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Special Issue

on

REIMAGINING INDIAN UNIVERSITIES

on

the Occasion of

NATIONAL CONFERENCE OF VICE CHANCELLORS

(August 17-18, 2020)

and

Foundation Day Lecture

to Commemorate

94TH AIU FOUNDATION DAY

(March 23rd, 2020)

Celebrating 90 Years of University News

#Let'sBeatCoronaTogether

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...From the Desk of Secretary General

The onset of twenty-first century has brought with it several opportunities and challenges leading to a paradigm shift in the field of Higher Education across the globe. The shift is effectuated due to new technologies, newer aspirations and new expectations that mark the present knowledge society. Most importantly, it is due to the new generation of students who use technology extensively to take charge of their own learning. Gone are the days when students were mandated to fit within strict time schedules and inflexible academic boundaries. The new generation students possess the skills of using a variety of online open sources and blend them to learn in their own way. Rigid, traditional teaching methods are no match for the state-of-the-art technology and e-learning platforms available at present. The future of higher education is going to be all the more exciting.

In India too, the landscape of Indian higher education is in the process of change with a flux of comprehensive reforms the Government has set to bring in. We are now progressing towards becoming a knowledge society, that can lead the world with its natural strengths of human capital, material resources and traditional knowledge systems. India's academically rich human resource shall have major influence in the emerging scenario both within and outside the country. Being the third largest higher education system of the world, India has the potential to play a key role at the global level in the spheres of agriculture, manufacturing, services, IT, etc. India as a country has many distinct features that can determine course of development in the higher education sector. Most significant one is its veritable demographic dividend. Half of India's population is between the ages of 1 to 25 years and 65 per cent of its population is less than 35 years old. This is most appropriate juncture to create a conducive system of education for the youth of the country. It is the time to take a stock of developments, problems and prospects in our universities and apply required intervention in the form of well thought out plans and meaningfully designed roadmap to secure the present and future of Indian Universities. This is the most opportune moment to 'Reimagine Indian Universities!

The time is also promising for reimagining Indian Universities for two more very significant reasons. Firstly, the launch of new National Education Policy-- 2020 (NEP 2020) and secondly the colossal disorientation in higher education system due to emergence of COVID-19. The National Education Policy envisions an education system that can transform India into an equitable and vibrant knowledge society, by providing high-quality education to all, and thereby making India a global knowledge superpower. The policy is aimed at transforming the Indian education system to meet the needs of the 21st Century. The intent of policy seems to be ideal in many ways but it is the implementation where lies the key to success. For its effective implementation it is essential to reimagine the system in a holistic way.

The spread of the corona virus has engulfed the whole world, setting new normal in almost all areas including higher education. The pandemic has created an unprecedented situation of complete lockdown chosen by most of the countries as option to save precious lives. The lockdown required all organizations to remain closed and the universities are no exception. The impact of the pandemic on the university education necessitated it to adjust itself to accommodate the new realities so most institutions adopted online education as prominent mode of delivery. And it is strongly believed that online education has come to stay. But Indian higher education is not evolved fully to impart education through online mode and there are other issues as well. it is the need of the hour to reimaging Indian Universities in this dimension to set the system on track.

Education today should combine knowledge, life skills and critical thinking. Future of Higher Education depends on its relevance to world of work which includes industry, service sector and self employment or entrepreneurship. If the graduates of higher education lack required skill sets, they become redundant for world of work. Thus, the biggest target for higher education institutes is to make themselves relevant. Identification of subject areas and designing of appropriate course curriculum and pedagogy to convert the universities into the sought after places for students and development of novel institutional mechanisms to

provide the required human resource who is appropriately skilled as well as imbibed with good human values is indeed one of the important requirements. Needless to mention that faster upgradation of curriculum, long term skill development and continuous contribution to society will only sustain the higher education system in this post COVID-19 era.

Keeping this view, we, at AIU have taken up the theme 'Reimagining Indian Universities' for its Annual National Conference of Vice Chancellors' and as run up to this theme we have chosen the sub-themes --- *Employability and Entrepreneurship, Governance Reforms, Internationalization of Higher Education and Global Rankings, Towards Global Best Teaching-learning Process, Improving Access and Promoting Research and Innovation.* We organized Zonal Vice Chancellors Conference on these subthemes.

The Conference was actually scheduled for 23rd --25th March, 2020 on the occasion of AIU's 94th Foundation Day. But because of the lockdown imposed due COVID-19 the conference as well as the Foundation Day Lecture have been postponed at that point of time. Now it is being organized through virtual mode on 17th and 18th August, 2020 with new dimensions addedd. The inaugural session of the Conference is being graced by Hon'ble Minister of Education Dr. Ramesh Pokhriyal 'Nishank' as Chief Guest and Special Address is being delivered by Padma Vibhushan Dr K Kasturirangan, Chairman, NEP Draft Committee. The Foundation Day Lecture is being delivered by Nobel Peace Laureate Shri Kailash Satyarthi. Eminent Vice Chancellors from Indian Universities are gracing the Conference as Chairs and Panelists. I hope this conference to be a landmark in the journey of Indian Higher Education System.

This Special Issue of the "University News" being brought out to commemorate the Conference and the AIU Foundation Day. Two other publications and an AIU Portal of activities are also getting released in Conference by Hon'ble Education Minister. The first book on the theme 'Reimagining Indian Universities' containing 32 essays of eminent Educationists and Vice Chancellors and foreword of Hon'ble Minister of Education Dr. Ramesh Pokhriyal 'Nishank'. Second one is a monograph on 'Protecting Academic Interests of Students during COVID-19: Sharing Best Practices'.

The corona pandemic has not left us as yet and the cases are spreading rampantly. I express my concern towards this spread of Corona Virus in hope that the situation would return to normal soon. I wish wellbeing to the Readers and appeal to show solidarity in this hour of adversity.

Dr. (Mrs.) Pankaj Mittal
Secretary General

EDITORIAL

AIU @ Ninety Five: A Journey Resolute and Resilient

This Special Issue of the University News is being brought out to commemorate the 94-Years journey of Association of Indian Universities (AIU) a premier apex body of Higher Education in India and its entry into 95th Year. Founded on 23rd March, 1925, AIU has successfully traversed a long journey of 94 years and proudly entered its 95th year in the month of March 2020. In these 94 years, many similar institutions came into existence, functioned for some time, became ineffective and then simply faded away. In contrast, the resilient and resolute AIU grew continuously in strength and stature, carrying forward the rich legacy and glory; brazening out the setbacks, difficulties and hurdles which hindered its smooth journey. Today, it is an icon in the landscape of Indian higher education playing a very vital role as a research-based policy advice institution to the Government of India in the field of Higher Education, Sports and Culture. It is indeed a matter of pride to celebrate this momentous occasion by recounting the story of its glorious journey and paying tribute to all those who have connected us to this string of history making. Obviously, our history is a vital part of who and what we are!

When we talk of history making, it is in the fitness of things to remember some of stalwarts who served the Association of Indian Universities in different years of its long journey. It is a matter of pride too! Dr Sarvepalli Radhakrishnan, Dr Shyama Prasad Mukherjee, Dr Zakir Husain, Diwan Bahadur, Sir A L Mudaliar, Dr Akbar Hydary, Prof A C Woolner, Pandit Amarnath Jha, Sir Maurice Gwyer, Dr K L Shrimali, Prof Shiv Mangal Singh Singh 'Suman', Prof M S Gore, Prof M S Adiseshiah, Prof M S Valiathan are only a few among many.

The legend behind the commencement of AIU reveals that the seeds of AIU were sown by Calcutta University Commission (The Saddler Commission) which, in 1919, pointed out the need for coordination between universities in the matters relating to courses of study and equivalence/ recognition of degrees. *Subsequently,* in the Conference of Vice Chancellors of Indian Universities held in 1924, where a decision was taken at the initiative of the then Viceroy, Lord Reading, to establish a central coordination agency. *De Facto,* the institution sprouted up on 23rd March, 1925 when the representatives of eleven of the then existing 14 universities met in the library of the University of Bombay and formed themselves into Inter-University Board (IUB) of India. Later, for some time it existed as 'Inter University Board of India, Burma and Ceylon'. Though it assumed a monumental stature after independence due to uniqueness of its role, it got its legal standing after it got registered under the Societies Registration Act in 1967; and adopted its present name, the Association of Indian Universities, in 1973.

Since its inception, AIU has been functioning as a flagship for Indian Higher Education System by providing expertise and exposure towards academic, scholastic, pedagogic, administrative, technological and various other matters related to higher education. It has been playing a vital role in shaping Indian higher education not only by being an integral part of all major decision-making committees and commissions, but also by providing inputs to the government for policymaking. It played a crucial role in establishment of many important apex bodies of higher education. Before independence, it played an important role in the establishment of the Medical Council of India and the Council for Scientific and Industrial Research. Also it made out a strong case for the establishment of the University Grants Committee which came into existence as University Grants Commission later.

Organizing Meetings and Roundtables of Vice Chancellors has been one of the regular activities that has yielded significant results since its inception. These Meets provide forums not only to discuss the significant issues of higher education and the problems facing different universities but they also play a catalytic role in carrying the voice of the leaders of higher education to appropriate authorities. The main agenda items in its first Meeting held at University of Mumbai in 1994 were -- Service conditions of University Teachers including their salary and leaves; Equivalence of Degrees; and an interesting item 'Traffic in Bogus Degrees'. Strangely enough all the issues which were taken up in the first meeting are relevant in the present scenario also.

Being a representative body of Universities of India, it is a pillar of support for the Indian Universities. Whereas, all the universities benefit out of its contribution, at present it has membership of about 794 Indian universities and 16 universities from other countries viz. Bhutan, UAE, Kazakhstan, Mauritius, Malaysia Nepal, as Associate Members. It functions from its own building at New Delhi equipped with state of art infrastructure and facilities for discharging various responsibilities. Continuous growth and rejuvenation of AIU is the result of incessant efforts of the its Presidents, Secretary Generals (Executive Head), the Members of Governing Council and the Officers and Staff of AIU in pursuing the goals and objectives and also realigning them as per the changing contours of the higher education system across the world.

Unique feature of AIU is its Library which has a rich collection of books on higher education in addition to the archives of all the relevant reports on higher education and landmark Supreme Court decisions in Education. Its journal University News which was launched in 1929 has carved a niche for itself in world of academics for richness of content appearance with clockwise precision. Different divisions through which it provides valuable services to the stakeholders of Higher Education are Meetings Division, Research Division, Evaluation Division, Student Information Services Division, Publication and Sales Division, Library and Documentation Division, Youth Affairs Division, Sports Division, International Division and University News Unit.

While AIU is still continuing the service of providing equivalence to the degrees, the very purpose for which it was formed, it has also taken upon itself wider responsibilities in the interest of the higher education. It is a representative body of Universities of India to liaise with the universities and the government (central as well as state) and to coordinate among the universities and other apex higher education organizations of the world. The main objective of AIU is to protect the interest of universities and promote university activities especially by way of sharing information and increasing cooperation in the field of Research, Culture, Sports, and allied areas. The objectives are amended time to time to suit the contemporary and future requirements of higher education in the country.

As an apex body, the Association provides a forum to academicians and administrators of member universities/institutions to exchange views and discuss matters of common interest. It presents to the government the viewpoint of the universities on crucial issues concerning higher education which many a time lead to policy formulation; helps the UGC and other statutory bodies in developing guidelines and procedures; brings together Vice Chancellors and Directors for discussions on university affairs; organises consultative meets to gather recommendations and consensus on policy issues which are submitted to Government as policy inputs; liaises with sister organizations abroad; organizes training programmes, workshops and seminars and other capacity building programmes for teachers and university administrators; organizes research conventions, sports and cultural events for the students, and provides information to stakeholders on the system of higher education.

The range of activities of AIU is certainly much wider than that of similar organizations and its counterparts in other countries like the Committee of Vice Chancellors and Principals of UK or the Australian Vice Chancellors Committee, etc. It is the only organization of such nature which deals with Academics, Sports, and Culture --- the three integral components of universities in equal intensity. The vibrant Research Division of AIU, undertakes research projects on relevant issues of Higher Education at the behest of MHRD or on its own desirability. It brings out important reports related to the functioning of universities. To dwell upon important issues of higher education and find solutions for recurring problems various National and International Conferences, Seminars, Meetings and Roundtables of academia are organized time to time. It also conducts Capacity Building Programmes and Training Programmes for all levels of University functionaries, Academic as well as Administrative. For students it organises *Anveshan*: The Student Research Convention at zonal and national level. For Administrative Staff of universities it organizes Training Programmes on university management and Information Technology. For Vice Chancellors the Research Division organizes Roundtables It has come out with pioneeeing publications like Question Banks, Universities Handbook, Handbooks on professional areas, bibliographies of doctoral dissertations, occasional papers and various other publications has become its regular feature now.

Youth Affairs Division organises Inter University Youth Festivals at Zonal, National and International Level for 24 events in the domain of Music, Dance, Theatre, Literary Events and Fine Arts. The International events include South Asian Universities Youth Festivals (SAUFEST), International Youth Festivals etc among others. It organises Youth Leadership camps to promote human values, culture, social skills, environmental protection, national integration, and international understanding. Sports Division organises Inter University sports tournaments at Zonal, National and International Level. Vizzy Trophy Cricket Tournament is organised by AIU in collaboration with BCCI. Champion Colleges Hockey (M) tournament is also organised by AIU in collaboration with the Jawaharlal Nehru Hockey Tournament Society. AIU being a member of International University Sports Federation (FISU) which organises World University Games/Championships, sponsors visits of National Contingent of Indian Universities for participation in World University Games/ Championships and also acts as a host to visiting team from other countries. AIU recorded its footprints in the field of internationalisation of higher education in India much before the present wave of internationalisation and globalisation began. It has initiated many projects and brought out many publications in the area of internationalisation.

AIU has to its credit several 'firsts' in all the three areas viz academics, sports and culture. It has pioneered several remarkable initiatives which has exalted it into a very prominent organization in the area of higher education at national and international level. The *mantra* behind its popularity, relevance and sustenance is continuous rejuvenation through such pioneering activities. Continuing its tradition of creating firsts, AIU has initiated many new activities for the first time recently under the visionary leadership of Dr. (Mrs.) Pankaj Mittal, Secretary General. It organised International Youth Festivals with participation of 21 countries; AIU National Moot Court Competition; National Women Youth Parliament; hosting the events of World University Games (Shooting) and Asian University Games (Volleyball) in India; conduct of *Khelo India* AIU Games etc. Some other recent initiatives are launching of New Portals; redesigning of AIU Website; digitisation of AIU activities; launching of new portals; new MoUs in the field of Library with INFLIBNET; MoU with ANUIES for internationalisation; workshops and seminars in collaboration with World Bank and UNESCO; some new developments in the area of equivalence.

Indian higher education system is at the cusp of transformation now and more than ever due to changes brought about by shifts in economy, demography, environment, technology etc. Keeping this in view, AIU is making efforts to reach out to academics, researchers and policy makers by providing a platform to debate, deliberate and evolve logical opinions and consensus among the academia on important issues of reimagining Indian universities which will prepare us for a better tomorrow. In order to facilitate a threadbare discussion with scholarly views and to seek concrete suggestions, this Special Issue of the University News on the topic Reimagining Indian universities is being brought out. Apart from this, an edited Book on Reimagining Indian Universities is also being brought out. The Response was indeed overwhelming for both book as well as University News, which shows the concern of the academics, particularly, Vice Chancellors for the system. The articles have stirred the whole system. The comments, suggestions and viewpoints mentioned in the articles were thought provoking which makes one feel the significance of this exercise and importance of the platform like University News to discuss such things. I regret that we could not include all the articles in the Issue because of the space constraint though many of them deserved to find a place in the Issue. The articles included in the Issue consist of a varied spectrum of topics reflecting a wide range of views on different aspects of the theme. The contributions would definitely be of great implication for reforming the higher education system of the country. We are indeed very thankful to all the contributors.

Evidently, Indian Higher education has a long way to go. AIU being a catalyst and conceptualist of Indian higher education, it is committed to play a greater role in providing leadership and taking the higher education of the country to newer heights.

With the conviction that what AIU does for Indian universities today, the rest of the world will do tomorrow we shall gear towards the arduous and onerous task of Reimagining Indian Universities!

Dr Sistla Rama Devi Pani

National Law University, Delhi : A Profile

National Law University, Delhi is hosting the National Conference of Vice Chancellors of the Association of Indian Universities being held on August 17-18, 2020.

The National Law University Delhi has been established with a mandate to transform and redefine the process of legal education. The University aims to create a *sui generis* legal education system that is able to chisel a new generation of lawyers who are able, competent and humane and who would permeate into the legal system of not only this country, but globally so as to meet the challenges of ever-evolving human society.

NLUD's sincere endeavour, since inception, has been to transform legal education into justice education so as to be an instrument of social, political and economic change. The primary mission of the University is to create lawyers who will be professionally competent, technically sound and socially relevant. They shall enter the front rows of the Bar and the Bench to address imperatives of the new millennium, uphold the values of Indian Constitution and help strengthen the rule of law in the country. This necessarily means that students at this prestigious Law University shall appreciate the interface between law, society, economics, and politics. The lawyers trained here are well equipped with the desirable advocacy skills not only at the trial but at the appellate levels also. They will contribute as agents of change to the country's mandate to achieve its future developmental goals.

Dynamic in vision and robust in commitment, the University in a very short span of time has shown exemplary promise to become a world class institution.

- NLUD has been accredited with 'A' Grade by NAAC with a CGPA of 3.59 on a 4 point scale.
- In the 2018 and 2019 MHRD NIRF Rankings, NLUD ranked at 2nd place out of all the Law Schools in the country.

The University Grants Commission has granted greater autonomy to NLU Delhi being a Category-1 University. This will enable the University to start new courses, off campus centres, skill development courses, research parks and any other new academic programmes. The University will have freedom to hire foreign faculty, enrol foreign students, give incentive based emoluments to the faculty, enter into academic collaborations and run open distance learning programmes.

These excellent ratings by prestigious Government agencies not only place NLUD amongst few of the top institutions in the country imparting quality legal education but are a reflection of the admirable academic environment at the University for teaching & research.

The University offers the five-year integrated B.A.LL.B. (Hons.), LL.M (One year), LL.M. (Pro) as well as Ph.D. Programmes. It's the very first Law University in the country to have started LL.M. (Competition Law).

To inculcate the professional skills in budding lawyers, the pedagogy at NLUD comprises of lectures, seminars, group and individual tutorials and simulated exercises like moot courts; client interviewing and mediation/conciliation etc. To facilitate intensive and interactive learning, thoroughly revised and updated study material is prepared in every course by the faculty.

The residential Campus of the University is fully Wi-Fi. The classrooms are equipped with the state-of the-art audio-system, LCD projector and e-station smart podium. The NLUD Library is a state of art library having a hybrid collection of print as well as digital resources supporting teaching and research needs of the students, faculty and legal researchers to support legal research and scholarship. To access electronic databases through cloud computing, the library has Remote X Technology which enables the students and faculty members to access electronic databases even from outside the campus.

The faculty and the students of NLU, Delhi have celebrated *'A Decade of Excellence'* in 2018 since we were established in 2008. The achievements of the students have been notable. Our students have gone to IVY League institutions like Harvard, Yale, Stanford, Columbia, including Oxford and Cambridge for higher studies and most of them on scholarships.

The students of NLU, Delhi have almost secured 100 per cent placement from the very first batch. Many students have gone to join Magic Circle firms in London, best of corporate law firms, litigation and also join the bar in India. For NLU Delhi since the journey has just begun, the best is yet to come. Some of the prestigious student achievements are enumerated hereunder.

Over a dozen NLU, Delhi students have qualified the Civil Services Examination and two of them are SDM in Delhi. Few of them are listed below:

i) Ms. Vaishali Singh (2016) secured AIR 8 (2018)
ii) Ms. Rangashree TK (2016) secured AIR 50 (2018)
iii) Ms. Saloni Sharma (2016) secured AIR 531 (2018)
iv) Ms. Saumaya Sharma (2017) secured AIR 9 (2017)
v) Ms. Kavya Tangirala (2017) secured AIR 381 (2017)
vi) Mr. Aditya Vikram Yadav (2016) secured AIR 72 (2017)
vii) Mr. Ritiraj (2016) secured AIR 583 (2017)
viii) Mr. Karan Choudhury (2015) secured AIR 821 (2017)
ix) Mr. Pratik Tayal (2016) secured AIR 92 (2016)
x) Ms. Aashika Jain (2014) secured AIR 74 (2015)
xi) Mr. Harshit Bansal (2014) secured AIR 333 (2015)
xii) Mr. Paramvir Singh (2013) secured AIR 29 (2015)

Many NLU Delhi students qualified the Judicial Services Examination and to name a few:

i. Ms. Rishika Srivastava topped the Delhi Higher Judicial Services Examination - 2017.
ii. Ms. Shriya Gauba topped Delhi Higher Judicial Services Examination (2014-2015).
iii. Ms. Arushi Goel topped the Haryana Judicial Service Examination (2014-2015) by scoring 633 marks.

Some of the prominent International Scholarships received by the students are:

i. One of the world's most prestigious Rhodes Scholarship was awarded to our student Ms. Rishika Sahgal (2015).
ii. Ms. Surbhi Lal was awarded the 'Pratibha M. Singh' Cambridge Scholarship' to pursue LL.M. at the University of Cambridge, U.K. (2019).
iii. Ms. Aradhana CV received full funding to pursue her M.Phil (2017) and D.Phil. (2019) from Oxford University.
iv. Ms. Aasavri Rai (2019 batch) have been selected as a '2019 American Society of International Law - Arthur C. Helton Fellow' to work in the field of refugee laws. This is the first time an Helton Fellowship has been awarded to a student of an Indian university.
v. Mr. Chinmay Kanojia (2015 Batch) received the prestigious Human Rights LL.M. Fellowship, covering all expenses to pursue one year LL.M. at the Columbia University, New York, USA (2019).
vi. Ms. Aadya Chawla was awarded the 'DAAD Scholarship' to pursue LL.M. at the University of Saarland, Germany.
vii. Dr. Vandana Mahalwar (Ph.D. Scholar 2014) was awarded Fullbright-Nehru Postdoctoral Research Fellowship, Duke University, USA – 2019.
viii. Mr. Gale Andrew was awarded the 'Felix Scholarship' for the LL.M. programme at SOAS University of London for 2018-19.
ix. Ms. Tania Singla ('16) received the 2016 DAAD Jawaharlal Nehru Award for International Understanding - Dr. Angela Merkel Scholarship in European Law.
x. Ms. Sanya Kumar ('16) received the 2016 Inlaks Scholarship to pursue LL.M. at Yale Law School.
xi. Mr. Asang Wankhede received the Center for Advanced Study and Research on Innovation Policy (CASRIP) Summer Institute fellowship at the University of Washington. (April, 2016).
xii. Ms. Soumya Shekhar got full scholarship to pursue LL.M. from NUS, Singapore (2015).
xiii. Ms. Deepika Sriram (2014) was awarded the 'Pratibha M. Singh Cambridge LL.M. Scholarship' (2014).

