to be one of the leading events for presenting novel and fundamental advances in the fields of recent innovations in higher education system. It also serves to foster communication among researchers and practitioners working in a wide variety of scientific areas with a common interest in improving Recent Innovations in Commerce, Arts and Science. The topics of the event are:

- Local need based Rural Development.
- Indian Agriculture Marketing.
- E-Commerce & International Trade law in India and a broad.
- Banking System in COVID-19 Pandemic impact.
- Online Education System in India-The challenges.
- Woman Empowerment & Sensitization.
- Food Security in COVID-19 lockdown & Hotel Management Challenge.
- Financial Market in COVID-19 & Human Psychology.
- Library Science : A Case study.
- Indian Accountancy System.
- Impact of COVID-19 on exams of Universities & Colleges.
- Trends of Social Sciences in COVID-19 Pandemic.
- Role of political parties in COVID-19 Pandemic.
- GST & ITR in India.

For further details, contact Dr. Mhatre S.L. 9423377009, Dr. Bhairgunde S.S. 9834579805, Prof. Kishor Waghmare Mob. No. 7276894561. For updates, log on to: www.vncmj.edu.in/www.shriwaghmarebrothers.com. □

THESES OF THE MONTH

HUMANITIES

A List of doctoral theses accepted by Indian Universities (Notifications received in AIU during the month of November-December, 2021)

Geography

1. Gautam, Ravinder. **Implications of depleting groundwater resources in Haryana: A case study of Karnal District.** (Dr. Binu Sangwan), Department of Geography, Maharshi Dayanand University, Rohtak.

2. Jadhav, Suchita Babanrao. **Latur va Usmanabaad Jilhyateel sakshartavavyavsayikrachnecha bhogolikabhyas.** (Dr. J K Waghmare), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.

3. Patil, Kirtimalini Hanmantrao. **Krishi vikasvaloksankhyaghantechatulunatamakabhyas: Vishesh sandarbh Hingoli Jilha.** (Dr. J K Waghmare), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.

4. Sharma, Renu. **Urbanisation and occupational structure in Haryana: A study in geographical perspective.** (Dr. R S Sangwan), Department of Geography, Maharshi Dayanand University, Rohtak.

5. Shinde, Anil Nivrutti. **Raygadh Jilhyateel Arogey Kendra vamanviaazar: Ek bhogolikabhyas.** (Dr. S H Gone), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.

6. Solanki, Bhuwan Singh. **Dhar Jile (Madhya Pradesh) ke jalsansadhanoan ka satatvikas aur iskaanusuchitjanjatikshetroankesamajik, arthikvikas par prabhav.** (Dr. Sunil Kumar), Department of Geography, IASE Deemed University, Sardarshahr.

History

1. Hapse, Tulshiram Ganpat. **Yavatmalal Jilhyateeldalitchalavlichaitihis: Isvi 1901 te 2000.** (Dr. Pawar S S), Department of History, Swami Ramanand Teerth Marathwada University, Nanded.

2. Visen, Ayushi. **Social history of food in Uttar Pradesh, 1950-2010.** (Prof. S Victor Babu), Department of History, Babasaheb Bhim Rao Ambedkar University, Lucknow.

Languages & Literature

English

1. Chudasama, Leena. **Portrayal of changing faces of byronic hero in the selected fictional works**

of Stephenie Meyer. (Dr Nilam Hasmukh Gajjar), Department of English, Rai University, Ahmedabad.

2. Joshi, Snehal Naveenchandra. **Kalidasa's 'Ritusamhara' and Edmund Spenser's The Shepherd's Calender: A comparative genre study.** (Dr. K H Mehta), Department of English, Saurashtra University, Rajkot.

3. Kadiya, Bela Bansibhai. **Marxist and Gandhian influences on the writings of Mulk Raj Anand.** (Dr. Radhakrishnan K Pujara), Department of English, Rai University, Ahmedabad.

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6. Mathai, John P. **Study of the feminine narrative in Indo-English writers Gauri Deshpande, Shashi Deshpande Kamala Das, Mamta Kalita and Manju Kapur.** (Dr. Rameshsingh M Chauhan), Department of English, Rai University, Ahmedabad.