In the past years, the University paced spectacularly and attracted some world class faculty from some of the best law schools in the world. Thus, the University at present can boast of a unique mix of

faculty which has, on the one hand, some very eminent and senior faculty members and, on the other hand, young and talented faculty that brings contemporary and latest approaches to the research and teaching to this University.

NLU Delhi organized many programmes including International/National Conferences, workshops, seminars, training programs and competitions etc. We also conducted the advanced course in Law Enforcement for about 150 Senior Officers of Madhya Pradesh Police and capsule course for the Officers of Central Economic Intelligence Bureau.

The University recognising its social obligation for disseminating legal education beyond the law school partnered with UGC in the E-PG Pathshala programme and created about 400 e-lectures for the benefit of faculty members and the students. We have also started MOOCs (Massive Open Online Courses) programme initiated by the Government of India. These courses are available on SWAYAM platform for the benefit of all and thousands of students have already enrolled in such programmes.

The NLU Delhi is the only Law University which has the National Academy of Law Teachers (NALT), where we conduct regular training programmes for the benefit of the teachers and more than one thousand teachers have been trained so far.

The Governance at the University is highly student-centric and transparent in its conduct. The students elect their own Student Bar Council which manage the day to day affairs of the students. In order to encourage the budding lawyers, the University offers a very generous support to students to take part in various international and national moot court competitions. The contribution of the University has been recognised globally as the NLU Delhi has now a number of active international collaborations with best of the law schools across the world.

In its new incarnation, the NLU Delhi is suitably poised to be known as an institution devoted to significant research. The University has various Research Centres, inter alia, Centre for Communication Governance, Centre for Death Penalty (now known as Project 39A), Centre for Constitutional Law, Policy and Governance, Centre for Corporate Governance Law and Governance, Centre for Innovation, Intellectual Property and Competition, Centre for Transparency and Accountability in Governance, Centre for Criminology and Victimology, Centre for Comparative Law, and Centre for Banking and Financial Laws etc. These centres are committed towards focused research in the contemporary issues and provide consultancy at the behest of Courts and Government bodies in various policy formulations.

The University works on sensitive issues like 'Criminal Justice Administration', 'Gender-Sensitization', 'Women empowerment', 'Human Rights', 'Environmental issues' and 'Corporate Social Responsibility' (CSR) in close association with various Government and Private Agencies. It is a **'**Zero Tolerance Zone' for any kind of discrimination on the basis of sex, religion, caste and/or any other parameter in violation of the spirit of Indian Constitution.

The lawyers and researchers of tomorrow trained here are expected to be committed to make the manifesto of 'justice to all' and 'equal access to justice' a living reality and help in the speedy dispensation of justice. Visualising the track fared so far; the NLU Delhi is all set to become a University with a difference committed to offer a socially relevant education. ❑

Reimagining Indian Universities: Learning from Glorious Past for Building New India[#]

Bhushan Patwardhan* and Pankaj Mittal**

The 21st century is essentially dominated by the information-knowledge driven society. India is well equipped with critical outlook to discover its contemporary relevance in global milieu from its own intellectual and cultural traditions. Those, who are well read and can see and understand the vast magnificent backdrop of India's past, have for long rejected the colonial myth that inspiration for modernity can only be imported from West. History is a continuum, not an event or an era and the true nature of modernity in all societies has to be derived from the evolving traditions. Today the mono-culture dominance in knowledge systems is already being replaced in disciplines like philosophy, history, archaeology, linguistics and fine arts by transdisciplinary or cross-cultural perspectives which widen intellectual frameworks for comprehension of nature and society. Knowledge leaders are increasingly becoming aware that the monopoly of any particular knowledge tradition to comprehend reality is limited and is a politically conditioned assumption about the past.

Globally universities need to break out of the stranglehold of a single cultural and intellectual tradition that has dominated knowledge institutions since the 19th century and become multicultural. They need to urgently engage in critical review and discovery of contemporary roots in their own indigenous cultures in fields like health sciences, agriculture, social sciences, architecture, mathematics, logic, philosophy, the fine, visual and performing arts. The modern university in any society need not follow a uniform design. They need to adopt transdisciplinary approaches respecting both indigenous and Western scholarship for bringing innovation, academic excellence, flexibility, professionalism and self-reliance. They can do so by integrating traditional and modern knowledge systems to be locally relevant and globally competitive in order to serve the national development and the larger cause of humanity. Although India became independent in 1947, its history, its culture, its science extends back thousands of years in antiquity. The Indian knowledge systems are a rich source of evolving knowledge. They comprise diverse schools of philosophy that offer mature propositions and sophisticated logic for understanding and experiencing relationship between the observer and observed. They embody fourteen knowledge categories or *Vidya-s* which classify differently multiple dimensions of knowledge about nature and society. They include sixty-four *Kala-s* or specialized skills. This rich heritage needs careful examination to identify fields that should be an integral part of modern Indian university education system. Learning from evolving tradition can help us to re-imagine and re-model New universities to construct and support a vision of New India. It must be emphasized that re-imagining Indian universities does not mean discarding or replacing existing system with Indian knowledge system. This is an intellectual exercise to understand value and contemporary relevance of Indian knowledge systems in the modern world. We should not forget what Charles Darwin and William Bruce Cameron said about evolution. Darwin said, "It is not the strongest, it is not the smartest, but it is the most adaptable and resilient of the species that survive and prevail in the long run," and cameron stated, "Not everything that can be counted counts, Not everything that counts can be counted."

Ancient Indian knowledge sources *Vidya-s* and *Kala-s* can be sources of new ideas and innovation. It is important for our University system to critically review, revise, regain and promote these sources of knowledge, art and skills as an integral part of education system. While adopting these sources we should not become dogmatic by taking a stand that 'we know everything'. We must avoid 'self-pride-past-glory' syndrome. It is important to keep open mind to welcome new ideas and our quest to add new knowledge must continue.

[#] The article is an abridged version of the article on the same topic published in the Edited Book on 'Reimagining Indian Universities' brought out on the Occasion of AIU Annual National Conference of Vice Chancellors. Please see the Book for detail version.

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In India, the emphasis, since Ancient time, has been on holistic development of child leading to complete realization and liberalization of self. To quote Swami Vivekananda, *"Education is not the amount of information that we put into your brain and runs riot there, undigested, all your life. We must have life-building, man-making, character-making assimilation of ideas. If you have assimilated five ideas and made them your life and character, you have more education than any man who has got by heart a whole library. If education is identical with information, the libraries are the greatest sages of the world and encyclopedia are the greatest Rishis"*. India has been and continues to be a land of great diversity with multiple languages, dialects, various dance forms, folk arts, music, pottery, architecture, cuisines, textiles and many more. We need to preserve this rich heritage for the posterity. We have to visualize Indian Higher Education from this perspective.

Legacy of Indian Civilization

The evolving Indian civilization excels in metaphysics as also in science, mathematics, astronomy, pharmacology, numerical, geometry, algebra, trigonometry, and medical sciences. Indian knowledge has an evolving legacy from Indus valley civilization, from Vedic, Buddhist, Jaina and hundreds of local knowledge traditions. Until the advent of foreign invasions, Indian civilization was a center of learning in several branches of knowledge for scholars from all over the world especially South East Asia, Middle East and Europe. The origin of various branches of mathematics, science, art, and philosophy attributed to this civilization are truly remarkable. Indian scholarship aspired to know everything that the mind can comprehend from the atom to the universe.

Indian University System

Historical evidences show that over fifteen ancient universities existed from the period 6th century BC to 1200 AD. Takshashila is known to be the oldest. Nalanda was established in 5th century and remained the center of excellence till it was destroyed in the 12th century. Other lesser known universities include Vikramshila, Mithila, Valabhi, Pushpagiri, Odantipuri, Somapura just to name a few. Dominant schools of thought-systems represented by various Darshana-s form the philosophical foundations of Indian knowledge and education system. It is estimated that sometime during 600 BC, the Ashram system gradually evolved in several multidisciplinary universities such as Takshashila, Nalanda, Vikramshila and many more. Takshashila was a centre of learning for several centuries best known because of its illustrious alumni such as Kautilya, Panini, Charaka, Vishnu Sharma, Jivaka.

The modern application of the *Guru Kula* system which involved close and highly personalized interaction between '*Guru*' (teacher) and '*Shishyas*' (disciple) is worth exploring to restore value education. Ancient Indian University campuses such as Takshashila or Nalanda were essentially multidisciplinary hubs with several spokes for specialized studies. The depth, diversity and rigor of education in ancient Indian universities were exemplary. The pedagogy was based on inquisitiveness, enquiry, dialogue, discourses, debates, critical thinking, rationality and evidence-based approach. The Universities in ancient India had a unique structure akin to 'hub and spoke' model that were able to ensure holistic development of students to make them highly skilled professionals, artisans, thought leaders, warriors, nation builders, responsible citizens and humble human beings. Almost till 12th Century Indian universities used to attract students from different parts of the world.

The period from 6th century BC to 12th century AD may be considered as golden period of Indian scholarship and education. However, frequent invasions, conquests, gradually led to destruction of Indian universities. Ironically, entangled with internal and external adversities, India remained isolated from the benefits of industrial revolution and was gradually entombed by colonial rule. Even after seven decades of independence, India still has not been able to come out of these influences to rediscover its own roots, strengths and knowledge sources. While reimagining Indian universities for the future, these philosophical and historical underpinnings must be carefully considered. While one cannot live today only on past glory, it is worthwhile to draw inspiration from these achievements to demonstrate contemporary relevance and explore future innovations.

Education Transitions

English dominated universities were established in India during the British Raj primarily to create a bandwagon of clerks and bureaucrats to serve the rulers. These universities primed by Macaulay's strategy ensured erosion of local languages, culture and Indian knowledge systems. During colonial period British Raj started universities mainly to distort cultural identity

of locals and to develop human resource needed as workforce for the rulers. This was a beginning of Macaulayism.

During British regime the Indian education system was completely distorted to suit requirements of rulers. Macaulay identified that prevalent education system in India was responsible for attachment of Indians to their own tradition, culture and rituals. He recommended a policy of introducing English language dominated education system. Indian knowledge systems were completely sidelined or replaced with western systems, be it sciences, humanities, engineering and medicine. This resulted in suppression of Sanskrit and regional languages endorsing supremacy of English. Establishment of convent schools, colleges and universities in Mumbai, Kolkata, Chennai and many other cities triggered process to establish British education system in India. It must be acknowledged that a few well-meaning British officers also helped to preserve Sanskrit, Indian knowledge systems and also introduced technology education, which lead to establishment of institutions such as Sampunanand Sanskrit Vishvavidyalaya in Kashi, Hindu College in Pune and Thompson Engineering College in Roorkee.

The dominance of English was so powerful that many education institutes established through Nationalist Movement also had to fall in line with the British model. The main objective of university education shifted from scholarship, knowledge generation and innovation to assembly line production of graduates who could serve in colonial establishments more as bandwagon of clerks and babus. During this period, India witnessed a transition from *Guru Kula* to *Kula Guru* system consisting of universities led by Vice chancellors. The present *Kula Guru* system focuses more on power of position, imposed regulations and memory recalls as measures of academic rigor rather than actual learning and personality growth as the gold standard. Buildings, departments and laboratories are organized more for compliance with insufficient evidence supporting their actual use. The earlier rigor and spirit of scientific inquiry for discovery are largely missing in current conventional education and practice. While re-imagining Indian Universities it is necessary to understand comparative characteristics of *Guru Kul* and *Kula Guru* system.

University Education

A University is considered as an institutional space where community of teachers and scholars is engaged in higher education and research. Universities award academic degrees in various academic disciplines. Universities are temples of knowledge where ideas, innovations and skills are nurtured. Universities are seats for scholarship, statesmanship and universal brotherhood. Universities are not to be reduced to degree factories. University education is holistic in nature to inculcate knowledge and skills necessary to shape individual personality and career. For young country like India, university education plays very vital role to ensure benefits of demographic dividend. Meeting aspiration of young population and empowering them to contribute to nation building are the most urgent priorities for India. University education is expected to prepare young students as skilled professionals and responsible citizens. University education is also expected to produce employable graduates. The University education is expected to be focused on social, academic, cultural, professional and intellectual development to enable students means for respectable livelihood and emerge as responsible global citizens. The university education will have to continuously innovate to address changing needs of humanity, civil society and not just markets.

Role of a Teacher

To be able to re-imagine Indian universities it is necessary to re-discover the role of a teacher from Indian tradition. Typical university teacher is described only in one category as a professor. Further distinction is based on seniority as assistant, associate and full Professor. The ancient Indian tradition has shown remarkable wisdom to define the role of teachers with help of unique titles with profound meaning that current modern system has not been able to articulate. Teacher who merely gives information is named as *Adhyapak*, one who imparts knowledge combined with information is named as *Upadhyaya*, in addition, one who also imparts skills is named as *Acharya*. The one who is able to give deep insights in specialized subject is named as *Pandit*, the one who brings visionary views, promotes criticality and thinking is named as *Drashta*. The highest level of teacher is named as *Guru* who is able to awaken wisdom and shows pupil a way from darkness to light. In the Guru Kul System education was about educing of the latent capacities and potentialities, the personality of the pupil concerned. It was treated as a process of biological development and not as a mere mechanical process operating on the basis of a collective drill and training.

Typical teaching during colonial period was a one-way process where teachers teach students mainly

by providing information with help of textbooks and notes. In recent times while teachers have started using technology, it is limited more to use of word processing, power point presentations, videos and internet sources. Most of the time we are used to using 21st century technology with 18th century mindset and continue to bombard information load on students. At present faculty, particularly related to undergraduate programs is involved more in monotonous, monologues and have monopolized delivery of education. The average full-time permanent teacher remains largely insulated from the broad changes taking place in higher education. Today, teachers are not needed to provide information because it is easily available and students are much smarter to get it faster. Today's students cannot be considered as empty boxes where teacher is authorized to fill information as per set curriculum. With advent of electronics, computers and multimedia, teacher centric, one-way, passive teaching process, which was dominated for several decades is now getting obsolete. The new way of education is based on interactions and the spirit of collaborative learning, video conferencing, Skype, wikis, blogs and other social networking in the classroom. Teachers need to change and adopt the new pedagogical ways. There is urgent need for faculty to come out from the current state of comfort or slumber. They cannot continue to be mere information providers. Advances in Artificial Intelligence (AI) and social robotics can actually make such teachers redundant. These are real disruptive threats confronting conventional teaching faculty in university system.

There is a widespread perception that development and control of content is shifting from conventional stand-alone institutions to communication networks. Colleges and universities may not remain sole providers of education. Teachers will have to respect capabilities and aspirations of students. They need to engage with students and become part of active learning process. In addition to imparting knowledge and skill, they need to create environment of self-discipline, trust, and accountability by inculcating values and enhancing principles of ethics and integrity among students. Students join University primarily to study, to build career and to experience collaborative learning. Education should shape their minds and lives, encourage inquisitiveness, cherish human values, inculcate tolerance, environmental sensitivity and cherish peace. Teachers must inspire young students to take education seriously and let them not become puppets of politicians. Teachers must present themselves as role models and ensure that students stay away from any kind of violence. Teachers must protect universities and students from antisocial elements. Teachers must channelize their energy for nation building and creativity to promote civil society. They need to be facilitators and mentors to emerge as *Guru* to be a role model.

Future Education

The contours of future education are becoming visible with advent of automation and smarter social robots. The future education will require entirely different knowledge and skill sets to develop students as global citizens. The future education will need more creativity, cognitive ability, critical thinking, passion and compassion. In future disruptions will emerge through technology and content will be readily available making way to new University system that is ready for Industry 4.0 revolution. It should be technology-enabled, flexible, modular, collaborative, cross-institutional, cross-cultural, where learners can play a key role as creators of knowledge challenging monopoly of teachers. Very soon Artificial Intelligence (AI), Machine Learning (ML), deep learning, cybernetics and Robotics will dominate the education content and delivery. This is supposed to be more of self-directed, self-paced learning triggered by interest learning where problem-solving, innovation and creativity drive education. Future education will have to be competency-based instead of mere information or knowledge-based; demand-driven instead of supply-driven by incorporating skills capable to adapt disruptive technologies. Education in future will be more flexible, modular, lifelong with more emphasis on Emotional Quotient than Intelligence Quotient. The new education will have to meet the needs of industry, economy and development, enabling collaborative convergence of man and machines as *CoBots* to explore new pedagogies.

Future Universities will have to maximize power of digital technologies, MOOCs, animated laboratories and personalized data from the interconnected world. The advances in automation, AI, ML and robotics may soon take over several functions of professionals including teachers and doctors. Eminent entrepreneur and investor Vinod Khosla predict that robots might replace doctors by 2035. This prediction is also applicable to conventional teacher. Just last year a robot named Xiaoyi, developed by Tsinghua University and a leading AI company iFlytek Co., Ltd., had taken the national medical licensing examination in China. Xiaoyi not just passed the test but got a score much above the highest percentile. Recent studies indicate

that robots show great promise in teaching restricted topics with the effects almost matching those of human tutoring. The future education may be dominated by collaborative robots where teachers and students together become CoBots. Already AI based voice assisted devices like Siri, Alexa, chatbots like Eliza and humanoid robots like Asimo, Sophia and our own Indian Mitra are in action. Microsoft's recent AI based hologram technology can immensely help to remove language-linked knowledge barriers and open possibility of education in mother tongue as well. It is possible that classrooms of the future will feature social robots to assist a human teacher and actually help them to enhance their capabilities. It is now amply clear that education sector can no longer ignore the technological advances that are real and present. *The early signs of disruption are already palpable. The future universities will have to adopt, survive and thrive taking advantages of this disruption.*

Re-building on Strengths

Indian knowledge system comprising of *Vidya-s* and *Kala-s* consists of knowledge and skills as well as theory and practical components. This is our strength. Ancient Indian universities such as Nalanda and Takshashila were offering holistic education with a unique blend of knowledge and skills. Indian knowledge system describes nine Darshana-s, fourteen *Vidya-s* as sources of knowledge and sixty-four *Kala-s* as specialized art and skills. Six sets of Darshana-s offer various point of views as an open knowledge system. Fourteen *Vidyas* include 4 *Veda-s*, 4 *Upaveda-s* and 6 *Vedanga-s*. *Kala* means performing art in Sanskrit. *Kala* also mean specialized skills. In ancient India these skills were considered to be an important for holistic development of a cultured individual. These specialized *Kala* or skills are believed to be acquired by lord Krishna in 64 days in the Ashram of Guru Sandipani. In Indian mythology, Lord Ganesha who is considered as a master of *Vidya* and *Kala*, is revered as god of education, knowledge and intelligence. The imagination and diversity of Kala is astonishing. Several *Vidya* and *Kala* remain very precious in current context as diverse dimensions of life. Some of the *Vidya-s* and *Kala-s* may not be alive, relevant, or may have become obsolete. However, it is necessary to protect, preserve, cultivate and enrich them by adding contemporary relevance.

The sufferings during the invasions and suppression during the colonial period should give us strength and compel us to think in our own interest. Education shall remain the key driver for transformation and universities will have to own the responsibility. The aspirations of young India seem to be a great hope to break the elitist mindset deadlock and to regain confidence and respect for our own knowledge, languages and cultural heritage. While aspirations of young India are reaching tipping points, the response to change from academic is yet to gain desired momentum. Role of the government, business and society in this process shall never be mutually exclusive. We must ensure that quality higher education does not become the exclusive preserve of the privileged, available only to children of the rich and powerful. We must ensure that our efforts of inclusion address the problems of digital divide in addition to economic divide and bridge gap between blue and white collared professionals by seamlessly integrating knowledge and skills in education. We must build New Universities using our past knowledge, experience and core strengths.

New Universities for New India

India has to learn from its glorious past. India must regain the global leadership in education. This may not happen merely by achieving place in top 100 in global ranking. India must re-discover, re-visit, re-purpose the basic tenets, philosophy, values, purpose, pedagogy to re-imagine Indian University System. India has some exemplary efforts in the direction of creating world class universities. This includes Banaras Hindu University established by Pandit Madan Mohan Malaviya and Vishva-Bharati Shanti Niketan by Gurudev Rabindranath Tagore. Although, structurally different, both realized the intrinsic values strongly rooted in Indian ethos and scientific temperament. Even today, while several national institutes have been established, not a single University has reached even near the vision of Pandit Malaviya or Gurudev Tagore in terms of holistic education in multidisciplinary environment coupled with Indian ethos and pedagogy.

India must re-model and re-build current universities on the foundations of Indian knowledge systems and integrating advanced science, technology, social science, contemporary art and humanities. Indian University system can be re-imagined and re-modelled by taking some bold steps. First is to shed the colonial mindset, and understand her own history and glorious heritage. Second, respect her own value systems, culture, languages without losing sight of value of English at the global level. Third, wisely embrace technology-led innovation path without losing

sight of sustainability principles. Forth, revive and recognizing diverse artisan skills among her diverse population as part of education. Fifth, ensure respect and mainstreaming agriculture in university education. Sixth, involve business, industry, governments, voluntary organizations and society in the teaching learning process. Seventh, scrupulously remove redundancy at all levels including academic faculty, courses, content, pedagogy and governance. Eighth, remove blue collar – white collar divide by ensuring equal weightage to skill mastery and degree education ensuring equitable recognition to skill providing accountability linked autonomy and encouragement to deserving organizations to innovate new India-centric university models integrating ancient and modern approaches. Finally, it is possible to simultaneously offer high quality education knowledge and skills that can meet aspirations of young to earn respectable living, at the same time, attend national needs and serve the cause of humanity. This is unlikely to happen in an incremental manner by doing same things in different ways or merely by increasing Gross Enrollment Ratio (GER). It will be disastrous for a country like India if glorification of hollow degrees produced by existing university factories producing unemployable graduates on assembly line continues. Existing model of the University education must be changed before it is too late, for the future generation should not and will not wait.

Re-imagining universities does not mean discarding Western approach or replacing current practices. The integration of Indian knowledge systems in education should not be done blindly in a dogmatic manner. The main purpose of this exercise should be to explore their contemporary relevance with an open mind and scientific temperament. This will require imaginative disruptive changes and a complete overhaul to prepare our university education system future ready.

NITI Ayog has articulated strategy for New India. As we are engaged in progressing towards New India it is imperative to reform education system and reimagine New University. The quality of University education has to play a vital role in the proposed transformation. We should be able to face the future challenges better if we are able to learn from our glorious past and bring best from eastern and western civilizations. The new universities should be grounded on the strong foundation of Indian cultural ethos bringing multidisciplinary ecosystem where ancient and modern, shastric and scientific temperament, scholarship and global good coexist; where knowledge and skills, theory and practical, research and innovation are integrally integrated. Let's hope that we will be able to re-imagine and re-model the New universities complementary to the vision of New India in accordance to principles of justice, liberty, equity, sustainability and human values.

Higher Education has to focus on sustainable education through deep learning. Ancient India which climbed the highest pedestal to become *Vishwaguru,* has left a time-tested heritage of teaching learning system for us. We need to demonstrate the applicability of this indigenous heritage to the world. At this crucial juncture where we have abundance of models and approaches, we, the patrons of Indian higher education should facilitate the youngsters of teaching fraternity through our experiences to evolve the best teaching learning processes to create universities of world class standards in India.

Conclusion

The 21st Century Indian education system requires a new model of forward-looking University System rooted in Indian culture. The new model of University system should be based on transdisciplinary approach bringing academic excellence, flexibility, professionalism and self-reliance in the system and integrating traditional and modern knowledge to make it locally relevant and globally competitive to serve the national development and the larger cause of humanity. Indian knowledge systems comprising of six Darshana-s (philosophical world-views), fourteen *Vidya-s* (knowledge sources) -and sixty-four *Kala-s* (specialized skills) can be integrated with the present-day mainstream university education system. Insights from our cultural past can help us to re-imagine and re-model new universities to meet the vision of New India.

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SARAL to the Power of Three (SARAL)^3: A Theoretical Framework for Reimagining Indian Universities

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Indian Higher Education is at a crucial juncture demanding urgent radical changes. It requires transcendence from the present state of ambivalence, where on the one hand we are witnessing rapid progress in number of institutions, student enrolment, instructional methods, international competition and such other things while on the other hand there is stagnation, rather decline in quality, relevance, accountability, affordability, research output and overall academic culture in the universities. The social ramification of this situation is steep decline in educatedness in people of the country. Till late nineteenth century, our country was known for its educational culture. This can be substantiated by the comments of German Indologist Max Müller (1882), who said, "If I were asked under what sky the human mind has most fully developed some of its choicest gifts, has most deeply pondered over the greatest problems of life, and has found solutions of some of them which well deserve the attention even of those who have studied Plato and Kant, I should point to India. And if I were to ask myself from what literature we who have been nurtured almost exclusively on the thoughts of Greeks and Romans, and of the Semitic race, the Jewish, may draw the corrective which is most wanted in order to make our inner life more perfect, more comprehensive, more universal, in fact more truly human a life . . . again I should point to India."

The Higher Education sector in India is perhaps the world's fastest growing systems. At the time of independence in 1947, number of universities in the country was 20. Now it is world's largest higher education system after US and China with 1040 universities and about 40,500 colleges. Total enrolment in Higher Education (HE) is estimated to be about 38 million with Gross Enrolment Ratio (GER), calculated for 18-23 years age group as 26.3%. Almost 80% of the students are enrolled in UG level programmes. It is estimated that by 2027, India would have the largest populace enrolling for collegiate and other higher education institutions and by 2030 it is expected to be one of the top youngest nations in the world with the largest population in the tertiary education age bracket.

Despite all the progress, the Indian Higher Education System is ailing with many tribulations like outdated and rigid curricula, lack of adequate quality faculty, poor faculty quality in terms of both commitment and competence, lack of research culture, poor research output, flawed examination system, poor methods of teaching and learning, poor skill development among students resulting in low employability, inadequate provision and poor management of educational services, lack of accountability and problems in governance. These inadequacies are taking a great toll on the quality of higher education in India.

Added to these tribulations, now the crisis of the COVID 19 has upended the Indian higher education system totally. Due to this crisis now, humanity stands at the crossroads of hope and uncertainty. The darkness seems to have enveloped the world; pain, suffering and anxiety have become a universal condition. We have a task at hand – either to keep waiting for the 'Godot' to bail us out of this crisis or grope our way in the darkness to see through it. The long history of pandemics suggests that humanity should be able to downplay the virus fear, but for that to happen we need to show more resilience, perhaps that of the famous Victorian poet, Robert Browning, who incisively wrote in his famous poem, *Prospice* "I was ever a fighter, so---one fight more, The best and the last (1909, 117) II

Such an indomitable approach ought to be the outlook of our higher education as well. It must teach not only love, care, empathy and compassion, but also a spirit to overcome shared vulnerability. Rightly does Martha Albertson Fineman situate education within the framework of 'human asset' for it provides us rationality and wisdom, makes us question the unquestionable, and live with the unliveable. In the wake of the pandemic

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crisis of the COVID19, it apparently seems as we have another 'tryst with destiny' – to borrow the famous Nehruvian phrase. Nehru was fervently driven by a conviction that no matter how worse the situation tends to be, "the workings of the mind" to think of solutions should never cease. This becomes more pertinent in the present time, which is marked by an increasingly rapid yet massive change. The more rapid the change, the more urgent the need for new discourses and solutions. COVID19 would certainly change the way we think of our relationship with this place known as 'the earth'. It has already brought significant change in the lifestyle, which gets manifested in the hyper incarnated lives, driven by 'cultures of extreme' marked by sanitisers, masks, social distancing, and quarantine. In the same way, we also need to realign our education model to fill in the vacuum created by the pandemics.

The present article is aimed at formulating a theoretical framework, which makes us see at the components needed to offer a resilient model of higher education. The resilient model takes into account what we term as $(SARAL)^3$ framework underpinned with and driven by critical thinking. Speaking of the higher education in the present time, most of us have shifted to online teaching to overcome the challenges brought forth by the pandemics. This reminds us what Albert Einstein once remarked that "In the midst of every crisis, lies great opportunity." Herein lies the key because the moment one approaches crisis as an opportunity, the rules of the games change. As per the report published by the Washington Post on March 27, 2020, "There are now nearly 1.5 billion children around the globe — or 87 percent of Earth's student population"(online, 2020) who have been affected by the pandemic. Such is the unprecedented impact of the virus that it has led to a moment of global crisis and hence demands deeper attention and careful intervention. We are no longer working on the coordinates of known-knowns, rather it has undergone a radical change—not to known-unknowns, but unknown-unknowns. To think of higher education in such a moment of unknown-unknowns is to think of unidentified or hard-to-detect risks. Some of the questions that haunt the present moment are: What would be the face of higher education in the post-COVID19 era? How would the post-COVID19 era retain and heighten the interests of the students? Would online education become the permanent feature of the higher education? What could be a model to imagine this coordinate of unknown-unknowns and carve a way out for higher education in the future. As solution for these questions, a theoretical framework called 'SARAL to the Power Three' -- $(SARAL)^3$ was formulised by the authors as a way ahead for higher education. Of course, this proposed methodological framework would be underpinned with imaginative vision, but one must remember that one can create only what one imagines. In the paragraphs that follow, $(SARAL)^3$ framework is fleshed out.

$(SARAL)^3$ Framework and the Way Forward

SARAL in 'SARAL to the Power Three' --- $(SARAL)^3$ is a word coined out of first letter of different variables which impact higher education. Each alphabet raised to the power three or cube of the alphabet stands for three variables starting with that particular alphabet. Thus, the first S in $S^3A^3R^3A^3L^3$ stand for three variables ie Sense-making, Social Intelligence, and Spiritual Quotient. Similarly $(A)^3$ stands for Access, Affordability, and Accountability ; $(R)^3$ stands for Rigor, Research, and Relevance; $(A)^3$ stands for Adversity, Alignment, and Adaptability; and $(L)^3$: Life Long Learning, Logical Thinking and Learning Outcomes. The applicability of each variable is discussed here.

S^3 --- Sense-making, Social Intelligence, and Spiritual Quotient

We begin with the first alphabet 'S' in the word $(SARAL)^3$, which focuses on the sense-making skill. It must be added that learning skills need to be strongly integrated into our curriculum. The sense-making skill needs to be taken care of given the fact that we live in an increasingly globalised world, changing at an unprecedented speed. The speed at which learning outcomes could be achieved should match the rapidly changing requirements of the global world. Education model needs to focus attentively on honing skills of learners so that they can compete at the global level. Sense-making skill can give learners an insight into the changing needs of time so that they are able to make their skills compatible accordingly. Absence of sense making in future learners will result in something like the 'Paradise Lost', to use a title of John Milton's classical poem. An example of a focussed approach on the sense-making skill can be found embodied in the way Singapore has rapidly transformed its higher education, which is driven by and underscored with skills. In 2015, the Singapore government initiated *Skills Future*, a nationwide campaign with an aim to develop its citizens' "fullest potential throughout life, regardless of their starting point", and thereby ensuring that "the skills, passion and contributions

of every individual will drive Singapore's next phase of development towards an advanced economy and inclusive society." No wonder that by the end of the year, the OECD ranking put Singapore ahead than many developed nations in terms of advanced economy and an excellent literacy rate of 97 per cent. Sense-making skill requires critical thinking and therefore, what lies at its core is a proper understanding of any given situation and a concomitant decision-making. In a way, sense-making skill is needed to negate and overcome decision-making paralysis. Skills become redundant if one cannot display a sense-making ability. Therefore, future education models must work on and emphasise this sense-making skill in their curriculum. Anna Davies et al. define sense-making as the "ability to determine the deeper meaning of significance of what is being expressed" (2020, 12). At a time, when things are undergoing rapid transformations and, physical classrooms have given way to digital ones, sense-making skills will guide futuristic learning model.

Social intelligence manages the required abilities for effective communication based on empathy, self-knowledge, listening, and reading of emotions. The education model based on skills should eventually develop Social Intelligence. Social Intelligence stands for another 'S' in the framework and hence we must make it clear that the use of 'Social Intelligence' here points to learners' ability to have a balanced approach to work and life. This balanced approach will help learners integrate with society, and hence the second 'S' in the $(SARAL)^3$ model stands for social intelligence. The social intelligence is yet another increasingly vital feature of any higher education since it teaches one to live with the unliveable, and love the other, thereby inculcating a vision to not only understand society in which s/he lives but also develop a sense of community service. Only a cursory glance at the pandemic crisis is enough to witness the community service going around, which has helped elders, sick and poor to survive the testing times. It is this spirit to serve society that should be installed in the young minds. It reminds us of Gandhi's idea of learning, which was "education for life, education through life, and education throughout life", one that keeps on evolving in context to society. The present pandemic has certainly acquainted us with new experiences and some of these could be used to guide the future generations.

The evolution of the self leads one to look into oneself and concomitantly could be a way to develop our spiritual quotient. In a world demarcated by pervasive conflicts and tensions, education needs to inculcate more humane, spiritual, rational and philosophical outlook. An education that creates conflicts and confusion cannot be a good one. In this context, J. Krishnamurty's idea of education laid down in his monumental book, *Education and the Significance of Life* (1974) attains immense importance. Krishnamurthy incisively remarks that "Understanding comes only through self-knowledge, which is awareness of one's total psychological process." He goes on to argue, "the whole content of life can never be foreseen, it must be experienced anew from moment to moment; but we are afraid of the unknown," and hence spiritual quotient needs to take care of to look inwards for the solutions. In the present scenario unknown could be apprehensions towards the online education. Our education needs to strike a balance between the inner self and the outer world because the failure to do so would disharmonize the lives of students. Tagore captures this with razor precision when he puts in his essay, 'A Poet's School' that true education should be free from "the grip of the self" and transcend all identities (Tagore,1917).

A^3 --- Access, Affordability, and Accountability

Moving to the next set of A^3, which represent accessibility, affordability and accountability. Accessibility is the fuel of higher education system, without which education system would collapse. In an age marked by technological advancement and rapid movement, innovation has become the new *mantra* for higher education: who gets benefitted from the immense digitalisation and who is left out should be looked into and resolved. In its application and diffusion, the purpose of higher education should be to dissolve all boundaries so as to create a deep social impact. This takes us back to the monumental Yale Conference on Access to Knowledge held in 2006 during which Jack Balkin situates the 'access to knowledge' movement deeply rooted in three demands – 'justice', 'economic development and individual participation' and 'human liberty'. The movement seems to have gained momentum very soon. As on 16th May, 2018, a Swedish consortium became the latest to advocate open-access publication policy. It made essential for "research papers to be published openly — on the grounds that the fruits of publicly funded research should be available for all to read." (online, 2018) The answer to accessibility involves a shift in the way students would consume higher education. Students shall be adopting online courses while undermining core curricula by turning to alternate providers. As a result, colleges must become more agile, entrepreneurial, student-focused, and accountable for what students learn. Open and

Distance Learning institutions will become key players in the near future to blur the boundary lines between the physical presence of students for a course and become far more accessible in terms of gaining knowledge. As per the University Grants Commission website, there exist 1040 universities and about 40, 000 colleges across India as on February 2020, which is a small number in view of large chunk of population in the age group of 18-23 in the country who are out of the higher education institutions and also in view of Government's target to raise Gross Enrolment Ratio (GER) to 50% by 2030. Therefore, more focus on making the education accessible to the youth should be the pressing concern. Emergence of Massive Open Online Courses (MOOCs), new learning styles and rising globalisation pressures which have come as alternate modes have already started affecting the higher education sector. The big players in the higher education sector are developing new strategies to leverage these emerging challenges and opportunities in the age of Industry 4.0. It is up to the universities in India to understand the need for accessibility of education, embrace sustainability, and prepare its students for the future.

This paves way to the issue of 'affordability' in our higher education model. Affordability of education characterises the well-being of a country. According to a World Bank report, very costly education system "can jeopardize possibilities for individuals to exploit their full potential and it is partly responsible for dropouts" (World Bank, 2017). This goal of providing equal opportunity to learners has been at the core of the higher education policy, which could be seen in the Radhakrishnan Commission of 1948-49, the Kothari Commission of 1964-66, National Policy on Education, 1986. To make education affordable and to build a sustainable environment, universities need to start providing the options of online learning through digital Self Learning Materials (SLMs) in a progressive manner. Learners should be encouraged and motivated to opt for digital SLMs. The digital repository of the SLMs should be made available in all the desired formats i.e. desktop, mobile apps, e-book, etc. The ODL learners will be able access SLMs through its dedicated e-content apps. If open universities and other ODL institutions shift towards digital SLMs, it is expected that, by the year 2030, more than 70 per cent of total students under the ODL system will be shifting towards digital SLMs. With the integration of technology in the ODL environment, digital SLMs would be integrated with audio/video lectures, Open Education Resources (OERs) and learner study pattern and progression framework. The most important aspect of this initiative would be less reliance over printed materials and reducing the usage of paper and thus contributing towards sustainable future having no environmental concerns. To ensure affordability, students also need to take up opportunity such as 'earn while earn' seriously, and universities and governments need to create more opportunities for students/learners to open up avenues for such 'part-time job' schemes. This could be a way to make education affordable for economically weaker section of society.

Seen in this context, accessibility and affordability of higher education should be the accountability of policy makers and education providers in higher education. Accountability demands a continuous surveillance of the education, training, and mentorship being provided to students. The scale of surveillance should not merely be restricted to some limited hours per week, rather it must categorically focus on the total outcome of the learning modules. Elsewhere, Rajan Welukar and Sucheta Phadke have cuttingly advocated that, "defining the outcome is the first stage of the curriculum design process (Welukar and Phadke, 2020). However, to trigger this kind of a surveillance would require a revamp of Indian higher education as it currently lacks performance indicators through which faculty members and university authorities could be rated.

Also, accountability demands for an evaluation of students' satisfaction level in achieving their learning outcomes, which in turn, therefore, require framing of students' development index. The development index could be taken care of only if the measurability aspect of each student is recorded on the basis of his/her continuous development from the day of joining the university or institute until s/he leaves the campus. Higher education is undergoing an unprecedented change, and this is apparent in the way immense digitalisation, privatisation, students' migration have become the new normal. It has also had led to a further democratisation in the sense that both parents and students interrogate the education system by seeking a Return on Investment (ROI). Therefore, the Institutes which can prioritise and be more open to accountability will succeed in the days to come.

R^3 --- Rigor, Research, and Relevance

Moving on to the R^3 in the $(SARAL)^3$ framework, which stand for Rigour, Responsible Research and Innovation, and Relevance. Not only is a rigorous curriculum the demand of the hour, but so is a responsible

approach to research. A rigorous curriculum need to be accompanied with rigorous research. Learning skills and responsible research could be seen through one lens in the way that learning skills are needed to compete in the world, and responsible research is required to create impact on society. A research that does not lead to applicability to society or policy making is therefore redundant. Hence, a provision for responsible research needs to be in place while awarding funding to any research projects. The programme and the personal goal of students need to be aligned with the changing contours of the globalised world. New knowledge needs to be created within the changing dynamics and also has to respond to the changes around. Hence, a more 'responsible' approach by teachers and students and administrators is needed to update their knowledge. Institutes need to understand that policy makers and authorities need to be more responsible to reach out to one and everyone, including the unreached ones, and not just a select group of learners. To be ready for the transformation is increasingly vital in the present day higher education scenario, which is always evolving. According to J Krishnamurthy, in order to relate to the ever evolving nature of higher education and to develop learners' capacities, "it is our responsibility in education, politically, religiously, in every way. And therefore it is the responsibility of the educator, of everybody, not just myself, my responsibility, it is your responsibility as well as mine, as well as his." A rigorous and responsible approach also give rise to the question of what is 'relevant' to be incorporated into the curriculum. The answer is to be found in the idea and demand of time. For what is relevant today, may become irrelevant in the blink of an eye. So, we need to be ready for changes. The knowledge for the future needs to be envisioned in the present times to prepare us for future challenges.

Ministry of Education (erstwhile Ministry of Human Resource Development) has initiated many programmes for making the researches conducted in the Indian universities relevant and application based so that the society is benefited out of it. The Smart India Hackathon Scheme is one such initiative by the Ministry which has helped many students to become entrepreneurs and start their own ventures. The *Anveshan* Programme of Association of Indian Universities and Avishkar Programm of Universities in Maharashtra are also such programmes aimed at developing research abilities in students. Every year many students who have latent abilities and aptitude in research are identified through these programmes. The winners are then chosen by the industries either for further studies or for jobs and consultation. Skill India is yet another scheme of the government that endeavours to make the student community a skilled manpower and work force ready for employment and entrepreneurship. University—Industry- Society interface will help to identify the needs of the industry and plan research projects according to the societal and commercial needs and attract the best talents with high research caliber to take up research. Industrial revolution 4.0 requires youth with innovative thinking for inventing new things for creating the future ready industries. Indian universities should therefore have the required academic acumen and physical infrastructure to provide Education 4.0 and prepare for Education 5.0 for the Indian higher education to leapfrog into future with readiness and preparedness.

A^3 --- Adversity, Alignment and Adaptability

One must remember the famous African maxim, "I am because we are", which could also be seen in Sri Aurobindo's notion of 'interconnectedness of life.' We are all equally responsible for a better future on earth. Rabindranath Tagore also advocated for such an education when he said that "the highest education is that which makes our life in harmony with all existences" (1917). This harmonious existence could only be possible if the education caters to Adversity, Alignment and Adaptability, which sums up the next A^3 in the $(SARAL)^3$ framework. To understand this in a more methodological way, A^3 could be seen through the lens of adversity since adversity demands new interventions and corrective methods to align and adapt accordingly. Like what we all did during this COVID crisis. Alignment in a sense relates to think critically thus rendering stability and speed to acquire the adaptability skill. *This can be understood by Charles Darwin's inference in Origin of Species, "it is not the most intellectual of the species that survives; it is not the strongest that survives; but the species that survives is the one that is able best to adapt and adjust to the changing environment in which it finds itself."* Therefore, it can be argued that alignment is one of the major skills to sustain in the evolution of learners. It could be understood better through the metaphor of a bridge, which eases the path of a traveller. One who can adapt to the changes will always carry more value since productivity of such a learner will always be more. One doesn't need to go far to understand its approach; the attendant adversities of the global pandemics of COVID19, albeit in different forms

and manifestations, have forced us to incorporate and innovate new compliance of educational models.

L^3 --- Life Long Learning, Logical Thinking and Learning Outcomes

The last L^3 in the $(SARAL)^3$ framework represent Life Long Learning, Logical Thinking and Learning Outcomes. We all know that there is no such thing as the absolute knowledge. It keeps changing and evolving. Knowledge is a lifetime learning process. We need to develop our capability to be ready for change. The Greek philosopher, Heraclitus, rightly pointed out in 500 BC, "The only constant in life is change." Change is permanent and, therefore, lifelong learning includes: learning throughout life, learning for life, and learning for livelihood. Education is the result of interaction between the knower and the object. The domain of knowledge keeps changing accordingly. Ignorance has no beginning but it has an end whereas knowledge is unending, it is a medium to go beyond any existing frameworks, and hence a constant, but relevant changes need to be incorporated into the higher education to make learners compete at the global level. Learning without Logical Thinking is futile So and desirable Learning Outcomes is futile. So the system needs to ensure the these things while imparting education.

Logical thinking skills are essential in the learners to develop the ability to understand what they have read or studied, and also to build upon that knowledge without further guidance. Logical thinking teaches students that knowledge is fluid and builds upon itself. These days with the overload of information through many sources, the content that is drilled into students' heads is enormous, but the ability to make sense of that information requires thinking critically about it. Similarly, our decision making is imperilled in many people not by lack of access to data and opinions about the most important issues of the day, but rather by the inability to sort the true from the fake. Therefore, the more logical thinking skills are utilized in a workplace; the better will be the decision-making process with fewer mistakes. Particularly when one has to decipher from the news, biased and unbiased received from various sources, logical thinking is essential. In democracies like India, it is all the more required. We in academe must do more to ensure today's students become tomorrow's skilled thinkers. Fortunately, we are in a position to do so while reimagining Indian universities.

Learning outcomes describe the knowledge or skills students should acquire after pursuing a particular course or program. This help students understand why that knowledge and those skills will be useful to them. They focus on the context and potential applications of knowledge and skills, help students connect learning in various contexts. Predefined learning outcomes not only eases the process of assessment and evaluation but also help in standardizing it. Learning outcomes emphasize the application and integration of knowledge. Instead of focusing on coverage of material, learning outcomes articulate how students will be able to employ the material, both in the context of the class and elsewhere in life. The curriculum has to be designed to fulfill the demands of the specified course and programme outcomes and learning outcomes. Presently, in Indian universities a syllabus (not curriculum) is created by putting together a series of themes that constitute a course or a paper, like History or Geography and a number of interrelated courses to design a programme. But to ensure outcome of the education, the curriculum should be constructed in a manner that facilitates achieving pre-determined learning goals. Thus integrating Learning Outcomes in the curriculum is essential for a 21st Century learners. This is an important 'L' in the three Ls in $(SARAL)^3$.