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9. Patanwadia, Snehal Kumar Ravjibhai. **Effectiveness of language lab activities to enhance oral communication skills of first year degree engineering students of Vadodara District.** (Dr. Deepkumar J Trivedi), Department of English, Rai University, Ahmedabad.

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S Nitonde), Department of English, Swami Ramanand Teerth Marathwada University, Nanded.

11. Prakash, Nilima. **Social concerns and activism in Doris Lessing's short fiction: A study.** (Dr. Poonam Datta), Department of English, Maharshi Dayanand University, Rohtak.

Hindi

1. Jose, Ligi K. **Dharm aur dharmachar: Hindi evam Malayalam keekahaniyoanmein.** (Dr. Shanti Nair), Department of Hindi, Sree Sankaracharya University of Sanskrit, Kalady, District Ernakulam.

2. Pinki Devi. **21v sadikeekahanimeinvidhsa-rokar.** (Dr. Ram Rati), Department of Hindi, Maharshi Dayanand University, Rohtak.

3. Poonam Kumari. **Bhagwan Das Morwal ke kathasahitye mein chitrit samajiksamasyaon ka adhyayan.** (Dr. Krishna Joon), Department of Hindi, Maharshi Dayanand University, Rohtak.

4. Sivender Kumar. **Kamal Kumar kekathasahityemeinyugbodh.** (Dr. Pushpa), Department of Hindi, Maharshi Dayanand University, Rohtak.

5. Suman Devi. **Narendra Mohan kesahityemeinyatharthbodh.** (Dr. Ram Sajan Pandey), Department of Hindi, Maharshi Dayanand University, Rohtak.

Marathi

1. Paratwagh, Siddharth Kishanrao. **1990 Nantrachi Ambedkarikavita: Ek chikitsakabhyas.** (Dr. Jadhav Shatrughna), Department of Marathi, Swami Ramanand Teerth Marathwada University, Nanded.

Sanskrit

1. Anil Kumar. **Vyakarana sidhantasudhanidheh Taddhitpratayasya samikshanam.** (Prof. Kamal Chandra Yogi), Department of Vyakarna, Central Sanskrit University, New Delhi.

2. Archana Kumari. **Samasadhikariyasutran-yadhikritya Siddhantaratanakarmanoramatikayos tulanatmakamadhyayanam.** (Dr. Pradeep Kumar Pandey), Department of Vyakarna, Central Sanskrit University, New Delhi.

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23. Trivedi, Hitesh. **A critical study of the Ujjvalanilamani and its commentary: The Lochanarochani.** (Dr. Narayanan E R), Department of Sahitya, Central Sanskrit University, New Delhi.

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25. Verma, Alpana. **Parasharoppuransya sanskritikam samikshikanch addhyayanam.** (Prof. Shailakumari Mishra), Department of Sahitya, Central Sanskrit University, New Delhi.

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27. Yadav, Prakash Chand. **A critical study of Vrittisamudesa of Vakyapadiya-Padakanda in the context of Mahabhashya.** (Prof. Brajbhushan Ojha), Department of Vyakarna, Central Sanskrit University, New Delhi.

Performing Arts

Music

1. Ashin. **Vartman paripekshmein Haryana meinshashtriya sangeet kepracharprasarsambandhiprayatno ka sarvekshanatmakadhyayan.** (Dr. Hukam Chand), Department of Music, Maharshi Dayanand University, Rohtak.

2. Sombir Kumar. **Haryana ke Ahirwal Kshetre ke madhyamikstrariyevidhyalayoan mein sangeet keeisthithi: Ek sarveshnatamakadhyayan.** (Dr. Lokesh Sharma), Department of Music, Maharshi Dayanand University, Rohtak.

Visual Art

1. Kavita. **20vi sadimein Chopal: Temprachitre- evamvastushilp (Haryana kesandarbhmein).** (Dr. B S Gulia), Department of Visual Arts, Maharshi Dayanand University, Rohtak.

Philosophy

1. Khyriem, Iahunlin. **Arne Naess's environmental philosophy: A critical study.** (Dr. Basil Pohlong), Department of Philosophy, North Eastern Hill University, Shillong.