Summing Up

Summing up the $(SARAL)^3$ framework, it becomes increasingly apparent that demand for an education system, driven by a grammar of compassion, solidarity, experiences, resilience, and concomitantly adopting peer mode of learning should be prioritised. The post COVID19 higher education model must be deeply grounded in skills, which include not just cognitive skills but communicative, reasoning, social, emotional, critical thinking, sense making, social intelligence, and problem solving, etc. Acquiring skills to adapt to the rapidly changing scenarios should be the backbone of higher education model all over the world. We take a recourse to the New Education Policy to emphasise the need for skill and competency driven education. The Preamble to the New Education Policy categorically lays out that "it is essential that children and youth in the country are equipped with the knowledge, skills, attitudes and values as well as employable skills that would enable them to contribute to India's social, economic, and political transformation." (GoI, 2020). Implementation

of the recommendations of New Education Policy can be made keeping these suggestions in mind and accordingly training module can be prepared around the suggestive frameworks that we have offered herein this article.

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Higher Education in India: Some Perspectives for Reimagining the Universities

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The institutions of Higher Education (HE) were established in the modern world to pursue excellence in teaching and research. Ideally they are meant to offer well thought-out and conducive environments for the promotion of scholarship and engaging with the processes of knowledge creation and dissemination. Besides, the system of HE, being embedded in the larger society, is expected to address the aspirations of younger generation varying along the dimensions of class, caste, language, gender, region, religion, etc. Thus, Higher Education Institution has to face twin challenges: (1) maintaining quality in imparting education and promoting research and (2) becoming inclusive in its scope and respecting the values of equality. Ideally such institutions are expected to liberate people's mind by opening up new horizons of ideas, exploring divergent views and deploying them for rejuvenating society's cultural space. In the contemporary period of globalization, developing countries like India Higher Education are also expected to meet the demands of market and industry by providing advance technical training, thus enabling the nation to compete in the international market place. Increasingly the universities, therefore, are required to become compatible with knowledge-economy and to prepare the citizens for a democratic world. Against this backdrop, this paper takes the array of Indian Higher Education and tries to situate it in the context of socio-cultural developments. It also deliberates the situation of Higher Education in the Hindi region. It attempts to figure out the problems and challenges faced in realizing the aspirations of the people and preparing to meet the challenges of the 21st Century.

Roots of Higher Education in India: An Overview

The idea of learning and education has been at the centre stage of Indian culture as it believed that there is no emancipation without knowledge (ऋते ज्ञानान्मुक्ति, सा विद्या या विमुक्तये). As such there has been a robust tradition of learning since Vedic period. The large number of texts and commentaries available in various disciplines including philosophy, literature, Ayurveda, mathematics, agriculture, music and sculpture, etc. provide undeniable evidence that a great tradition of rigorous indigenous scholarship did exist for several thousand years. The remains of ancient universities of Nalanda, Vikramshila, Odantapuri and Taxila also remind us about a vibrant system of Higher Education. Of course, they differed from today's universities in terms of aims, structures and functioning but they pursued a unique model *Guru-Shishya* relationship (Chanana, 2008) in which the student enjoys the status of the member of teacher's family.

The Indian education system in vogue today was transplanted by the British. Their interest in Indian education was related to the goal of maintaining and nourishing the British colonial rule. It engaged the young elites with the Western knowledge system and helped producing a workforce that could serve as civil servants. It produced a middle-class which was keen to serve the British Raj by running the State machinery. English as the medium of instruction favored the privileged sections of the Indian society. Thus, Higher Education exacerbated the pre-existing social inequalities by creating another level of inequality in the form of English education and Western knowledge. The privileged groups mobilized themselves in a new 'colony culture' where they were identified with the symbols of modern Western civilization.

Modern Universities in India

The modern university system was introduced in India in 1858 by establishing British style universities at Bombay, Calcutta and Madras. Within three decades there were some institutions which were established with nationalist aspirations. Thus, Arya Samaj opened the Dayanand Anglo-Vedic (DAV) schools and colleges (1885), Annie Besant started Central Hindu College (1898) and Swami Shradhanand established Gurukul at Kangari, Haridwar (1902). These were the centers celebrating India's ancient heritage driven by the dominant cultural values. Similarly, there was a Centre of Islamic Learning at Deoband and Khalsa

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Colleges in various parts of Western India. Besides, there was an organization, the Deccan Education Society (1884), which favored English as the medium of instruction, made itself flexible in practice so that it could get financial support, but was established as the ground for the nationalist movement. It is important to note that the nationalist aspiration under the leadership of Mahatma Gandhi was guided by the values of *Swaraj* (self-rule) and *Sarvodaya* (welfare of all). Gandhi Ji invited the students to give up schools either run or aided by the government as a part of the non-cooperation movement against British Raj. Meanwhile there was a need for Higher Education institutions to cater to these students who had left their formal education at British run institutions. Kashi Vidyapitha at Varanasi and Gujarat Vidyapitha at Ahmadabad were two universities established to serve this purpose. The nationalist call to reject the British run Higher Education institutions and to join the nationalist ones was also not welcomed by the Indian middle class which was not prepared to make the sacrifice of British facilities including education. It was also one of the limitations of the nationalist education movement. The journey of these institutions was difficult. They had to face huge financial difficulties in addition to pedagogic and technical challenges which continue to persist even today.

Higher Education in Independent India

During pre-independence era, the Indian Higher Education was searching for modernity under the colonial legacy. After gaining independence, it was entrusted with two major responsibilities. First, to modernize the Indian economy, society and politics, and drive the society towards industrialization and urbanization. Second, to sustain the constitutional values of secularism, fraternity and equality with a commitment to social welfare and justice. As articulated by Rizvi (2012) the postcolonial aspirations of Indian society had to 'embrace science and technology as the language of development and directed towards emancipatory quest for a new social order free from hierarchical structures' (p.6). The amalgamation of these aspirations required the State: to expand the outreach of the university to the masses and to create an ethos where young minds with liberating ideas can be groomed. It required transforming an elite system to an egalitarian system (Beteilie, 2010). Agarwal (2006) and Varghese (2015) have analyzed the expansion of HE after independence and identified three successive developmental phases. Taking Gross Enrolment Ratio (GER) as an indicator of development, they have described the growth of Indian Higher Education in three phases.

Phase I

During 1950-70 there were two main foci. First, there was an urgent need for the expansion of Higher Education so that a larger section of the population could be educated. Second, Higher Education was seen as an essential impetus to meet the goals of self-reliance and industrial development of the nation. To this end a large number of institutions of Higher Education were opened. Most of the universities were opened by the State. Besides, many colleges were given grant-in aid. The growth was mostly State initiated and funded. Simultaneously, several IITs and IIMs were opened. The period was also marked by the establishment of Higher Education regulatory bodies such as All India Council of Technical Education and University Grants Commission. Despite the investment and expansion friendly policy initiative GER was 4.2 per cent which was less than satisfactory. It was also noted that the maximum enrolment was in the liberal courses of arts, commerce and science streams. Varghese (2015) termed it as a stage of 'high growth and limited access'. The State was working with the agenda of massification.

Phase II

It emerged at the beginning of 1970. The decade witnessed rise in the demand for Higher Education. It was expected that the emerging middle class and urban population would enthusiastically welcome (Agarwal, 2006; Altbach, 2011, 2012). The State realized its incapability to meet the demand and adopted a liberal policy so that the private sector can start and run Higher Education institutions and reduce the burden. To this end privatization under the monitoring of State regulatory bodies was created as a model. Another trend was the acknowledgement of the relevance of professional education. As a consequence the courses in engineering, medical, management and teacher education got a boost. The State's approach towards resource compensation in favour of socially deprived sections motivated them to join Higher Education. Besides, reservation in government jobs was an incentive which worked as an additional stimulating force for these communities. The distance education programmes also helped expanding the scope of Higher Education.

Phase III

The economic reforms in early nineties led to creation of a socio-cultural milieu where middle class became larger, younger and richer (Agrawal, 2006). The demand of economy shifted from routine

jobs to entrepreneurship. The State's responsibility for establishing the institutes of Higher Education was minimized. As a result the institutions of Higher Education in general, and professional education in particular proliferated with private players who started contributing to the expansion of Higher Education in the form of a commercial activity with a zeal to make profit. However, authority to design a course and award a degree was still vested with the State. The private institutions were affiliated to universities and had to adhere their guidelines. The boom in private sector and emergence of IT industry raised the demand of certified skill holders in the fields of computer science and management. Currently Higher Education is marked by the emergence of a new paradigm. The entrepreneurs are opening the universities in industrial mode.

It may be noted that before 1990's, Indian Higher Education primarily relied upon State support and the efforts made by the State were necessary as it was mobilizing the masses to join Higher Education. However, at the dawn of globalization it was realized that the State's efforts are insufficient on many counts (Tilak, 2005) and the increased demand of Higher Education cannot be met by the public sector alone. Thus, a new system of Higher Education started growing where providers were still identified as non-profit organizations but their underlying philosophy was individual profit rather than social welfare. The role of the State was redefined. Earlier, it had to intervene in the domains of planning, financing and monitoring of HE but now its role was reduced to monitoring. The market friendly policies supported the establishment of private institutions and private institutions deemed to be Universities. These institutions run on the basis of purely entrepreneurial motives rather than academic ones (Chattopadhyay, 2009). Thus, education became a marketable commodity to be sold and purchased in a competitive market where the paying capacity mattered more than academic merit.

The curricular standards to conform to international standards and creating job opportunity at global level led to large scale mismatch in teaching and learning. The Higher Education is unable to strike a balance between what ought to be taught and what is taught. The Indian universities tend to adopt the courses and curricula similar to American and European universities. However, the textbook based teaching, examination oriented learning and insulation from the practical world make the learning culture incompatible with the global standards. The issues of access, quality and equity are becoming redundant as they are not relevant for the market (Chattopadhyay, 2014). The ideal is producing a workforce for the market and charging the institutional cost for teaching. There are several good private institutions but they also charge exorbitantly high fee. We are witnessing mushrooming of substandard institutions with high fee and poor quality teaching. Private institutes do not have a cultural legacy of excellence in the field of higher studies. As a result public institutes are generally preferred and they are doing better in several aspects than their private counterparts. At the same time we notice that the quality of teaching is deteriorating and university examinations are losing credibility. As a result the students have to attend coaching classes to clear competitive examinations and tests for fellowships etc. Running these coaching institutions for various levels offers a parallel system of supplementary education and it is estimated that it has become billion dollar business in India.

Research Culture in Indian Higher Education Institutions

Research culture builds the knowledge base for the society, economy and nation. It creates a superior praxis to existing one in relation to the socio-cultural and economic needs of society. It is also significant for the preservation of national histories, cultures and identities. Unfortunately, research culture in Indian universities is not satisfactory. Tilak (2018) has observed that most of Indian Higher Education Institutions were started as teaching institutions. They have moved towards research during late 20th Century. He gauged that history of research in modern Indian universities is not more than 100 years old. Patel (2017) has identified that most of Higher Education Institutions are still geared towards teaching institutions. Research is not a cherished activity for the faculty members. They do not take interest in doing research and publishing their work at significant forums. Most of them do it as obligation for career advancement (Srivastava, 2017). It hampers the quality of publication. They submit their good research work to a low grade or local publisher who publishes, what has been given without ensuring its quality. Therefore we are counting on numbers but significantly lagging behind in quality. The researchers cannot establish their academic claim on the basis of these writings. Good research demands time, patience, commitment and involvement.

Altbach (2011) has identified that dominance of English as a language of scholarship is also responsible for weakening of research culture in the non-English speaking world. Due to language deficit researchers face problem of publishing their work in good journals. Besides, it also creates an academic hegemony of West

where their paradigms, methodologies and values dominate. The overall national ecosystem of research is weak because of poor fund allocation for research activities, managerial and administrative constrains of institutions, unplanned expansion of HE and negligence of social science and humanities (Singh, 2015).

A pseudo boundary between teaching and research is often created and maintained. It is assumed that research activities are elite in academic sense and it should be conducted in certain premier institutes meant for the same. Similarly, teaching is a routine activity for mass education and it can be conducted at mass level with the available resources. Allocation of fund and other resources, quality measures and institutional cultures are built around this pseudo boundary of teaching and research. It is narrow and immediate priority driven approach that is counterproductive for research culture. As Nguyen (2008) has argued the boundary between research and teaching should be more porous for strengthening research culture. The matter of fact is that quality research culture is developed only at few elite institutions. It also favors those disciplines which are capable of turning knowledge into commodities (Suwanwela, 2008). This has left many institutions and disciplines marginalized. It is also creating a knowledge divide. We are also not able to invite skilled and competent researcher cum teachers in remote areas.

Instead of developing its own discourse Indian research culture is moving from colonial past to neo-liberal era where research activities are revolving around foreign references and problems. Even, we don't bother for conceptual and methodological rigor and prefer to reproduce 'new research' within a ecologically inadequate alien framework. Therefore the opportunity to assert the epistemic framework of our own is often missed out. Instead of de-legitimization and de-hegemonization of Western knowledge based economy we are preparing people for same market based economy. Besides, our research culture is neglecting and supporting the decay of indigenous knowledge systems though they do have rich insights for knowing and understanding the world. We are losing this asset at a fast rate. Some of the researches in field of ethno-medicine, traditional ecological knowledge and health have proved its worth. Their inclusion in mainstream knowledge system requires research. It demands sound knowledge of indigenous Indian culture, language and traditions.

The Case of Higher Education in Hindi Region

The progress of education in general in the Hindi region which is most populous is not satisfactory. It is reflected in terms of all the indicators of educational attainment. Even the level of literacy is low. The National Sample Survey (NSS) has conducted a household survey on 'Social Consumption: Education' for the period from 1st January, 2014 to 30th June, 2014. It is the 71st Round of Survey of NSS–Education in India. It dealt with persons aged 5-29 years who are in pursuit of education. In demographic terms it is estimated that in this age group fall around 36 crores for rural population and 14.5 crores for urban population. The Survey showed that Hindi speaking states are below the national literacy rate of 76 per cent (i.e. Bihar 67 per cent; Rajasthan 68 per cent, Uttar Pradesh 70 per cent, Madhya Pradesh 72 per cent; Chhattisgarh 73 per cent, Jharkhand 71 per cent). Haryana with 77.1 per cent literacy is just marginally ahead of the national average.

The Hindi region, spread over mostly the northern part of India is primarily constituted by an agrarian society functioning in a rural set up. It is characterized by the features like uneven land distribution, a dominant form of caste system, lack of basic infrastructure, very limited industrialization and dense population. As economic and social disparities are prominent education is held as a major source of social and economic mobility. The younger generation of this region aspires for white collar jobs preferably in the public sector. For them a higher degree is considered as a gate pass to appear in the competitive examinations and seeking jobs. Therefore the goals of HE has been re-prioritized with livelihood becoming its primary concern.

The present scenario of Higher Education in the region has historical roots and legacy as well. The region is proud of its premier institutes such as Allahabad University, Banaras Hindu University, Aligarh Muslim University, Agra University and Patna University. These institutions are still the focal centers of HE and attract a lot of students and faculty from all over the country. They carry an outstanding tradition of HE represented by the faculty and their works. They also contributed in inculcating academic culture in other remote and rural centers.

Another stream of HE emerged from the response to colonial education. It was inspired by the nationalist movement and headed by local community and leaders. These institutes opened the door of Higher Education for the masses. They provided a platform of HE through Hindi medium. These centers were hubs of nationalist ideology and prepared young leadership for freedom movement. However, in their academic discourses they

were dependent upon colonial system such as formal recognition, examination, curriculum etc. They were not able to incubate their own knowledge, pedagogy and research tradition. Therefore they promoted upward mobility but wider community didn't benefit from the 'trickledown effect'.

The Higher Education in the Hindi region is dominated by the University affiliated college model which has facilitated expansion of Higher Education but weakened the teaching-research link. Due to lack of strong research base and engagements with contemporary academic discourses these Higher Education Institutes couldn't develop a self-evolving and sustaining system. Most of them have become isolated islands of teaching, lagging behind in contents and pedagogy. The state's priority is to expand Higher Education with minimizing the investment of public finance. Massification of higher education is done but deterioration in academic standards, interference of politics and dominance of private sector is also clearly visible. In practical terms these institutions have become merely teaching institutions revolving around textbook culture and exam-centric pedagogy. It should be appreciated that these institutions tried to adopt Hindi as a medium of instruction for Higher Education. Textbooks and other study materials were prepared in Hindi. However most of them were limited in sphistication. Either they were translations of original English writing or poor adaptations. Very few original and significant texts are available in Hindi for social science and science disciplines. In recent years the situation has improved by the publications from Hindi Granth Academies of various states and Hindi Madhyam Karyanvayan Bureu, Central hindi Directorate, Technical Terminology Commission, Mahatma Gandhi Antarrashtriya Hindi Vishvavidyalaya, Wardha. Recently Oxford University Press, SAGE and Orient Blackswan have started publication of social science books in Hindi and Marathi. Some private publishers too have taken initiative to publish good books. On the whole, research writing and publishing in Hindi do not match the quality standards with their counterparts in English. Also there is no sustained effort to improve the quality of textbooks on a periodical basis. As a result many textbooks which are used are obsolete. The Hindi medium institutions are facing the problem of serious academic engagement.

It is also observed that the students do not attend the classes regularly. They are keen to enjoy a 'made-easy' culture, and remain satisfied by the selective study for examination purposes. The institutions of Higher Education are marked by their vibrant youth culture where many cultural, co-curricular, academic activities take place in the campus. Such a youth culture is missing in most of the Higher Education Institutions of Hindi region. The opportunities for peer learning and cultural socialization are drastically diminished. Also, the political interference in the organization of teaching learning processes in the campuses of higher learning often yield disruptive influences. Also, the indifferent and Bureaucratic approach of the State has negative effect on the quality of Higher Education. The State initiatives of formalization of institutions bring elements that are not compatible with knowledge creation and innovation. For example uniform syllabi, examination system, academic calendar etc. standardize the system rather than making them more responsive to the needs of the institution. Less autonomy to the teachers, engagement in other works than teaching and research, increasing workload and lack of research resources are other crucial challenges. The academic environment is negatively influenced by the huge number of vacant faculty positions.

Most of the students in Hindi region hail from farmer's families. Many of them are first generation learners. For them an exposure to Higher Education institution ensures an opportunity to learn and imbibe 'modern' culture. The current ethos of Higher Education affirms an individual's belief that the opportunities lie only in the metropolitan cities. The teachers, friends, and academic circle reinforce the idea that 'rural' means backward and 'urban' means modern. Thus educated individuals cut off themselves from their roots and try to become modern and urban. Their upward mobility builds the urban workforce. It also adversely affects the fabric of local communities.

At present privatization is a significant propelling force of Higher Education. In the wake of neo-liberal era professional education has been preferred by the private players. A good number of management and engineering institutes have been opened. They were aimed at profit making. In this context a new phenomenon of low-cost Higher Education has emerged. An accelerated growth in the number of private institutions in rural areas is visible. Many of them are low cost institutions situated in hinterlands of Hindi region. These institutions have poor infrastructure facilities, lack teachers and do not hold regular classes but unfair means are promoted for good results. This situation what affirms Altbach (1969) once termed as 'permanent crisis' of the Indian Higher Education: unplanned, directionless and random growth, unable to insulate itself with political motifs of patrons and carrying forward colonial legacy in terms

of academic hierarchy and administration, examination and certificate oriented courses, lack of rigor and innovation in curricula, teaching and assessment, a chasm between field of knowledge generation and application.

In recent years some initiatives for infrastructural support, faculty development and preparation of learning material have been taken. They are, however, only marginally effective as the system drags its feet on many counts. To ensure equity several measures are in vogue. These include free education to girls, scholarship to SC/ST/OBC/Minority and poor students, remedial classes for weak students of poor strata and coaching classes of competitive examinations for SC/ST/Weaker sections of society. We need a modern, liberal and adaptive system which can respond to the needs of society (Misra and Mishra, 2018).

A major aspect to worry about Higher Education in Hindi region is stagnation after graduation. A huge population is trapped in the moratorium stage. Their career choices and job opportunities are not matched. Therefore they have no other choice but to engage themselves in the preparation for various professional examinations. Urban centers i.e. Allahabad, Bhopal, Raipur are flooded with such population. Little exposure to competency based activities, ill-preparedness and poor competency in English are some of the causes of the stagnation. The Higher Education has tried to equip young minds with technical, technological, professional and managerial skills but it was done in a learning culture that put emphasis on absorbing information rather than constructing knowledge within their context .

Concluding Comments

The separation between teaching and research continues unchecked and quality remains to be the last priority both in public and private institutions. Higher education is faced with major challenges arising on account of inadequate funding, lack of autonomy, political interference, inadequate infrastructure and bureaucratic hassles. The research output and quality are adversely affected. We need to adopt a multipronged strategy to combat the problem by enriching the curriculum, empowering the faculty, providing rejuvenating training and installing a sense of accountability. The filling of vacant positions should be made mandatory. The cherished dream of making India a knowledge driven society shall be realized only if these issues are suitably addressed on priority basis.

The question of using Hindi in research has to be addressed in the context of the state of affairs in higher education in general. Research is a process of knowledge creation and language plays key role at several levels. Knowledge is largely preserved in language and as such it is the language through which we see the world. As the great Indian grammarian Bhartrihari says everything is cognized through word (सर्वं शब्देन भासते). Thus the repertoire of knowledge is represented through language and gets transmitted from generation to generation. Also, the various art forms like dance, drama and music do have a large component of language. The performances and concerts of great musicians do have a large contribution from languages. The different languages, therefore, offer diverse opportunities and communicative spaces to their users. Language also forms a major part of communicative performance and distinguishes humans from other animals. The neglect of language is currently manifested in many ways.

Research in Higher Education institutions is at its lowest ebb. There is an inadequate and diminishing financial support for Higher Education from the government and society. A large number of them are unviable as they suffer from very poor infrastructure and facilities. The legal interventions and poor response of the government oftentimes interfere with the functioning of institutions. The approach has been largely ad hoc. We have not developed a well informed reform agenda for higher education. All this has led to confusion to the higher education landscape in the country. The efforts do not respond to the new global realities based on competition and increased mobility of students and workforce.

Constitutionally, education is a subject of concurrent list but the reality is that it is inclined towards State government as there are 342 universities, deemed universities, open universities under the jurisdiction of state government. Even the universities run by private sector have a significant number of 277 which are approved by the State governments. The data suggest that while central government tries to show itself as a big boss in the arena of higher education the ground reality favours state governments and private players. The central government's initiatives and interventions for improving the quality of education are contingent on the support of state governments and private sector.

The University Grants Commission (UGC) has estimated that there are 17 universities which have more than 500 colleges. It is mentioned in AISHE (2015-16) report that the number of colleges per lac (100,00) eligible population in the age group of 18-29

years varies from 7 in the Hindi region of Bihar to 60 in Telangana. Most of the colleges run only undergraduate program and only 33 per cent of them run post graduate programs. These programs are transacted through routine procedures of teaching-learning and assessment with major emphasis on successfully passing the examination. The component of research and field based experience is missing in the teaching programs at these colleges. AISHE (2015-16) reports that there are 307 universities are located in rural areas. Although it justifies the principal of resource distribution and creating gravity centers in underdeveloped area but the distance from the focal centre also generates a static effect. They cannot attract wider population and have to face resource related problems too. At the time when government is withdrawing financial assistance, such universities are facing serious financial problem.

The state of Higher Education in India needs serious intervention if it has to grow and attend effectively to the global and local concerns. Higher Education Institutions cannot afford to remain isolated and pursue issues without any heed to the socio-cultural context in which they are embedded and get nurturance. Also, they have the responsibility to relate to the emerging societal context and the future scenario of India. It is estimated that India will have the largest population in the world in the Higher Education bracket by 2030. Increasing urbanisation and income levels would be the key driving forces for the demand on Higher Education. The Indian economy is expected to grow at a faster speed where industry and service sectors would have a serious impact on the economy. India must identify the grand challenges at the national level for coming decades and gear Higher Education to respond to them. India has also opportunity to become a prominent R&D destination. Given the expected socio-economic scenario in a decade, India would need a robust Higher Education system that can deliver knowledge and skills at multiple levels of competence. We need to build model(s) of efficient and effective governance of Higher Education and orchestrating it with the needs of society and promotion of scholarship.

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Reimagining Indian Higher Education through New National Education Policy

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The New National Education Policy-2020 documents the vision of education in the country for at least 20-30 years ahead. It envisions an India-centred education system that contributes directly to transforming our nation sustainably into an equitable and vibrant knowledge society, by providing high quality education to all (Draft NPE-2019). Elaborating the collaborative, multi-stakeholder, multi-pronged, bottom-up, people-centric, inclusive, and participatory consultation process that has gone into the making of the NEP-2020, a unique framework for Indian education system is built on the five major foundational pillars—Access, Equity, Quality, Affordability and Accountability. The process of devising new education policy started in January, 2015 with the realization that the education system of the country needs to be transformed and reinvigorated in tune with the requirements of fast-changing, knowledge-based societies, while cherishing the socio-cultural and linguistic diversity to build an equitable, just and humane society.

The policy document promises to create an innovative education system aligned with the aspirational goals of the youth of the nation who perceive the education as a potent tool to transform a human into a wholesome being. During the rigorous process of compilation of inputs received from the stakeholders from different walks of life, Prof. K. Kasturirangan, Chairman of the drafting committee and other experts associated with the draft primarily referred to classical Indian texts, philosophers, national mores and values, previous policies/reports on education, United Nations Declaration of Human Rights (UDHR)-1948 and Sustainable Development Goals (SDGs), which get explicitly reflected in the Preamble of the policy. Policy has also drawn from the best practices of education system of leading nations of the world like USA, China and Brazil, particularly. The committee underlines the importance of the spirit of Article-21 of the Constitution inserted through 86th Amendment that envisages free and compulsory education for all children in the age group of six to fourteen years which is in compliance with the United Nations Declaration of Human Rights (UNDHR)-1948 that makes education as an unalienable right of everyone. Taking clues from the historic 86th Amendment of Indian Constitution, the NEP-2020 extends the domain of Right to Education by making the provision of Early Childhood Care and Education (ECCE) to all the children from age 3 onwards.

Clues have also been taken from the UNESCO Report titled 'Learning: The Treasure Within' (1996) to highlight four basic aims of education: i. Learning to Know, ii. Learning to Do, iii. Learning to Live Together, and iv. Learning to Be. Similarly, the document proposes to revive and restore the relevance of rich Indian heritage that gets reflected through the works and deeds of great Indian sages, philosophers and scientists like Mahatma Gandhi, Swami Vivekananda, Dr. A P J Abdul Kalam, Guru Nanak, Mahavira Acharya, Gautam Buddha, Sri Aurobindo, Babasaheb Ambedkar, Shri Rabindranath Tagore, Dr. M.S. Subbulakshmi, Srinivasa Ramanujan, Dr. C V Raman, and Dr. Homi Bhabha who advocated the concept of life-building, man-making and character-making holistic education for complete realization and liberation of the self. The policy also underlines the importance of inspiring lessons from the literature and people of India. The innovative concept of broad-based liberal education for developing critical thinking, higher order thinking, mastery of content, problem solving, teamwork, multidisciplinary approach, holistic understanding of the domain of knowledge and communication skills, has been derived from the Indian traditional liberal arts education system that educates the learners across 64 *kalas*. The Draft locates the importance of restoring the rich Indian tradition of liberal education that is sure to create 'complete human beings', capable of learning multiple arts and skills which will prepare them for variety of job opportunities. In an attempt to sustain national pride, it also focuses on creation of national resources to cherish and sustain unique attributes of national culture, tradition and heritage.

The committee has also aligned the objectives of education with Goal-4 of the Sustainable Development

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Goals which seeks to ensure inclusive and equitable quality education, and lifelong learning opportunities for all by 2030. The concept of 'School Complexes' which finds mention in Education Commission Report (1964-66) and Programme of Action document of NPE-1986 (1992) has been prominently highlighted in the document as one of the most promising structural changes required for desired transformations in the education system of the country. It is an ambitious proposal intending to integrate different levels of school education starting from Foundational Level to Secondary Level.

In an interview with *The Hindu*, K. Kasturirangan, the Chairman of the drafting committee of National Education Policy, enumerated the transformative aspects of the policy. He observed that the proposals like school complexes, liberal education, four-year teacher education programmes, National Research Foundation (NRF), engaging the retired scientists as mentors, autonomy to states and union territories, and integrated approach to education, shall significantly contribute in shaping the scenario of education in India (*The Hindu*, June 27, 2019).

A thorough study of the present suggests that though it values the relevance of the previous policies, it perceives the challenges of education from an altogether fresh perspective, and suggests immediate transition from sluggish and unresponsive system of education that undermines the culture of value-based quality education and research suiting to the needs of 21st Century. Introducing 'accountability' as one of the five targets, the draft recurrently mentions that the national interest has to be at the centre of planning and implementation at every level, and marks the importance of convergence of mutual efforts by community-based organisations and educational institutions in the pursuit of achieving desired goals envisaged in the policy.

The National Education Policy-2020 presents wide range of promises for the young learners in the age group of three to twenty five. However, the analytical study of the document suggests that, if not handled properly, these promises may prove to be gargantuan challenges, and therefore the present paper presents an analysis of some of the promising recommendations contained in NEP-2020 about higher education system.

Reimagining Higher Education

Analysis of some of the striking recommendations about Higher Education contained in the Draft NEP-2019 suggests that desired outcomes may be achieved only after immediate systemic overhauling and restructuring of higher education. It starts with the recommendation to increase the Gross Enrolment Ratio in Higher Education from existing 25.8 per cent to 50 per cent by 2035. This ambitious recommendation is fraught with numerous challenges. The past experience of educational reforms and a comprehensive analysis of the five objectives of education contained in the Draft NEP-2019, namely Quality, Access and Equity, Affordability and Accountability suggests that overemphasis on 'Access' undermines the 'Quality'. Pursuing the goal of 'Access' India has succeeded in expanding its network of higher education institutions to become the largest higher education system of the world with 50 Central Universities, 409 State Universities, 349 Private Universities, 127 Deemed to be Universities and more than 40,000 Colleges in the country (ugc.ac.in) but this vast network has not yielded the desired outcome in terms of academic excellence, research, innovations and entrepreneurship, as India is still ranked fifth in global research publications. According to a government report highlighted by India Today, only 15.8 per cent of the total publications produced by Indian researchers feature in the top 10 journals globally. Compared globally, India trails the UK, which has 37.3 per cent research work published in top 10 journals, the US (36.2 per cent), Germany (33.4 per cent) and China (27.6 per cent). (India Today, July 22, 2019)

The recommendation that existing universities and colleges shall be consolidated into around 15,000 large multidisciplinary institutions shall require the merger of colleges and specialized universities with multidisciplinary universities. This process may entail diluting the special character and focus of premier institutions like IITs, IIMs, IISc, IISERs, etc., and may subsequently affect the institutional credibility, graduate outcomes and employability. Similarly, the idea to restructure higher education institutions into three categories: (i) research universities focusing equally on research and teaching; (ii) teaching universities focusing primarily on teaching; and (iii) colleges focusing only on teaching at undergraduate levels, may obfuscate the academia. The grouping of Higher Education Institutes into three categories shall necessitate the separation between two mutually dependent activities— teaching and research. Also, it may create a different type of hierarchy among the institutions where the first among equals (existing

premier organisations) shall enjoy the privileges which may develop a sense of complacency among the faculty as they don't have to perform for upward movement. The Draft NEP also provides that all such institutions will gradually move towards full autonomy - academic, administrative, and financial with provision of all these types of institutions in each district, which will require a thorough review and assessment of existing institutions at national level.

The proposal to establish National Research Foundation (NRF) through an Act of Parliament is an ambitious proposal towards streamlining research and development initiatives. The Research Foundation will consist of four major divisions: sciences, technology, social sciences, and arts and humanities, with the provision to add additional divisions. The Foundation will be provided with an annual grant of Rs 20,000 crore i.e. 0.1 per cent of GDP. On the one hand, NRF will provide a single platform for the researchers and innovators across the disciplines while on the other hand it will discourage duplication of researches by providing a unique databank of researches performed in various disciplines. The draft also mentions about the better engagement of the private sector and provisioning for government funding for R&D work through national research fund. The participation of industry partners in academic researches shall certainly orient and direct the young researchers to engage themselves in the relevant areas of research.

The proposal to establish *Rashtriya Shiksha Aayog* or the National Education Commission to be chaired by the Education Minister comprising of eminent educationists, researchers, professionals from various fields shall help in better coordination between states and the centre. It will also strengthen and consolidate the federal structure of the country where the representatives of states shall have the opportunity to voice the state-specific regional, linguistic or educational concerns at one platform. However, a thoughtful strategy needs to be devised to make the best use of the expertise available with the existing regulatory authorities.

Further, NEP-2020 emphasises on online learning as an alternative to regular classroom interaction between teachers and students which is a debatable issue because it is a widely held opinion that human intervention in the form of teacher is crucial for right kind of education. Online Distance Learning (ODL), MOOCs and other forms of e-resources can serve as the tools to achieve the desired GER, learning outcomes and low-cost education but these cannot substitute the classroom teaching.

Underlining the importance of protection of Indian culture through the study of classical languages, mother tongues, and regional languages, the policy proposes that, in addition to the local Indian language, all higher education institutes must recruit high quality faculty for at least three Indian languages. It has also recommended that the mandate of the Commission for Scientific and Technical Terminology be expanded so as to strengthen vocabulary of all relevant disciplines in Indian languages. This proposal is in sync with the vision of the nation enshrined in our constitution to cherish, relish and sustain its multilingual identity wherein the learners develop respect for the languages other than the native/local/mother tongues.

Considering the importance of quality Teacher Education for transformation of Indian Education, the new Education Policy recommends 4-year integrated B.Ed.to be offered by multidisciplinary Higher education institutions which will become the minimal degree qualification for school teachers. The 4-year integrated B.Ed. will be a dual-major holistic Bachelor's degree, in Education as well as a specialized subject such as a language, history, music, mathematics, computer science, chemistry, economics, art, physical education, etc. Beyond the teaching of cutting-edge pedagogy, the teacher education will include grounding in sociology, history, science, psychology, early childhood care and education, foundational literacy and numeracy, knowledge of India and its values/ethos/art/traditions, and more. The Higher education institutions offering the 4-year integrated B.Ed. may also run a 2-year B.Ed., for students who have already received a Bachelor's degree in a specialized subject. A 1-year B.Ed. may also be offered for candidates who have received a 4-year undergraduate degree in a specialized subject. Scholarships for meritorious students will be established for the purpose of attracting outstanding candidates to the 4-year, 2-year, and 1-year B.Ed. programmes. The recommendation about Continuous Professional Development programmes and introduction of a permanent employment (tenure) track system for faculty in all higher education institutions by 2030 is also a step ahead towards ensuring quality of teachers.

Taking clues from the rich Indian tradition of knowledge nurtured by the ancient institutes like Taxila and Nalanda Universities, the Draft Policy also proposes to introduce four-year undergraduate programmes in Liberal Arts with multiple exit options.

These undergraduate programmes shall prominently focus on interdisciplinary approach with a common core curriculum, and one/two area(s) of specialisation. The students will be required to choose an area of specialisation as 'major', and an optional area as 'minor'. This recommendation requires serious rethinking and deliberations among policymakers, educational administrators, teachers and students so as to enable every stakeholder to appreciate and internalize the importance of the concept of liberal education as the best form of education. It will also require thorough restructuring of curricula and syllabi.

Addressing the existing problem of un-employability, the policy recommends that the professional education should be an integral part of the higher education system. The Policy proposes that 50 per cent of all learners be given vocational education by 2025 which can be possible with integration of professional and general education institutions in a time-bound manner. The emphasis on vocational and professional skills at each level of education shall certainly help the country to harness the demographic dividend.

In addition to the above, the policy also recommends optimum use of resilient capabilities; multidisciplinary institutions with UG, PG and research programmes; discontinuation of affiliating universities and colleges; entry of foreign educational institutions; transformation of specialized institutions in multi-faculty institutions; abolition of M.Phil programme; and a desirable student-teacher ratio of not more than 30:1.

The Policy recommends that NAAC should be fully autonomous body as the top-level accreditor with powers to issue licenses to different accreditation institutions so as to ensure that all existing higher education institutions get accredited by 2030.

With the advent of the concept of industry 4.0, education has gained an unprecedented significance. At this moment, the country is again at the cusp of a change where we have to perform in tune with the requirements of an emerging knowledge economy, the National Education Policy presents a roadmap for the future of the country through emphasis on creation of knowledge resources to enable the country to develop an ecosystem that sustains futuristic knowledge. It diagnoses the maladies of existing education system and suggests effective remedies which might infuse and instill confidence among the learners to become the complex problem solvers to resolve and address the conflicts of transition, facing all the individual and social challenges.

The recently released QS World University Rankings-2020 also suggests that there are only three institutions, namely IIT-Bombay, IIT-Delhi and IISc-Bangalore which have found place among the top 200 universities of the world. These reports present an alarming picture of quality higher education and research in India vis-à-vis access as a predominant objective. Education being a concurrent subject, it is imperative to build consensus among the Centre and state governments to introduce the promising recommendations of the policy. Instead of imposing the fresh guidelines, norms and provisions, all the stakeholders should be motivated to voluntarily participate in the exercise of implementing some of the phenomenal recommendations which require strong will power and commitment at the level of individual institutes. As there have been series of consultative workshops, discussions and meetings to findings NEP, there should be a national-level campaign to sensitise the students, teachers, parents, and educational administrators about their role in execution of the recommendations of the Policy, particularly about re-structuring of higher education, introduction of Liberal Education, establishment of National Research Foundation, provision of single regulatory authority, elimination of existing B.Ed programmes and shift towards 4-year Teacher Education programmes, and transformation of specialized institutions in multidisciplinary institutions.

In addition to the above, the Higher Education System needs to be rejuvenated and restructured in accordance with the well-defined parameters of National Institutional Ranking Framework (NIRF) developed by the Ministry of Human Resource Development (MHRD). The higher education institutions need to revisit their strategies in order to secure a respectable ranking. On the basis of our understanding, the institutes are required to develop their objectives, curricula, pedagogy and academic practices in line with the requirements of NIRF parameters discussed here.

Teaching Learning Resources (TLR)

a. The institution must strive to increase Faculty-Student Ratio with emphasis on permanent faculty;

b. The higher education institutes should adopt appropriate mechanism in sync with the targeted GER of 50 per cent by 2035 as envisioned in NEP-2020.

c. As far as possible, candidates with Ph.D. and higher experience (minimum eight years) should be preferred (however, it will be more rewarding to recruit a person with better research output);

d. Promoting the faculty to attend Leadership for Academicians Programme (LEAP) by relaxing the norm of experience at the level of Professor; and

e. Increasing the budget utilization on the following:

   i. Library

   ii. New Equipment

   iii. Engineering Workshops

   iv. Studios

   v. Creation of Capital assets (excluding land and building)

   vi. Annual Operating expenditure including Salaries, Maintenance of Academic Infrastructure, Consumables, Rent, Depreciation Cost

   vii. Organisation of Seminars, Conferences and Workshops, and sponsoring the faculty for attending the academic and extension activities at national and international level

Research Promotion and Consultancy (RPC)

a. Devising the mechanism to encourage researchers who have demonstrated the ability to publish in scopus and web of science journals which are considered by the NIRF for the purpose of ranking;

b. Supporting the faculty members in preparing research/consultancy projects;

c. Supporting the faculty members for publication in open-access journals to increase citation index;

d. Financial support to the faculty for filing, publishing and examination of patents.

Graduate Outcome (GO)

a. Devising the mechanism for timely declaration of results and award of Ph.D. Degrees;

b. Promoting the students for higher studies in reputed national and international organisations;

c. Facilitating the students of professional courses for placement for which a dedicated Placement and Counselling Cell is required at college and university-level;

d. Better faculty, better support system/facilities etc.

Outreach and Inclusivity (OI)

a. Adequate Hostel facility to retain the meritorious students from diverse backgrounds

b. Common Entrance Test at national level to attract the meritorious students from diverse cultural backgrounds

c. Institutional provision of Tuition Fee waiver to deserving students from economically backward classes and Under Represented Groups (URGs)

d. Attracting foreign students in tune with 'Study in India' programme of Government of India

Perception

a. Sensitising the University fraternity about Peer-perception and individual perception.

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Reflections on Integrity and Its Counterparts for Achieving Excellence in Our Universities

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I belong to a small genre of academics working on the fringes of more than any one discipline. My disciplines of interest are economics and education, rolled into a singular branch called "economics of education" and a specialized area of research in that common hybrid space I take interest in is international migration and diaspora studies. In reminiscing my explorations to find a precursor to the idea of 'human capital' at the time of commencing my doctoral research more than four decades ago - the concept central to the discipline of economics of education, I had stumbled upon a speech by Swami Vivekanand that I thought carried its essence. It might be relevant to reflect on the relevance of that speech of Swami Vivekanand which is not as well-known as his celebrated "My dear sisters and brothers …" speech at the World Congress of religions at Chicago over 125 years ago, to the very idea of an "optimum university" if I may call it that.

Before I share that speech, let me state what the pioneer of economics of education in India and my late professor, Tapas Majumdar, had taught me and my batch of doctoral students at JNU, as a tool for scientifically approaching a subject of academic inquiry. It involved two simple steps: First, of Identification of the variables – both the Independent or Determining Variables, and the Dependent or Determined ones. The second step involved Measurement of the dimension or intensity of the relationship between the two types of variables. Accordingly, let me delimit my universe of discourse here to that of a single identified thought of Swami Vivekanand that was immersed in the speech I had stumbled upon, as the determining variable, and a single identified aspect of the 21ST century, as the determined variable, and then try to measure the relevance of the former to the latter.

Having spelled out this methodology as a prelude, let me briefly come back to economics of education as an interdisciplinary space that had emerged in the early 1960s. Theodore W. Schultz, then yet to be a Nobel Laureate in economics (1979), and a professor at the University of Chicago, coincidentally in the city associated with Swami Vivekanand's most celebrated 1893 address at the World Parliament of Religions, had given the argument that skilled labour was a "man-made" produced means of production and, unlike plain untrained labour, not a "gift of nature". He thus gave the concept of "human capital", and wrote: "The economic value of education rests on the proposition that people enhance their capabilities as producers and as consumers by investing in themselves and that schooling is the largest investment in human capital. This implies that most of the economic capabilities of people are not given at birth…. There are long standing puzzles about economic growth that can be substantially resolved by taking account of investment in human capital" (Schultz, 1963 pp. 10-11)

This proposition of Schultz is supposed to have ushered in what was later called "the human investment revolution in economic thought". The proposition however evolved further over time. The framework of human capital paradigm has been expanded to incorporate the analyses of not only returns to education and training, but also to health and fitness, and to migration, both internal and international. It is because of these researches in education, health, and migration that our knowledge today has become more definitive and conclusive about how these investments in human capital determine labour productivity, the growth rates and the levels of development of nations. This knowledge of course took its own time to establish. Since Theodore Schultz, and later on Gary Becker, Jacob Mincer, Mary Jean Bowman and so on, the later stalwarts in economics of education found the role of human capital even more at the centre of the development process. Since then, the revolutionary transformations in the demand for goods and services and the ways of their production have impacted long-term growth trajectories, have impacted the relationship between the governments and their national economies, and that between nations by

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effecting the mobility of highly skilled "knowledge workers" and students across borders.

With the advent and growth of information and communication technologies leading the way for liberalization, privatization and globalization, human capital embodied in the scientists, technologists, IT professionals, doctors, nurses, teachers and so on – all products of colleges and universities - has been moving over the transnational space, and the barriers to immigration and return migration have been either relaxed or re-built at shortening intervals.[1] Apparently, the 1960s' proposition of Schultz and others was correct in underlining that human capital is an important input into the production process. Presently, modern day behavioral economists stress that we need to go past the existing econometric and mathematical modelling to unravel the complete role of human capital in the process of future growth of economies and development of nations. It is in this context I would venture to say that the one thought of Swami Vivekanand that I had stumbled upon more than four decades ago, seems to have anticipated the concept of "human capital" six decades prior to Schultz.[2]

It was way back in 1897 when Swami Vivekanand had emphasized the centrality of what he called "strong men" in his address titled "My Plan of Campaign" and delivered at Victoria Public Hall, Madras on 9th February. He was on his way back from the United States and Europe, and had said: "*Men, men – these are wanted: everything else will be ready; but strong, vigorous, believing young men, sincere to the backbone, are wanted. A hundred such and the world becomes revolutionized.*" It is this quote of Vivekanand that I had stumbled upon while starting my doctoral research in the late 1970s, casting an everlasting impression on my young mind then. Today, I would like to think back that it reflects one thought of the Swami which is of great relevance in the 21st century university system in India and the world, although the context in which he had expressed his plan "to start institutions in India to train our young men…" was a little different. It is this thought which incorporates my well-identified determining variable, the Swami's "hundred strong men".

India's first Census of the 21st Century was carried out in 2001. It revealed what we all know by the so-called catchphrase "demographic dividend" to be in the offing, lasting at least half a century till 2050. This dividend is embedded in the world's youngest workforce that India has been projected to have. What has not been well spelled out is that the advantage of demographic dividend would be arising from three things happening together (Khadria 2009a): The lower average age of the population thereby giving a better dependency ratio; the lower wages-bill due to lower wages on younger workforce and hence lower costs of production of goods and services that India would produce and export to the world; and the advantage arising from the fact that frontier scientific knowledge of the latest vintages would be embodied in the younger and younger generations of students, thus leading to the application of most cost-effective and environment-friendly latest technologies, continuously. This triple-advantage of the demographic dividend then is my well-identified determined variable.