2. Panda, Srinibash. **A philosophical analysis of Mahimandal Gita of Mahapurush Ararshita Das.** (Prof. Sukanta Kumar Senapati), Department of Sankhyayoga, Central Sanskrit University, New Delhi. □

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RECRUITMENT CELL

Advt. No. PU/RC/2022/39 Dated: 10.01.2022

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Off-line applications will not be entertained under any circumstances.

Date: 10.01.2022 **REGISTRAR (i/c)**

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Shikshanshastra Mahavidyala, Miraj,
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1	Principal	1	1

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- 2) Appointment to the post of Principal will be for a period of 5 years from the date of Appointment or upto the attainment of the age of superannuation of the candidate, whichever is earlier.
- 3) Please note that the recruitment procedure initiated by this advertisement, subject to Decision by Hon Bombay High Court, Aurangabad Bench on Writ Petition No.12051/2015.
- 4) Applicants who are already in service they should apply through proper channel.
- 5) Incomplete application will not be entertained.
- 6) Apply giving full particulars **within 15 days** from the date of publication of the Advertisement to the undersigned.

Place : **President**
 Date: Vasant Prakash Shikshan Prasarak Sanstha
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Applications are invited from eligible candidates for the following **Permanent Non-Grantable** positions:

Designation of the Position	Total Vacancies	Category wise Vacancies
Principal	01	Un-Reserved

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- 2) Those who are in service should apply through proper channel.
- 3) In case of the post of Principal, the appointment is on tenure basis for a period of five years or date of superannuation, whichever may be earlier, and may be extended by one more year.
- 4) Application received after the last date will not be considered. The College will not be responsible for any delay including postal delay, if any.
- 5) Incomplete applications or applications without the attested copies of supporting documents will not be entertained.
- 6) No T.A., D.A. will be paid for attending the interview.
- 7) The applications giving full particulars and attested copies of all the supporting documents should reach to the undersigned **within 15 days** from the date of publication of this advertisement.

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Shri Doodhsakhar Shikshan Prasarak Mandal
DOODHSAKHAR MAHAVIDYALAYA, BIDRI
Tal. Kagal, Dist. Kolhapur (Maharashtra) 416208

WANTED

Applications are invited for the post of Principal to be filled in Shri Doodhsakhar Shikshan Prasarak Mandal, Doodhsakhar Mahavidyalaya, Bidri. Eligible candidates should submit their application along with all necessary documents **within fifteen days** from the date of publication of the Advertisement by Registered post only.

Educational Qualification:-

Sr. No.	Name of the Post	No. of Post	Reservation
1	Principal	One (1)	Unreserved (Open)

A. Eligibility:

1. A Master's Degree with at least 55% marks (or an equivalent grade a point scale wherever grading system is followed) by a recognized University.
2. A Ph.D. Degree in concerned/allied/relevant discipline (S) in the institution concerned with evidence of published work and research guidance.
3. Professor/Associate Professor with a total experience of fifteen years of teaching/research in Universities, College and other institutions of Higher Education.
4. A minimum of 10 research publication in peer reviewed of UGC listed journals.
5. A Minimum of 110 research score as per Appendix II, Table-2 of UGC Regulations 2018.
6. Academic Eligibility and other rules & regulations as per UGC Regulation 18th July, 2018 and Govt. Resolution No. Misc-2018/C.R.56/UNI-1 dated 08th March, 2019.

B. Tenure:

College Principal shall be appointed for a period of five years, extendable for another term of five years on the basis of performance assessment by a committee appointed by the University, constituted as per these Rules.

Salary & Allowances:

Pay Scales as per the UGC, State Government and Shivaji University, Kolhapur Rules from time to time.

NOTE:

1. Prescribed application form is available on the University website (www.unishivaji.ac.in).
2. No T.A.D.A. will be paid to attend the interview.
3. Eligible candidates who are already in services should submit their application through proper channel.
4. All attested Xerox Copies of certificates and other relevant documents should be attached with the application form.
5. The vacant posts are being filled under the decision of Hon'ble High Court, Aurangabad Bench Petition No.12051/2015
6. The Original certificates must be provided at the time of interview.