This triple-advantage would provide us the '*sufficient condition'* for establishing the relevance of Swami Vivekanand's "hundred young men" thought in the 21st Century India in a significant measure. But then what about the '*necessary condition'*? Until and unless the necessary condition - that the country's education and health systems are revamped and migration policy is revolutionized in significant measure – to turn our younger generations of men (and women) into "strong" and "sincere" human capital, and see them "happily settled" within the country, the sufficient condition would be infructuous, and the demographic dividend would turn into a "demographic burden".

Instead, it would be the United States of America, the United Kingdom and Europe, Australia, New Zealand, and South-east Asian countries that would attract our young "semi-finished human capital" the late Professor Tapas Majumdar had called them, to immigrate and then to turn them into "strong" and "sincere" finished human capital by provisioning for the necessary condition of study and work (Majumdar 1994; Khadria 1999, 2009b, 2012). Thus, these countries would reap the benefits of our demographic dividend as the sufficient condition for the global relevance of Swami Vivekanand's "hundred strong men" thought in a significant measure. This begs the significant question as to why so many Indian students emigrate to these developed countries in the Global North for further studies rather than studying in our own universities and other institutions of higher education.

According to the Ministry of External Affairs, of the approximately 750,000 Indian students studying abroad, over 200,000 are pursuing higher education in the United States.[3] Apart from the fact that there is a quantitative mismatch between supply and demand in seats available for higher education admissions within India that drives Indian students abroad, qualitatively it is usually the best and the brightest of Indian students who do the self-selection for becoming international students in the United States, "the home to some of the best higher education institutions."[4] Answering the question, " Why do so many international students choose to study in America?", Bertman Gallant, the Director of the Academic Integrity Office at University of California San Diego (UCSD) has been quoted to say, "…Because the market value of American university degrees is high, *and the reason it is high is because of integrity*." (emphasis added). International Center for Academic Integrity (ICAI), defines academic integrity as "commitment, even in the face of adversity, to six fundamental values of honesty, trust, fairness, respect, responsibility and courage." ICAI is a consortium of learning institutions in the US, founded to fight against cheating, plagiarism and academic dishonesty in higher education. It also helps cultivate cultures of integrity in academic communities across the world, stating, "Promoting the fundamental values of academic integrity in education requires balancing high standards of integrity with the educational mission, as well as compassion and concern." The UCSD has a rigorous programme for promoting and implementing academic integrity through educational means rather than by punitive measures: Most students reported for cheating are directed into an "Integrity Mentorship Program" which requires the students to write essays explaining why they cheated and then complete a number of additional assignments – with the objective to turn their bad practices into positive and communicable good experience. Its objectives stretch far beyond the time students spend on campus because universities develop professionals and leaders who ought to continue to behave with integrity and become fair, respectful, responsible, honest and trustworthy leaders in society, including as come-back teachers, scholars and professors in the universities. "A true democratic society can only exist if the majority of people … act with integrity."

As a counterpart to the integrity of the students, scholars and faculty of the university, I see that there are requirements on the part of society and university too. The activities of preserving, pursuing, disseminating, and creating knowledge and understanding require societies and universities to respect the autonomy and academic freedom of the scholars who research and teach in them, and of the students who come to them to become knowledgeable citizens and responsible leaders. The universities need to be the "guarantor of academic freedom" in the performance of their scholarly functions.

At the International Conference by UNESCO in 1950, the universities of the world had articulated the principles for which every university should stand.[5] These principles reflect the central role that university-based research and education play in the cultural, social, political, and economic development of societies. They apply to all universities: state-funded, state-regulated, and private. The principles upon which universities and academic activities they embody stand are widely recognized to be morally, legally, and politically grounded in the values that define academic freedom for their scholars across all academic disciplines spanning the humanities, social sciences, the arts, the natural, biological sciences, engineering, law, medicine, etc. Academic freedom is thus distinct from - and "not merely an extension of the freedom of thought, conscience, opinion, expression, assembly, and association that has been promised to all human beings under Article 18, 19 and 20 of the Universal Declaration of Human Rights". In layman's terms, academic freedom would be defined as the freedom to conduct research, write, lecture, teach, and publish, subject to the norms and standards of scholarly inquiry "without interference or penalty, wherever the search for truth and understanding may lead".

The value of this academic freedom derives from the basic objective and mission of the modern university. The proliferating role universities assume in the Information Age only raises the significance of that value. The emergence of a worldwide knowledge economy, the growing number of higher education institutions, and the unparalleled transnational flow of information and ideas embodied as human capital in globally mobile knowledge workers - all call for ongoing re-examination and re-articulation of the nature and necessity of academic freedom. Indeed, across the globe, the defense of academic freedom remains at the heart of ongoing debates over the role, autonomy and duties of the universities.

According to the *First Global Colloquium of University Presidents* (GCUP, 2005) convened by Kaufi Annan at Columbia University that I was invited to attend as a migration scholar representing my university, academic freedom benefits society in two fundamental ways: It benefits society directly, and usually immediately, through the impact and benefits of applied knowledge, the training of skilled professionals, and the education of future leaders and citizens. Secondly, it benefits society indirectly, and usually over longer periods of time, through the creation, preservation, and transmission of knowledge and understanding for their own sake, irrespective of immediate application. Thus, academic freedom has both practical usage and intrinsic value. Above all, by facilitating academic freedom laced with autonomy, it puts the onus on the teachers and students to be self-accountable for their conduct including to uphold integrity. Without self-accountability, neither academic freedom nor integrity would yield the desired results. "Academic freedom" here is bounded by what is "academic" in it that calls for optimum level of self-regulation. All of the relevant governance bodies and administration within the university must provide scope for such self-regulation by various constituencies of the university rather than pre-empting it through regulation that is thrusted upon. This would contribute positively not only to an environment of academic freedom, but in helping people to learn to differentiate between their preferences and judgements, and choose to go with their judgement whenever there is a conflict of interest between the two. These must be reflected in their freedom of inquiry and speech, without which neither faculty nor students can be seen to have acted with integrity.

Scholars and students must be able to study, learn, talk, teach, research, and publish without fear of intimidation or reprisal, in an environment that allows for engagement with divergent opinions, free from institutional censorship or discipline: "Academic institutions bear a heavy responsibility to protect the scholars and students who work within them from improper pressures….Universities must maintain and encourage freedom of inquiry, discourse, teaching, research, and publication, and they must protect all members of the academic staff and student body against external and internal influences that might restrict the exercise of these freedoms." (GCUP, 2005) A major long-term casualty likely to happen in the absence of such freedom would be the optimum level of integrity. Civil society institutions and their common practices may also erode the integrity of faculty and students. For example, the pressures and lures of commercial initiatives and alliances, or attacks by outside groups may undermine their academic freedom which forms the basis of integrity. Universities must be free of obligation to external groups, alumni, community leaders, the media, or other elements of civil society. Among the most important mechanisms for maintaining and protecting academic integrity, one is peer-review system that determines how research is funded, conducted, and results published. However, because conflicts of interest are involved, peer-review systems must never be allowed to be driven by blind adherence to dominant viewpoints or motive to marginalise those perspectives that do not adhere to the reviewers' own or are likely to be superior than those of the reviewers. Not only should written declaration of possible conflict of interest be the norm wherever integrity of judgements is involved – be it membership of screening committees, selection committees, panel of examiners, panel of reviewers and so on; there should be strict monitoring and penalties for misrepresentation and violations because these have been rampant in our education system when relatives, friends or own students happen to be the candidates.

All this brings me back to ask who all would meet the characteristics of Swami Vivekanand's "strong men" (and women) that our universities in India and the world need the most today. Without trying to answer the question, I would like to reiterate what I have said at the beginning of this article: That in terms of identification as the first step in an academic inquiry, the concept of "strong men" was the precursor of the concept of "human capital" that Theodore Schultz was to coin six decades later in Chicago. Coincidentally, it was in the same city where Swami Vivekanand had mesmerized his audience by his well-known opening words at the Parliament of World Religions and from where he had returned to Madras and delivered the "My Plan of Campaign" address where he for the first time talked about "strong men" (which included "strong women" too) being wanted. In terms of the numbers needed, Vivekanand's scale then was limited to "hundred strong men" who would have revolutionized the world, in 1897. Almost a century and quarter later in the 21st century today, the United States Bureau of the Census and the Indian government had both

expected this magic number to be 54.5 million in 2020![6] In terms of the second step in academic inquiry and research, that of measurement of the relevance of Swami Vivekanand's thought, I would consider this difference in numbers to be only of degree, not of kind.

Footnotes

1 See IOM (2019). See also, Inglis et al (2019).

2 My talk delivered at the Panel Discussion on "Swami Vivekanand's Thoughts", held at India International Centre, New Delhi on 14 February 2012, to commemorate the year of his 150th Birth Anniversary.

3 https://www.mea.gov.in/rajya-sabha.htm?dtl/30181/QUESTION+NO964+DATA+BANK+OF+STUDENTS+GOING+ABROAD. Visited on 29 Feb., 2020

4 See Fox (2019, pp.36-37).

5 See, GCUP (2005, p.11).

6 In 2016, I, jointly with N. Thakur and R. Asraf, constructed an Index of Service Production in Education in India for the purpose of comparable quantification of India's production in the education sector for Trade in Services under the GATS negotiations of WTO. See, Khadria, B., N. Thakur and R. Asraf (2016).

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Redefining Indian Universities: An Insight of Education Sector towards Evolution of Industry 4.0 and 5.0

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Rapid technological advancements and globalization are pushing the higher education sector towards an equitable and sustainable future. Higher education system has advanced to the phase wherein success and growth cannot be achieved without quality. At times of globalization and internationalization of higher education, the global university ranking has emerged as a worldwide trend. The institutions worldwide are striving constantly with an aim to improve their ranking position to become "world class".

India with one of the largest education system holds an imperative position in the global education industry. The world is looking forward at India on socio-economic front for procurement of skilled young workforce (source: FICCI-EY2015). The Indian Government have undertaken reforms to strengthen the education system through excellence in processes, new policies, funding, regulations and rankings resulting in changing the standards of education and making it a fast-track higher education system in India to compete at global level. If higher educational institutions align with these reforms at institute level it will not only add value by improvisation of rankings but also build up a sustainable model to associate at international platform. The globe is shrinking and internationalization has become a major challenge and also an opportunity for the higher education system in India. Consequently, it is imperative for the higher educational institutions to formulate strategies to emerge with new policies for digital technologies and instilling the global employment skills in students while maintaining the quality of education.

Internationalization is no more defined as only engaging limited students and staff from other countries. The purpose of education and training is to empower an individual to lead successful life and contribute best to himself, family, society, nation and to humanity. Education 4.0 denotes changes pertinent to Industry 4.0. The era of Industry 4.0 and 5.0 revolution is a logical step that builds on the third industrial revolution where exists an imprecise stage between the biological, digital, and physical aspects of life. As a retort, the global Industry can expect better-prepared workforce with employable students for future with a better return on educational investment. However, there is still a lot of potential for further development in the education system and to reach the top global rankings and to provide employability in Industry 4.0 and 5.0.

Indian Education System: Current Scenario

Indian education system has undergone significant affirmative changes over the last three decades in the area of science and technology, education and human capital. It remains a strategic priority of the government and global landscape of investments. Education is a flourishing industry for India with world's largest population in the age bracket of 5-24 years providing a huge scope to the education sector which is expected to have reached US$ 101.1 billion in Financial Year 2019-20. India has become the second largest market for e-learning after the US and the sector is expected to reach US$ 1.96 billion by 2021 with around 9.5 million users. The total amount of Foreign Direct Investment (FDI) inflow into the education sector in India stood at US$ 2.47 billion from April 2000 to March 2019 with certain major investments, developments and collaborations in the recent past (source: Department for Promotion of Industry and Internal Trade (DPIIT)).

The higher education sector with new reforms is set for some major changes and developments with several initiatives and new education techniques like E-learning and M-learning. The development of education infrastructure is expected to remain the key focus in the current decade as well. With patents, IPRs and startups emerging as a preferred

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choice, the education system in India must have enabling provisions in its curriculum to encourage the development of the entrepreneurial mindset.

Status of Indian Higher Education System

India ranks 99 under the Global Creativity Index 2015 which measures advanced economic growth and sustainable prosperity on the basis of 3Ts of economic development i.e. talent, technology, and tolerance. It has a huge English speaking population that makes the delivery of education trouble-free. Reports reveal that India stand 27 out of 80 countries in English Proficiency Index 2017. It has also emerged as the second largest market for e-learning after the US with the prospect to reach around 9.5 million users by 2021. These dynamics lay down the foundation of prolific knowledge spillovers with chances of collaboration to create knowledge and innovation at global level.

With approximately 904 universities and more than 47,000 colleges, the Indian Education System should create a benchmark in providing 21st century skill sets for student employability keeping abreast the fast-paced information revolution, especially when the world recognizes those equipped with relevant knowledge, technologies, competencies and skills to apply them. (source: *www. mhrd.gov.in)*

Compelling Paradigm Shifts to Adapt Future Employability Trends

Education is the most potent tool for social transformation. India's demographic structure is changing, while the world grows older, the Indian population is becoming younger. India is an epicenter of more than 906 million workforces within the working age population by the year 2020 whereas the developed world is expected to face a workforce shortage of approximately 56 million by 2030. It is imperative for us to go through an evolutionary process to prepare models of higher education by imbibing 21st century employment skill set in students to create empowered citizens and strong base of professionals and entrepreneurs.

Despite diversity and favorable factors, the data on mobility of international students points out that only 30,000 foreign students come to India as opposed to 3,00,000 Indian students go overseas annually revealing an alarming brain drain statistic with a threat to the economy. Hence with a huge opportunity for talented and competent workforce, the system needs to be transformed and budding graduates have to be prepared to be highly productive.

It was predicted during the World Economic Forum @ Davos-2016, that Industry 4.0 will make a 'major shift about the future of jobs' with human skills and EQ as the key attributes. There is rapid technological evolution of work shift from humans to machines where reports suggests that out of an average 71 per cent of the total task performed by humans across 12 selected sectors in 2018 is expected to reduce to just 58 per cent by 2022. Hence, the higher educational institutions should aim to prepare better human competence based on knowledge and skills to drive Machine Intelligence and Artificial Intelligence. With changes taking place at such a fast pace, that it can now be measured in years/ months instead of centuries. The education system is at a cusp of change where the learner is at the centre of a futuristic ecosystem - "Education 4.0 and 5.0". This evolution will inculcate productivity, competence, creativity and innovativeness in young graduates while preparing them hands on for an uncertain and volatile future.

Table 1: Compelling Paradigm Shifts to Adapt Future Employability Trends

Present Scenario in Education System	Required Scenario in Education System
Demand based education	Supply based education
Competency based Education	Knowledge and Skill based Education
Basic Technologies and ICT	Troubleshooting Technologies and Skill-sets
Degree accumulation and basic requirements	Purposefulness, Mindfulness leading to overall Happiness and Wellbeing

Future of Learning in Education

Industry 4.0: The Digital Revolution

Industry 4.0 constructs an interrelated society with Connected Cyber-Physical Systems, powered by Internet of Things (IoT) and fueled by data. It opens up the automation of each task with existence of artificial intelligence in all spheres of living. The educational industry is already inclined towards Industry 4.0 trends of cloud computing, IoT and other processes

that directly impacts the industrial revolution and future manpower leading to an evolution in the employability and 360 degree development of the budding graduates. Thus, technology opens up endless possibilities not only for industry but also to education sector specifically.

IoT Taking Over the Traditional Infrastructure

The technology is on a rapid track of development with educational institutions providing the best of infrastructure and innovative teaching learning practices to establish a conducive learning environment. IoT is all about handiness, be it a wireless door locking system, Enterprise Resource Planning (ERP), sensors, security devices, 3D printers or other smart devices. Digital libraries, industry sponsored laboratories; simulation softwares and accessibility to the latest digital technology have broken the barriers of knowledge to be limited to one segment and enhancing the quality of existing curricula while shifting from the traditional methodology to academic freedom in curriculum for dynamic teaching pedagogy and practical approach.

Individualistic Approach and Self-Paced Learning

E-learning has provided the adaptability to virtual learning and self-paced learning leaving behind the classroom teaching. It has not only generated the students' interest but also improved performance and behavior by offering a personalized learning experience based on knowledge and understanding of concepts and multi-disciplinary studies. Through all this, the theoretical knowledge will be imparted outside the classroom while practical or experiential knowledge will be imparted face-to-face.

Technology-Driven Expectations

The teaching methodologies are moving beyond textual projects and focus upon practical assignments, live projects, innovations, entrepreneurship and other IPR activities. Hence, it becomes need of the hour to redefine the education system to become technology-driven so as to develop practical skills that graduates will encounter and use at their future jobs.

Preference of Knowledge Tools and Pertinent Pedagogy

The future skill set will have several methodologies of knowledge and information wherein the student will be able to choose the tools and techniques of their choice by forming a learning-centric pedagogy to design the curriculum, keeping abreast with the latest techniques in the respective domains for wholesome learning. Blended learning, BYOD (Bring Your Own Device), MOOCs and flipped classrooms etc. play a key role in international exposure, as the learning is no more limited to classroom. Certain key initiatives can be taken by the higher educational institutions to meet global standards of education through liberal education *and digital literacy.*

Project-Based Learning and Simulative Workplaces

Adaptability to project-based learning will hone the skills and make the student learn how to apply and mould them as per the real life situations. It will acquaint them with organizational skills, time management skills, human knowledge and collaborative skills making them thorough professionals.

Evaluations and Assessment System

Leaving behind the traditional subjective writing examination, evaluations will be more based on practical and experiential learning-based projects or field works. It will analyze the impact of technology on the education industry not only by the way it is imparted, but also the way students perceive education while evaluating progressive, intellectual, knowledge-driven and future-ready generation.

Industry 5.0: The Era of Robots

Moving further to advanced artificial intelligence in manufacturing wherein there is rapid transformation in the world of technology, mass customization and advanced manufacturing, the robots are the new human minds or brain–machine interface. It in turns creates a challenge for global economy to enhance the productivity while not compromising on the employment of human workers. The admissible solution for sustainability can only be seen through collaborative working of humans and robots while creating more jobs instead of taking away. It brings together internet-connected devices and invisible networks of data racing automated systems where robots take over and execute the routine, mundane duties of the factory more efficiently.

Industry 5.0 V/S Industry 4.0

With certain elements of anti-industrial sentiments, Industry 5.0 differs in mass personalization

– the human touch by relying on robots, or cobots ("co" for collaborative). Robots have developed a stronghold in manufacturing with the help of Industry 4.0 technologies for flexibility in manufacturing processes. Industry 5.0 merges human creativity and craftsmanship with the speed, productivity and consistency of robots as they are capable of being programmed to work where humans already exist. The main areas of transition in Industry 5.0 are B2B products or any type of designer items by tailoring standard catalogue products for key customers or create exclusive product that are otherwise bought from a craftsperson or artist. The new smart factories will have machines connected to the internet that can also collect supply chain related Statistical Process Control (SPC) data which can be analyzed to reveal intelligence for quality improvement, process optimization, cost reduction and regulatory compliance. It will create the harmony of cognitive thinking and mechanical output, and support users at every level for greater operational efficiency. Japan defines Industry 5.0 as 'Society 5.0' a 'Human Touch' revolution which visualizes a forward-looking society without information stagnation that balances economic advancement with the resolution of social problems.

Formulation of a Dynamic Strategy

With such dynamic requirements of skill sets, the Indian Education System should set up a global learning culture with numerous avenues for providing continually enhanced and integrated learning environment. The strategies designed should be formulated with distinct strengths and characteristics with certain prerequisites to work in core area that sets a benchmark as a global higher education institution in rankings as well as serves the industry requirements to the maximum. As per the technical reports, automation of manufacturing processes cut down the costs of production, quality and logistics by up to 30 per cent.

Establishment of Clear Vision and a Phased Road Map

- To formulate the policies and processes to support a coordinated approach towards Industry 4.0 and 5.0 while ensuring that quality is embedded within vision, values and strategic priorities of the institution.
- To keep a focused and informed approach flexible to transform as per the emerging market trends and stakeholders requirements by establishing a joint platform that brings together the global pioneers in education.
- To discuss the transformations in educational ecosystems by prototyping opportunities in a distinctive manner through associations where the stakeholders are ready for transition.
- To form sturdy collaborations to instill critical thinking and problem-solving abilities in learners while nurturing creativity and scientific temper.
- To engage an enthusiastic alumni network to make the student understand the international market scenario in the most suitable manner and bridging the gap of expectations versus reality.
- To work on the holistic development of the graduates by making them indispensable to fit in the international markets by training them on language development, aptitude, personality development, teamwork, collaborative learning, work ethics, social and cultural sensitivity and quality assurance and cultivate crucial skill sets of work-life that no book can teach.
- To establish strong Industry Academia Partnerships to facilitate for designing, developing and delivering modules that can make the student industry-ready and prepare the faculty to align their pedagogy to the needs of specific industry by honing essential skill set that enriches business education, perspectives and cultures.
- To promote interdisciplinary research to identify and define problems emerging in the real world and work on related projects while enhancing Intellectual Property Rights i.e. patents, copyrights and trademarks to boost teamwork, networking, interpersonal skills, work engagement and help to confront challenges in real time while encouraging innovation, technology and efficiency. \
- To form a comprehensible awareness and understanding about the global policies and laws to develop at international level education system beyond collaboration with cross-cultural teams about markets, information technology and communication to build productivity and competitiveness in start –ups, venture capitalism and entrepreneurship.

Conclusion

Innovative technologies are making a powerful social shift that has pushed the education system worldwide at the verge of transformation. The future technologies are estimated to contribute to the expansion of the global manufacturing workforce by up to 4 per cent by 2030 from the present 1.2 billion people. Education sector should begin with grass-root initiative to outline such pathways and catalyze systemic innovations to help education system to meet challenges ahead. The challenge ahead is to groom the young graduates to become highly-skilled workers that can direct smart machines and robots and work better and faster in a pace with collaborative-bots or co-bots. Creation of simulative environment in the education system can equip them with cognitive skills by combining intelligent systems, existing workflows to better leverage human creativity and brainpower and improving operational efficiencies.

Further, the focus is to strategize on setting up a global network of research that addresses the issues of global concern by collaborating with world's leading universities, research laboratories and at the same time supporting the growth of global reputation of any higher education institution. To achieve academic excellence and a niche in higher education sector, one has to be outward-looking and focused on impact besides amenable to global changes to remain competitive and accessible to resources that magnetize the talent through learner-centered creative collaborative communities. Once an effective strategy is in line, it delivers more than the institutions' priorities and serves the stakeholders with an inherent rewarding culture that has a measurable impact. In an enduring international environment, educational institutions are responsible to develop an academic output with qualitative delivery models that equip students with knowledge, skills and attributes making them culturally agile and employable globally with promising placements and career support. Such a win- win situation in the strategy with a robust vision, engagement of academic team, stakeholders, continual evaluation and a flexible approach to keep it on the pace of dynamic globalization will lead to a remarkable position in world rankings of the Indian Universities.