Correspondence Address

The President/Secretary
Shri Doodhsakhar Shikshan Prasarak Mandal
Doodhsakhar Mahavidyalaya, Bidri,
Tal. Kagal, Dist. Kolhapur 416208

Secretary

Shri Doodhsakhar Shikshan Prasarak Mandal
Bidri, Tal. Kagal, Dist. Kolhapur 416208

President

Shri Doodhsakhar Shikshan Prasarak Mandal
Bidri, Tal. Kagal, Dist. Kolhapur 416208

F. No.10-7/2021-TS-VII
Government of India
Ministry of Education
Department of Higher Education

Applications are invited from Indian Nationals for the post of Director, Sant Longowal Institute of Engineering and Technology (SLIET), Longowal in the scale pay Rs. 2, 10,000/- p.m. (Fixed) plus Rs. 11,250/- (special pay) and other allowances as admissible under the rules of the said Institute.

2. The Institute is autonomous in character and is registered under Societies Registration Act. The Institute is fully funded by the Central Government. The appointment shall be made on contract basis for the initial term of 5 years or till the age of 65 years whichever is earlier.

Eligibility criteria for the candidates:-

(a) Minimum Qualification & Experience

Ph.D with First Class Degree at Bachelor's/Master's level in Engineering/Technology. In addition, the candidate should be an eminent person in the field of his/her specialization with an outstanding academic record throughout. 15 years experience in teaching/ industry/ research out of which 05 years must be at the level of Professor or above.)

OR

Candidates from industry/profession with Master's degree in Engineering/Technology and with professional work which is significant and can be recognized as equivalent to Ph.D Degree and with 15 years experience of which at least 5 years should be at a Senior level comparable to that of a Professor would also be eligible.

(b) Desirable:-

- (i) Administrative experience in a responsible position
- (ii) Published Research Work of high standard; and
- (iii) Membership of Professional Bodies

(c) Age:-

The candidate applying for the post should preferably be below 60 years as on 02.11.2022.

(d) Tenure of Appointment:-

The Director shall be appointed by the Central Government who would hold office for tenure of five years from the date of joining which shall not ordinarily extend beyond the age of normal superannuation as applicable to faculty of a Central University. The tenure of 5 years which is within the normal age of superannuation can be extended in public interest for a maximum period of six months only. A person who has held the post of Director for two terms would not be eligible for further reappointment as Director.

Note 1:- The post of Director shall not carry any pension. However, a person who held a pensionable post on substantive basis before his appointment as Director shall be eligible to count his service rendered as Director of the purpose of qualifying service for grant of retirement and pensionary benefit upto the completion of his term or upto the age of normal superannuation whichever is earlier. If the person concerned selected as Director was not eligible for pension, then he would subscribe to the CPF scheme of the Institute. If the tenure is extended beyond the normal date of superannuation, such extended period shall not be treated as qualifying service and the service would be regulated in the same manner as applicable to re-employed pensioners.

Note 2:- For the period of appointment on contract as Director, the person concerned shall be treated as on Foreign Service and he shall be eligible for leave salary and pension contribution. He would be also entitled to joining time and joining time pay alongwith transfer grant for self and family.

3. The candidates called for interview from outside will be paid single 1st Class Railway/Air-conditioned Bus Fare by shortest route for their journey to and fro. Provision for higher start of scale exists for exceptionally qualified and deserving candidates.

The persons employed in Government Departments, Autonomous Organizations and Public Sector Undertakings should submit their applications through proper channel. However, they may also send an advance copy of the application directly. **Applications on the prescribed format (available on the MoE / Institute website i.e. www.education.gov.in / www.sliet.ac.in)** furnishing complete curriculum vitae, detailed educational & professional qualification & experience should be sent by registered/speed post to Under Secretary (TS-VIIA), Department of Higher Education, Ministry of Education, Government of India, Room No. 535, C-Wing, Shastri Bhawan, New Delhi 110001 so as to **reach within 45 days from the date of publication of the advertisement in the Employment News**. The soft copy of the application may also be mailed to ts7.edu@nic.in.

Under Secretary, GoI, MoE, TS-VII