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Higher Education Provisioning and Financing: A Theoretical Examination of the Public-Private Conundrum

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Public provisioning and funding is the most common approach adopted by countries across the world to educate their population. While the government continues to be the dominant actor in the education sector, there has been a recent policy push towards increasing private participation, especially in the context of higher education in developing countries such as India. For example, the last two five year plans and Ministry of Human Resource Development (MHRD) recent initiatives in India strongly emphasize an increasing role for private sector. This paper explains in detail, using economic theory, the rationale for government intervention in education sector. Specific examples, to the extent possible, are used in demonstrating the theoretical arguments for government intervention in education. The idea of private participation in higher education is critiqued by reviewing the relevant literature. In the critique, major theoretical arguments both in favour of private participation and against it are identified. The appropriate role for private sector in education based on the literature and arguments is discussed.

Background for the Study

There are a variety of ways in which governments can intervene in the education sector. It can play a financing role, a provisioning role, a regulatory role or any combination of the three. The rationale for government intervention in the education sector can be explained by the neo-classical approach of the economic theory. The neo-classical economists cite the market failure approach i.e. the efficiency argument as the rationale for government intervention in the market for education. Another alternative explanation for government intervention in education is the redistributive justice arguments i.e. the equity approach, which is not primarily an economic explanation. This arises from the goal of education of providing *'equality of opportunity'*. It has its roots in the 'specific egalitarianism' principle (Tobin, 1970). The debate whether education is a public good or a private good or a quasi-public good lies at the heart of the justification for government intervention in the education sector.

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Literature Review

Education –A Public Good, A Private Good or A Quasi-Public Good

Education is commonly considered as a public good due to the positive externalities associated with it. There is a general mandate that since it is a public good and therefore government is responsible for financing and provisioning of education. The benefits of education being public in nature serves as the justification of it being seen as a public good and being provided by the government. A public good is one which has the twin characteristics of non-excludability and non-rivalry, i.e. to say that the Marginal Cost (MC) of exclusion is infinite and Marginal Cost of extension is zero. Now, if we analyze the argument of education as a public good on both the criteria, we find that the MC (exclusion) is not very high because exclusion on the basis of fees is easily possible. Also, the MC (extension) is not very low because there is significant cost associated in provision of education to each extra child considering the infrastructure and other input requirements for education. And, hence the assumption of education as a pure public good in terms of provisioning does not hold. Although, it cannot be denied that there are positive externalities associated with education (Cohn & Geske, 1990; Dee, 2004; Steeg, 2005; Hall, 2006) and there are public benefits of education besides private benefits. In terms of provisioning, it seems that it has characteristics more similar to a private good as opposed to a public good. Quality education seems similar to a private good and hence ideally the market should take care of financing and provision of this, if there is an existent free market. There are empirical evidences which show that sometimes private sector has seen to underprovide quality education (Larocque, 2008) because the benefits associated with it are more public in nature which leads to lack of private investment in the sector because charging for the positive externalities of education is not possible thus conflicting with the profit making objective of the private sector. Thus, education seems to be a 'quasi-public good' i.e. a public good with private good characteristics or vice-

versa. The debate of whether educational provisioning and financing should be done by government or private parties arises due to the mismatch between the private & social benefits and costs. It is more so because of the inability of the social planner to exactly find out what part of the benefits are social and what part is private and accordingly allocate the costs. The view of education as a tool to enhance social mobility and increase equity by providing the poor the same opportunity makes the job of the social planner all the more complex. In case of public provision, there are capacity and financial constraints of the government and in case of private provision there is constraint in lack of incentives because the benefits of education are more public in nature which is in contrast to the private sector's profit maximizing objective. Hence, we can see that quality education hangs somewhere in the continuum of the public private streams.

Market Failure Justification for Government Intervention in Education

The neo-classical economists justify government intervention in the education sector on the basis of various kinds of market imperfections. Firstly, Smith & Garnier (1845) in their book 'An Inquiry into the Nature and Causes of the Wealth of Nations' argue that there are a lot of positive externalities associated with education and existence of this society wide positive externalities serve as one important justification for government intervention in the market of education. Cohn & Geske (1990) provide examples of such positive externalities. For instance, educated citizenry is crucial for a well-functioning democracy as it enables the population to evaluate political parties campaign agendas, pay taxes as well as keep accounts. An educated working population is more likely to adopt new technologies and improves not only own productivity but also of fellow workers. Dee (2004) provides empirical evidence for the ability of education to increase adult civic engagement and attitudes particularly voter participation, support for free speech and quality of civic knowledge. The ability of education to reduce the crime rates and health improvements is another good example of a positive externality of education as suggested by Steeg (2005). Hall (2006) among others also mentions the positive externality of economic growth as a by product of education. Thus, education does not only increase private welfare but social welfare as well. But, if the investment is only left to the private parties and they fail to take into account the social benefits of education then there will be under investment in education leading to educational spending falling beyond the socially optimal level. This provides an important justification for public intervention in the education markets.

Case 1. Government Funding the Doctoral Programs in IITs (an example of a positive externality in education)

The Doctoral program at Indian Institutes of Technologies (IITs) is funded by the Government of India (GoI). The fees and accommodation for the program are subsidized by the government as well as a monthly stipend is provided to meet the living expenses. There are benefits both private as well as social of the program. The program equips the participants to become better researchers as well as teachers from which they can earn private benefits in the future. The social benefits of the program are two-fold. Firstly, it increases the supply of quality teachers in the IITs which is on a decline. Secondly, the researchers develop technologies which are in public domain thus the society can benefit from their efforts of developing new technologies. There is also evidence of less admission in doctoral program if it is not subsidized and does not provide a stipend. This is a typical example of a positive externality in education and a case for public intervention in the market for doctoral education.

Secondly, Porteba (1996) argues that the primary beneficiaries of educational service are the children but the educational investment is done by the parents. Thus, the responsibility of educational provision to children falls on parents who bear the cost of education. This mismatch between the beneficiaries and investors of education leads to the educational investment being contingent on the degree of 'parental altruism' i.e. how the parents of a child view the education and its potential to increase the future earning capability of his child. This provides another reason for educational provision by government authorities making the state the ultimate guardian of the child as quoted in Weiner (1991).

Case 2. A Comparison between the Children of an IITB Professor Versus a Slum Dweller in Dharavi (an example of a role played by 'parental altruism' and information asymmetry in education)

An Indian Institute of Technology, Bombay (IITB) Professor is more likely to value his child's elementary education more than a slum dweller in Dharavi because of the information asymmetry and knowledge mismatch about the future benefits of educating the child and its impact on child's future.

Thus, an IITB professor who is more aware of the benefits of education is more likely to invest in his child's elementary education in contrast to a slum dweller in Dharavi. Thus, making educational investment contingent upon parental altruism. This leads the government of India to provide the Right to Education Act, 2009 which provides free and compulsory education to all Indian children from 6 to 14 years. Thus, both children despite of their parental background are eligible for an elementary education.

Thirdly, the capital market constraints serve as an important market imperfection relevant to educational decision making. If the parents face borrowing constraint and have to borrow at a rate above the marginal product of capital of the economy it will certainly lead to under investment in education even by parents whose altruism equals the altruism of the social planner. Because, educational loans in private markets are difficult to obtain if not backed up by concrete collateral as Porteba (1996) claims.

Case 3. A Comparison between the Child of an Investment Banker Versus a Rikshaw-Puller Seeking Admission to IIMA (an example capital market constraints in education)

Suppose the child of an investment banker as well as a Rikshaw-puller get admission into the Post Graduate Program at Indian Institute of Management, Ahmedabad (IIMA). To pay the fees of Rs. 17 lakhs the child of an investment banker is more likely to get a loan in a private market in comparison to the rikshaw-puller's child due to lack of collateral. This reduces the likelihood of the latter's child to get admitted compared to former. This calls for a role of government to make arrangement for loan availability for the latter's child.

Fourthly, the presence of fixed costs in educational provision and production leads to another market imperfection in education sector. This is especially true for communities with relatively small population of children. The marginal cost of increasing a child for education is less than the average cost of education per child but due to lack of children the fixed cost does not get reduced to a required threshold. This is especially true of providing higher education in specific domain. Example 4 will elucidate the argument more clearly.

Case 4. Setting up of a College for the Students of Lakshadweep Island

Suppose that the union territory of Lakshadweep wants to set up an engineering college with all the state of the art laboratory facilities. The total fixed cost of setting the engineering college is Rs. 500 crores. Owing to its small population and less interest in marine engineering education only 100 students are interested in pursuing marine engineering education. This is another situation in which a private market will be unwilling to invest but it is strategically important to set up an institution because the Indian Navy needs 100 marine engineers every year in their cadre. This calls for a public investment.

Redistributive Justification or Equity Arguments for Government Intervention in Education

While, the efficiency argument is one major rationale for public intervention in education markets, that is not all. Redistributive justification is also an important rationale for government rationale in education sector. It is not primarily an economic argument but finds its roots in the 'specific egalitarianism' principle laid out in Tobin (1970). The 'specific egalitarianism' principle means that access to certain services should not be conditioned on the level of income. The provision of 'equality of opportunity' is one of the key objectives of education policies especially at the elementary level. Assuming, that there is no mismatch between the parent and social planner view on the lifetime value of the child and there is a well-functioning capital market, then also there will be differences in the level of education children receive in a private market, owing to the differences in resources and endowments possessed by the parents. With regards to the instruments for achieving the redistributive justice, an appropriate channel of redistribution is the in-kind transfers or subsidies for education rather than income distribution. One of the reasons is that it helps in channeling the resources in a targeted manner as argued by Nichols & Zeckhauser (1982) and Besley & Coate (1991). The second reason is that in-kind transfers or subsidies serve as important instruments if policy maker preferences are to be imposed on the beneficiaries. The third reason is the existence of interest groups for in-kind transfers or subsidies. For instance, teachers would be interest group for education markets. Whatever be the choice of instrument, the redistributive justice argument serves as another important justification for government intervention in the market for education.

Case 5. The 25 per cent Quota for EWS (Economically Weaker Section) Students in Private Schools According to RTE Act (an example of redistributive justification)

The Right to Education Act (2009) has provided the EWS (Economically Weaker Section) category students with a 25 per cent quota in all private schools. This enables a student from a vulnerable section to seek admission into an elite private school where children of rich people study. Thus, this law empowers students to study in schools of their choice. The fees of the school are borne by the Government. This is an example of redistributive justification or equity arguments for government intervention in education.

The Substantive Debates

There is a recent policy push towards the private sector participation in higher education especially in developing countries such as India. The plethora of reports from the private sector players reveals a clear policy push towards increased private sector participation. The Government in its 11th and 12th Five Year Plans also indicates a policy predilection towards private sector participation. FICCI (2011), PwC (2012) among others identify three fundamental challenges with the Indian higher education in the form of equity, access and quality. The justification for increasing role of private sector as provided by the private sector parties is a demand-supply mismatch of quality higher educational service provision. Historically, the private sector was responsible for both financing and provisioning of education. But during the course of the 20th Century the role of the public sector (i.e. the state) assumed predominance for the purposes of instilling national identity and nation building (Sosale, 2000). There have been arguments in favour of private sector participation at the end of the 20th Century and the beginning of the 21st as governments face several constraints in both financing and provisioning of educational services especially at the higher educational levels. It would be timely to critically examine the debate on private sector participation from a theoretical perspective to understand the conceptual underpinning of such a policy predilection.

A Critical Examination of the Private Sector Participation in Higher Education

Mordern higher education has traditionally been a subject of tight state regulation as it is seen as an instrument to promote national wealth, modernization of the society and social mobility (Neave and Vanvught, 1991). The recent changes in public administration and the fiscal constraints faced by the governments due to massive expansion of the higher education sector, had an impact on the relationship between the state and the higher educational institutions. The state has redefined its role with regards to participation in the higher education sector not only in its financial involvement but also with regards to its administrative and political roles. This has led to the emergence of market and market-like mechansims in the higher education sector, with discernible consequences for regulation and governance mechansim for higher educational institutions (Murnane,1984; Teixeira et al., 2006).

The Impact on Diversity and Access

One of the foremost reasons cited for the increase in involvement of private sector in the higher educational space is its ability to provide educational services in diversity in terms of domains, sectors and disciplines as well as institution types. It is also believed that the private sector will be able to serve people with different endowments by appropriately differentiating between the products offered to them according to their paying capacity. Thus, private sector participation will be able to increase both diversity of services and access in the higher education market. The economic debates about diversification in education are linked to a large extent to the structure of the market and market competition. Though traditionally competition has played a less significant role in higher education, it is expected that the growth of private higher education will spur public-private competition thus affecting the higher education supply. Moreover, it is argued that this competition will improve the quality of educational delivery. Geiger (1986), Teixeira & Amaral (2001) and Correia et al. (2002) argue that the private sector motivated by financial incentives and with greater administrative flexibility is more likely to be responsive to the needs of new and niche markets in the higher education sector. Thus, the private sector will be able to provide diversity both in terms of institution types and academic disciplines, as well as be able to reach a wider geographical area and serve people from different income categories (access). The empirical analysis of Teixeira et al. (2012) on growth of private higher education and its impact on educational service diversity and quality brings evidences which are on the contrary to the theoretical claim that private sector will be able to increase diversity and access. He finds out that the private sector instead of focusing on creating new and niche markets, starts increasing supply in the already established domains where there is an increased demand due to a perception of better job opportunities among the customers. The private sector education providers do not look at these markets from

a long-term perspective and hence do not care whether the customers finally end up with the jobs they aspired for when they joined their program. They are primarily concerned with exploiting this opportunity to gain profits by delivering low-quality service. The private sector higher educational institutions tend to focus on people from higher and medium income groups. In case, they focus on lower-income group they tend to provide a very low-quality product. The private sector higher educational institutions are located in urban and semi-urban centers and are hard to find in remote areas. Thus, their ability to increase access in terms of geographical reach is also questionable. In contrast, governments motivated by vote bank is more likely to increase access both in terms of geographical reach as well as income categories as the right to vote is same for all and is neither contingent upon income levels or geographical location. Teixeira et al. (2012) concludes that private institutes tend to provide a low-quality and low-cost product in the educational market, while the public sector covers the more costly and risky areas of education. The private sector generally tends to follow the well-performing public sector institutions in higher education and launches programs in fields which are well-established. They seldom try to take risks and delve into risky areas. Levy (1999) & Teixeira & Amaral (2001) with evidences from Asia, Eastern Europe and Latin America suggests that private higher education has played a role in the 'massification' process by having an overall negative impact on the diversity both in terms of institutions as well as in terms of academic disciplines. As we can see by the above discussion on the ability of private sector to bring educational service diversity and increase access that it fails on both counts.

A Mismatch between Burgeoning Demand and Constrained Supply

One important reason for increase in private sector participation in higher education has been an increase in demand of higher education globally. Even in countries where the higher education was limited to a small minority, the demand for higher education has seen an upsurge. This demand has been fuelled both by individual as well as societal forces i.e. individual as well as societal factors have contributed to this increasing participation. This expansion of private higher education has also been pushed by the positive behavior shown by individuals to attain higher educational institutions. Higher education has been seen as an attractive personal investment with high personal return with better prospects regarding long-term income and employability in comparison to individuals with low formal education (Mincer, 2003). Thus, increase in individual demand has been another reason for increased supply of private higher education. But one important question for future investigation can be whether or not the advanced qualification of more people with higher academic degrees makes higher education a less attractive personal investment? It can possibly happen if the job market is unable to serve the graduating candidates with suitable job opportunities. Also, if there is a mismatch between the future projection of the job market (the relevantskills required) and the academic degree obtained by the candidates considering a time-lag between the two. Thus, the onus of keeping higher education an attractive personal investment lies on the education providers. Whether the private sector or the government is better geared to do so is an open question?

At the policy level, higher education is increasingly being seen as an instrument for promoting national economic growth by advanced qualification of the human resources. In times of globalization, governments view advanced qualification of its human resources as an effective instrument to increase economic prowess as claimed by Blöndal et al. (2002). Since, higher education is being seen as an strategic investment to boost national economies coupled with the fiscal constraints of the governments, the governments need to clearly differentiate between types of higher education which are strategic investments for the country and others which seem to be more of a personal investment. In accordance with the previous delineation it should bring regulations as to which domains private sector can participate and which the public sector needs to take care.

Another critical reason for the expansion of private higher education and the relative decline of public participation in higher educational participation has been the coincidence of the period of increasing constraints on the public expenditure and the simultaneous increase in demand of the higher education. The difficulties in public funding of the higher education are faced by both the developing as well as the developed countries. The financial restraints of the welfare state have challenged the sustainability of fiscal reliance of higher education on public funding as Barr (1993, 2004) points out. In countries with low levels of income funding higher education becomes all the more difficult with the constraint of a low fiscal base.

Ideology of Markets and Privatization

Another important for the growth of private higher educational institutions was the issue of changing political mood with a rising debate about the type and extent of government intervention with a predilection towards liberalization, market intervention and restrained government participation. It started in the western world in the early eighties and subsequently expanded to other parts of the world as Middleton (1996) mentions. Barr (2004) highlights that initially it was more evident in the macroeconomic policies, but it slowly pervaded into domains of educational policy and more particularly that of higher education. The discourse about higher educational provision became occupied by managerial jargons as well as customer-orientation due to pressures for greater efficiency in management of public institutions as well as allocation of public resources as Cave (1997) mentions. Winston (1999) argues that higher education institutions were considered as organizations of a peculiar category. But, the logic of administrative inefficiency in the public sector and lack of managerial expertise was put forth by policy makers and a need to promote a more managerial behavior was felt as Teixeira et al. (2006) points. This led to the increased participation of the private sector in the higher educational institutions as the private sector was assumed to be more efficient than the public sector so that the limited resources at helm can be efficiently utilized. There has been a change in the way academic institutions are evaluated. The acceptance of the idea that an academic degree provided by higher educational institution is more of a *'private good'* that benefits the individual than a *'public good'* that benefits the society (Altbach, 1999). This has led to the evaluation of academic institutions on the basis of their ability to influence individual's life rather than society as a whole. The ideology of markets and privatization has contributed significantly to the increase in private institutions at the higher education levels. The reductionist's view of higher education through the lens of an academic degree is a matter of open and lively debate, though.

The Quality Debate and The Equity Issues with Private Provisioning

Though the acceptance of the idea of higher education as a private good have led to proliferation of private higher educational institutions but off late their legitimacy and acceptance have been questioned on counts of their ability to provide quality and equitable access. Welch (2007) with his research on educational institutions of Indonesia concludes that there has significant rise in the proportion of private educational institutions in Indonesia but its relation with quality and equality is more questionable. Slantcheva & Levy (2007) in their empirical investigation in post-communist countries in Central and Eastern Europe show the legitimacy and socio-economic challenges faced by private education providers. The debate is that if education is a strategic investment for the country, how are the private parties motivated by profit incentives appropriate agencies to provide that good. Alternatively, it has also been found that the private sector motivate by profit incentives focus on higher and medium income groups and fail to serve the demands of economically and socially backward categories who do not have the 'ability to pay'. Education being a tool to foster social mobility and 'equality of opportunity' driven by the ability to pay differentiation strategy followed by the private sector is not able to serve the poor and the less endowed. This not only leads to the exclusion of the less endowed from the benefits of education but also reproduction of economic and other social inequalities across generations. Thus, the equality of opportunity goal of education is kept at bay. Moreover, it is observed that most private institutions tend to locate themselves in urban and semi-urban centers and are rarely found it remote areas, which shows their inability to increase geographical reach and provide education in far-flung areas. Thus the legitimacy of private educational institutions on counts of their ability to provide equitable access both in terms of geographical reach and low income groups is open to question. The contribution of private higher educational institutions to long-term development of higher education as well as society seems to be limited due to their little or no investment towards research and development of future academicians and researchers.

With regards to the debate on quality of education, there are two aspects one is quality of knowledge dissemination i.e. teaching and second is the quality of knowledge creation i.e. research. The first i.e. the quality of teaching measured by the output of the teaching process i.e. student quality or student performance in the job market does not control for the quality of incoming students. If the quality of incoming students is controlled for then there is no significant difference between the quality of private and public educational institutions. There is significantly less investment by

the private sector higher educational institutions on research and scholarship (training future academicians). With limited investment on training future teachers they can lead to a decline of higher educational institutions by creating a paucity of teachers supply. Thus, private educational providers do not seem to add any significant value to the higher educational quality as well. The question of primary importance here is not that how private higher education is able to serve the needs of the market demand for education but also the goals of higher education i.e. quality provision along with equitable access along with quantity. Thus for gaining social acceptance and legitimacy, private education providers needs to gear themselves to understand the complexity of higher educational provision and the challenge faced by governments in its provision i.e. the elusive triangle of quality, quantity and equity.

The use of market mechanism to achieve goals of public policy is not a very simple task (Teixeira et al., 2006). Though, there is need for both markets and governments to work together to achieve higher education goals, it would be naïve to jump to any conclusions about the ability of market-mechanisms and its effects in terms of quality of provision, equity, access, student learning, research and scholarship etc. of higher education without appropriate empirical evidences regarding the same.

Are There Not Government Failures?

The government intervention in education markets is justified on the basis of market imperfections i.e. efficiency and redistributive justice i.e. equity grounds (Stiglitz & Brown, 1988; Steeg, 2005). Friedman (1955) critiques the role of government in education and cautions that the predilection towards public education for solving market efficiency and equity concerns should not lead to too much of public intervention which can lead to government inefficiencies and failures. He separates education into two categories; first, general education for citizenship and second, vocational or professional education. The distinction between the two is difficult to make in practicality. For general education for citizenry, he argues for public financing through subsidy and in-kind transfers while for professional education he argues for government to deal at an individual level by financing education through equity capital. This is to differentiate between the social and private benefits of educations and allocation of public and private costs accordingly. There is comparatively less justification for intervention by government at the higher education levels as compared to the primary and secondary levels because the public good characteristics and positive externalities of education at the primary and secondary level is more than that at the higher level. There are rationales of market failure, externalities to justify government in education at the primary and the secondary levels and economic evidences also suggest significant public interest in education (Taylor, 1999). Higher education is more of a private good than the primary and secondary education. The governmental interventions are more effective at the early childhood level than in the later stages of the educational cycle (Steeg, 2005). Porteba (1996) argues that though there is justification for government intervention on the basis of inefficiencies and inequities created by educational markets, but there is lack of clarity on the 'choice of instrument'. The likely structures of public policies are determined not only by the economic logic but also to in part by the historical and political influences. He further argues that it is easy to construct a list of market failure and distributional ground arguments to justify government intervention but quantifying the externalities, the associated private and public benefits and the corresponding private and public investments is a difficult question to answer. In addition, the quantification of the costs to be borne by the public and the private at different levels of education viz. elementary, secondary and tertiary is a tough nut to crack. An optimal educational policy must be able to make a fine balance between the societal gains associated with correcting the market imperfections in education and the cost of the policy and its associated market distortions. Peltzman (1973) and Sonstelie (1982) point out the inefficiencies created by free provision of public education. Peltzman (1973) shows that free public education can have behavior change implications for parents. Some parents might prefer 'free' lower quality education for their wards to 'paid' higher quality education leading to downward shift in the level of educational spending. Sonstelie (1982) argues that there is a substantial amount of efficiency cost associated with public education. But, his arguments rely on the assumption that private provision is more efficient than public provision. Hall (2006) contends that the governments frequently lack the capability of determining the socially optimal solution in the market of education, let alone implement it. Porteba (1996) further argues that the relevant question is not of government failure but whether the cost of government intervention exceeds the benefits? The reasons for the government

costs to be more than benefits are twofold. First, it is due to lack of government knowledge about the socially optimal solution, whom and how much to subsidize. Secondly, government intervention is not determined by social optimality but by political considerations and the education policy is not determined by benevolent policy maker but by self-interest of the political class as claimed by Young & Block (1999). Colclough (1996) concludes that there is no *a priori* resolution of whether a market failure is either worse or better than a government failure. The reality is that both exist, and an empirical strategy is required to access outcomes. Education policies would be better informed by empirical evidences rather than theoretical debates.

Discussion and Conclusion

There are both market failures (due to externalities, merit goods, long gestation periods, scale economies, equity, principal-agent problems and low private demand (Colclough, 1996) and government failures (in the form of fiscal and budgetary constraints, administrative and bureaucratic inefficiency, time-lags in planning and implementation, economic inefficiency etc.) in the higher education sector. Arguments in favour of government intervention pointing out market failures and vice-versa would be a naïve approach. I suggest a coexistence and partnership approach with appropriate risk-sharing between the public and the private parties as the way forward for the higher education sector. In case of public provision, there are capacity and financial constraints of the government and in case of private provision there is constraint in lack of incentives because the benefits of education are more public in nature which is in contrast to the private sector's profit maximizing objective (Kingdon, 1996). Hence it is clear that in some kind of a partnership between the public and the private sector lies the solution for providing quality education to all. But, Public-Private Partnerships (PPPs) involve a very complex design in terms of strategy, system and processes. The idea of PPPs in higher education is a recent phenomenon. The Public Sector's role is to define the scope of business, to specify the priorities, the targets and the outputs and also to set the performance regime by which the management of the PPP is given incentives to deliver. The role of Private sector is delivering on the objectives of PPP creating value for money for the public sector. PPPs must not be confused with privatization because the former is a collaborative effort to promote financial as well as service delivery improvements without increasing the role of private over the public or the other way round. In case of education it becomes all the more important because there is a degree of public good characteristics attached with the intrinsic nature of the good.

The main aim of introducing PPPs in education is to ensure Efficiency, Effectiveness, Quality, Equity and Accountability. The appreciation of PPP in education is on the fact that it can create competition which will provide exit mechanisms to the poor. It can also lead to greater management flexibility than the present inflexible bureaucratic public sector arrangements for provision. Government determines the quality by acting as a regulator and provides private contract through open bidding process leading to separation of provision and monitoring functions solving for the problem of conflict of interest. Also, long term PPP contracts would ensure better risk sharing between the Public and the Private. The primary criticism against PPP in education is that it will lead to privatization and hence reduce government control over a public service. But, if that happens that is not a PPP model at all. It is understandable that the PPP model design entails a very close attention to details to ensure proper risk sharing but it will be not be right to argue it will lead to privatization. Moreover, criticism of it leading to higher socio-economic segregation and poorer students more in public schools are also there.

To add to this, according to Public Choice theory it can lead to resistance from various stakeholders especially teachers who want political control. Although, PPP certainly offers a possibility to answer the financial capacity constraints of government, there should not be too much romanticism for PPP in the education sector either. A lot of research gaps needs to be filled. The evidences on PPP and its impact and its applicability in the Indian contexts need to be seen. And, hence studies need to be conducted on impact assessment of PPP on education outcomes as well as on the design and implementation of PPP. The reasons for the successes and the failures of various programs need to be ascertained. Moreover, the enabling conditions and circumstances also need to be understood. The best practices in program and regulatory design needs to be identified and promulgated. An output based performance monitoring needs to be done. The use of technology for measuring and tracking quality and calculating teaching efficiency is recommended. The government needs to define the operating conditions

and performance criteria that private operators need to follow. There should be reward for quality improvements and innovation. There should be capacity building interventions for contract management skills of the bureaucracies. A specialized group of authorities needs to be trained in management of PPP and flow of funds from the government to private providers. They also need to enforce qualifying criteria and regulations rigidly. There is also role of international organizations, NGOs and education entrepreneurs in the success of this endeavour. And, most importantly it must be seen as a supplement to the public education system rather than substitute.

There is certainly a role for the private sector in the higher educational provisioning supplementing the public provisioning of education. The private sector will delve more into areas and academic domains which are well-established by the public sector. Thus, private sector will assume the role of follower in increasing the number of seats in academic domains well-established by the public institutions. This applies more so in the Indian context where all the top institutions in all fields viz., technology, management, law, social sciences, physical sciences, arts etc. are from the public domain. There will be government role in trend-setting, providing a proper regulatory framework, timely evaluation and output monitoring of the private institutions, proper accreditation mechanism etc. The private higher educational institutions need to prove their merit in their ability to provide quality education with access and equity. The public authorities need to properly monitor the performance of the private sector institutions on various indicators to ascertain their worth in contributing to the growth of higher educational market. The financing of private institutions should be from private revenue generation to ensure sustainability. To ensure that appropriate performances on student learning, research and scholarship, equity and quality appropriate regulations and indicators are required. The private sector involved in higher education should be able to earn profits but it should not lead to 'profiteering' with compromise on educational and academic quality among other educational goals. The private involvement in higher education should also be competitive in both selection and operation and should also lead to efficiency in educational provision as well as innovation in terms of delving into new academic domains and starting new and niche educational institutions. The private sector should thus be able to supplement public financing for higher education, should be able to serve the increasing demands of the higher education both in well-established as well as novel domains. The challenge for the private sector lays not only in serving educational markets but also serve the social and nationalist goals of higher education. The empirical investigation of emergence of private institutions, their context and their impacts on higher educational goals should be the way forward. Higher education policies like other public policies would be better informed by field investigations.

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Higher Education for Masses: Is It Really Desirable?

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Post-independence, there has been a continuous and steep growth in the number of universities and other higher education institutions in the country and this trend has particularly touched greater heights in last two decades with the wider opening for private sector in this field. At the same time, intake in various programs has increased manifold producing larger number of graduates with higher and technical education. This phenomenon can best be witnessed in the areas of engineering, management, education and law besides fundamental subjects. Then arises the question of employability of these graduates which of course is linked with its quality, the ground on which unfortunately many fail. Here emerges the need to investigate whether we really require that number of institutions of higher learning! The answer is expected to be affirmative as at national level, planners feel the need for still greater number of universities to cater to the country's young population. With the same mindset seats per class/ per program/ per institution are being increased to meet such demand. Result is ever increasing mass of degree holding (called educated) unemployed youth.

With the above scene at hand, naturally the country is expected to generate jobs for such graduates, serious or non-serious, produced on mass scale. Moreover, the general expectation lies with the public sector wherein as a common perception quality may be compromised, wages are high, job security is par excellence and accountability is the least. It is well understood that the private sector on these grounds is just a contrast.

One would agree that education does not give license for employability but raises the capacity of an individual to become employable or entrepreneur. It is true that the competition in modern time has increased among youth with rise in population, rise in number of degree holders and stringency in selection procedures, especially in private sector, to filter the merit. But at the same time this too is a fact that there was no death of merit even back. Yes, if a mark-sheet is the index of merit of an individual, then above ninety per cent marks and total first class pass-outs cannot be challenged!

It is the time to review the value of the degrees being awarded, often not earned. Why do we need that many graduates, postgraduates, and doctorates; many of whom have obtained such degrees as they had nothing else to do? Some might have opted for securing 'Dr' as a prefix or 'Double M.A.' as suffix to their name only for posterity, to improve upon matrimonial value or enjoy a social status. It is a bitter truth that one cannot expect merit from a system of empty class rooms and degree obtained through 'One week passbook' culture. Such non-serious mass with higher degrees becomes a part of ever increasing community of 'educated unemployed'. Contribution of institutions operating with under-qualified and under-paid faculty cannot also be ignored to add to this situation. In all probability, leaving exceptions, such an 'educated' youth will not resort to a family business or a skill oriented job, and would thrive to catch a desk-chair job at whatever low the wage may be.

The question is simple in my opinion–Why do we need higher education for masses that should have been spared for meticulous? This class can be identified through a national level eligibility/ aptitude test for entering higher education and then groomed for excellence and research. The rest, after their senior secondary or other school level examination may choose for the appropriate job or skill development program. Imagine a time when we have no skilled man-power for various essential tasks. The world is not run by the intellectuals alone! ❑

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Autonomy and Gender Positive Initiatives in Women's Colleges: A Study

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Women's Colleges

In India we have a large number of exclusive women's colleges and universities. While the number of exclusive women's colleges is shrinking in Europe and North America, they are growing in size and number in many other regions of the world. This is particularly true of India. Along with the rapid expansion of the higher education system in India, the number of exclusive women's colleges has also been growing by leaps and bounds. According to the data available from the UGC annual reports, in 1982-83, there were just 647 women's colleges and by 2000-2001 there were 1578 women's colleges and the number has been growing steadily and in 2011-2012 there were 4266 colleges. In addition, the number of exclusive women's universities has also been increasing. India has the distinction of being the only country to have a professional college exclusively for women, when Lady Harding Medical College was established in Delhi, as an exclusive college for producing women doctors. Now, there are several Engineering and Colleges of Technology exclusively for women.

These institutions provided access to female students who were prevented by legal, religious, traditional, cultural or practical reasons from attending co-educational institutions. Apart from providing access, are these exclusive women's institutions serving any other purpose is a moot question. Whether a woman student enrols in a co-educational college or an exclusive women's college, she will get the same academic inputs, write the same examination and get the same degree.

The very first chapter of the National Policy of Education (1986) on Women's Education, states, "Education will be used as an agent of basic change in the status of women. In order to neutralise the accumulated distortions of the past, there will be well conceived edge in favour of women. The national system will play a positive intervention role in the empowerment of women. It will foster the development of new values through redesigned curricula, text books, the training and orientation of teachers, decision makers and administrators and the active involvement of educational institutions. This will be an act of faith and social engineering". The NPE has also clearly spelt out the parameters of empowerment of women as:

- Enhancing the self- esteem and self confidence
- Building a positive image of women
- Developing ability to think critically
- Fostering decision making
- Make informed choices
- Ensuring equal participation in developmental processes
- Providing information, knowledge and skill for economic independence

These are very laudable objectives for any educational institution. The question is how far the exclusive women's colleges are meeting these objectives for the empowerment of women.

Autonomous Colleges

The concept of autonomy in colleges was first mandated in the National Policy on Education (NPE) in 1992 and later developed by Gnanam Committee. India, Pakistan and Bangladesh are stuck with large affiliating universities while most other countries have small universities. The existent of autonomous colleges is an alternative to large universities. The disadvantage of the large university system is the rigidity of the structure, the highly bureaucratic processes of going through several layers of decision making, holding up smooth functioning of the very large number of affiliating colleges, running into several hundreds of colleges. All the colleges having to follow the same curriculum, taking the same examination, leaves no space for freedom for innovation and experimentation. The scheme of Autonomous colleges was mooted to liberate the colleges from the shackles of the centralised university system. Autonomous colleges were given the freedom to develop their own courses in accordance with the requirements of the students and global trends, conduct their own examinations and publish results on time. The teachers become accountable as they have to develop their own curriculum, teaching regime and conduct the examinations also.

The scheme took off very slowly, as there was not enough clarity of the scheme, some colleges were sceptical and there was resistance from teachers, as the teachers feared that their work load will increase and so on.

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There are a total of 414 autonomous colleges in the country spread all over the country as per UGC Annual Report 2011-12. A maximum 145 colleges are in Tamil Nadu, followed by 72 in Andhra. Karnataka has the next highest with 49 followed by 39 in Odisha. Madhya Pradesh has 36 with Maharashtra having 23. All other states have less than 10 autonomous colleges. Gender segregated data is not available regarding the share and distribution of women's colleges with autonomous status.

The Objective of This Paper

Two decades back an empirical study was undertaken by the author to examine the gender positive initiatives in select pace setting women's colleges for the empowerment of women students. It would be appropriate to define here the term Gender Positive Initiative (GPI) as it is used in this context. "Any program, project or activity which is implicitly or explicitly designed to promote any dimension of women's development is considered as GPI. It could be within or outside the academic or curricular arena. It could be within or outside the classroom. It could be part of the content included in the system of examination, or outside the purview of the grading system. Thus, a GPI has a broad definition and includes a variety of happenings in the college.

As a part of a larger study and the benefits of autonomy, which was introduced as part of the National Policy on Education 1986. Programme of Action (PoA), 1992 in earlier time an empirical study was undertaken to collect data from women's colleges, who had taken up the autonomy concept and implemented the same in 11 women's colleges spread all over the country. The benefits accrued and implications for future are also discussed for the Indian Universities for future ready institutions.

The Study "Education for Women's Empowerment: Gender Positive Initiatives in Pace Setting Women's Colleges" (Indiresan, 2002) was undertaken to find answers to the questions:

1. Why there are such a large number of women's colleges in India?
2. What is the justification for the existence of women's colleges?
3. Are these colleges doing anything beyond academics to empower women?
4. Are there special needs for women students because of their gender?
5. What are these women's colleges doing to address these needs?
6. Who are these pace settings women's colleges?
7. What are the gender positive initiatives and how are they being implemented?
8. What are the facilitating and hindering factors in the implementation?

This study is based on empirical data obtained from 124 women's colleges from all over the country. Of these 124 colleges, 11 were autonomous colleges. This paper briefly revisits the data from these eleven autonomous colleges to understand how the autonomous status facilitated the gender positive initiatives in the various domains for the overall development and empowerment of the women student**s.**

Interestingly a recent book "Women's Colleges and Universities in a Global Context" (2014) by Kristen A. Renn, based on-site study of thirteen women's colleges and universities in ten different countries – Australia, Canada, China, India, Italy, Japan, Kenya, South Korea, the United Arab Emirates and the United Kingdom, has endorsed the findings that women's colleges are still relevant in the 21st century for the overall development and empowerment of women.

These pace setting women's colleges are dynamic institutions which believe in novelty and innovation as key to progress. They have all attributed their autonomous status as having facilitated the introduction of a variety of activities aimed at the holistic development of their women students' personality. In the following sections, attempt has been made to understand the role of autonomous status in facilitating the implementation of gender positive initiates to meet the special needs of women students because of their gender. Compared to co-educational colleges, women's colleges are able to focus and cater to the specific needs of women students.

Gender Positive Initiatives in Autonomous Colleges

Courses Offered

The first and foremost advantage of the autonomy is to be able to design their own courses. With the freedom provided by the autonomous status, these colleges have started several new and innovative courses. They offer courses at the undergraduate and post graduate levels in addition to Ph.D. programs. They also offer several post graduate diploma courses. The courses in emerging areas include computers, applied commerce, corporate secretaryship and industrial electronics. These are mainly in the male domain. However, there are courses on nutrition and dietetics which are popular with women students. A unique course offered is health care and hospital management. This course is reported to be very well received and popular with the students. Diploma and certificate courses in advertisement and copy writing, marketing

and sales management, personnel management and industrial relations and journalism are some of the other options. These courses range from three months to one year and they are all self supporting. Another significant feature is that they are all conducted in collaboration with companies. All these courses are recognised by the affiliating university. It is significant to note that women students have a choice is selecting courses to cater to their feminine interests, which will not be available in co-ed colleges. At the same time they have access to courses where they can compete equally with men students.

Another college has an innovative way of structuring the courses in several parts. In one part, they have a choice of three languages. In another part, English is compulsory. Yet another part offers twelve major subjects. Each major is accompanied by supportive or optional papers. Each part has compulsory and optional components. These choices include, value education, six co-curricular activities, including, physical education, NSS, adult education, NCC, women's cell. In another part, twelve inter-disciplinary options are offered. These are tourism, consumer economics, how to bring up better children, English for competitive exams., creative writing, maths for competitive exams., photography, chemistry in everyday life, health and hygiene, tie and dye and accountancy. A concerted effort is made to make the undergraduate course complete and integrated. Equal importance is given to all aspects of the personality, so that academics, extracurricular activities, social awareness, value education and vocational orientation are all included. Under the UGC scheme, two vocational courses, namely, secretarial practices and computer applications have also been introduced. Thus, this college has full use of the autonomous status to provide such a large menu from which the women students can use what is most relevant and useful for them.

Another women's college reports that the autonomous set up gives the colleges, a lot of room for innovation as regards the courses, the syllabi and methods of teaching and evaluation. Within five years of attaining autonomy, this college has made bold and successful endeavours to restructure the courses. The college has been able to focus attention on areas hitherto ignored, such as value education, gender perspective and vocational courses.

Academic and Intellectual Goals

These colleges thrive on the academic excellence of its students. The faculty and management of these colleges leave no stone unturned to provide the best for the students so that they achieve academic excellence. Year after year, the students win laurels in university and college examinations. An efficient faculty is the major driving force. The teachers are committed to imparting education that is relevant to the modern world. Ample measures are taken to orient the teachers to the needs of students of today. Immense stress is laid on academics and on inculcating achievement oriented attitude among the students. The faculty tries to build confidence and self esteem through academics. This is important because, women students, especially those first generation learners, come from very traditional families where the socialisation process is not very conducive for independent thinking and decision making, suppressing their self confidence**.**

Gender Sensitisation

Gender sensitisation is required more for men than women but in reality, men students are not interested in this aspect. It is the women's colleges which offer this education. In several autonomous colleges, gender sensitisation is attempted through both curricular and non curricular interventions. In one autonomous college, the English, history and economics department have introduced women related papers as part of the regular course. A full one semester course on women's studies has been included at the post graduate level in the history department. Courses on entrepreneurial programmes for women, as well as a course on women and their legal rights has also been initiated. As for non-curricular activities, exhibitions are organised to create an awareness of gender-related issues and to elicit the students' views on the status of women. Seminars have also been organised on family and law, and Women's Daycelebrated.

Another autonomous college has a very active women's cell. Lot of students get enrolled in the women's cell as one of the activities under the co-curricular option. This cell organises a variety of activities, such as debates, quizzes, elocution, poster making and exhibitions. All these activities focus on women's issues and being open to all students, involves all the students of the college. The paper on women's studies includes a comparative analysis of the status of women's education and development. The students are also familiarised with the welfare schemes for women. Various indicators of development, such as the sex ratio, literacy rates, work participation rates and decadal growth rates are included along with statistical information. All these initiatives indicate the sensitivity of these autonomous women's colleges to meet the specific needs of the women students. These will not be available to them in the co-educational colleges.

Preparing Women for Employment

It is not enough if you offer courses and gender sensitise the women students. The college is aware

that the education they get must have some utility and equip them for the employment market. With this in view, several autonomous colleges offer professional courses like Master of Computer Application (MCA) and Bachelor of Business Administration (BBA). These courses are conducted in a professional manner, with latest technical facilities and also inculcate professional work culture. These courses include business communication, economic analysis, business environment, industrial psychology, and quantitative analysis. This course also introduces the women to the complex world of market relations, and equips them to enter the field of marketing, business, public relations, advertising, finance and so on. These courses help in developing versatility and astuteness and enable the women to enter domains hitherto dominated by men.

Building Confidence and Multidimensional Personality

Another important dimension of development is building confidence and personal development, which is essential for the women to progress in their career and life. Autonomous colleges are very aware of this aspect of the women's development. As is well known, there are not many women in senior leadership positions in most of the sectors, be it business, industry, politics, education and so on. These colleges offer leadership training adopting different strategies. Through these programmes the women's decision making ability, organisational and communication skills are honed. The programme includes exercises, games, group and individual activities, observation and talk by experts. Extensive discussions are held on leadership qualities, inherent or acquired, the problems faced by leaders and ways of overcoming them. The programme also includes the power of persuasion, advocacy skills, team building skills and so on. The women become aware of their positive points and how best to utilise them, as well as their negative points and how to minimise them. These are just some examples of the good practices of gender positive initiatives adopted by these autonomous women's colleges for the overall development of their women students.

Recap and Implication

The preceding sections briefly brought out some of the good practices of the pace setting women's colleges based on an extensive quantitative and qualitative empirical study. Further, the analysis also brought out how the autonomous status facilitated to a large extent, the implementation of the various gender positive initiatives for the development and empowerment of women students. These findings justify the existence of a large number of women's colleges in India to meet the special needs of women students because of the traditional socio-cultural context still prevalent in the country, especially with regard to the status of women.

Of course, the country is getting modernised very fast. India is a large country, with diverse socio- cultural practices, depending on various factors like, caste, class, religion and region. The rights and privileges a women enjoys, depends to a large extent on these background factors. Thus, in educating women, there is a need to be sensitive to the needs of women students coming from different backgrounds.

It is to be noted that the number of exclusive women's colleges has increased by leaps and bounds. It is also to be noted that the growth of autonomous colleges has not kept pace with the growth of colleges in the country. While the total number of colleges in the country is 36445, the total number of autonomous colleges is only 414 (UGC Annual report 2011-12), accounting for just one percent. Data is not available on the total number of women's colleges with autonomous status. Hence, the percentage of women's college with autonomy is not known.

The analysis of this study has clearly indicated that the freedom available due to the autonomous status does facilitate the implementation of various innovations in the courses and curriculum and other co curricular activities, for the development and empowerment of women, in women's colleges with autonomous status. The implication is obvious. There is a need to provide autonomous status to more but deserving women's colleges who can benefit from the freedom made available to them to bring gender parity in higher education and through that in the society at large. Further, it is not enough to provide autonomy, but the teachers and the leadership need to be mentored to maximise the double benefits of women's colleges with autonomy.

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Agricultural Education: Challenges and Strategies

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Education is the production of desirable changes in human behaviour including knowledge, attitude and skill. Education provides the ability to meet life's situation through character building process and making a person rational, capable, responsive and intelligent. The main aim of agricultural education is to prepare human resources for agriculture and allied sectors. In order to realize sustained growth in agricultural sectors, it is necessary to enhance the knowledge, skill and attitude of the existing human resources. Therefore, the human resource development in agriculture sector is a continuous process and primarily bestowed with agricultural universities. The ambit of agricultural education encompasses various disciplines of agriculture viz., Agriculture, Horticulture, Veterinary Sciences and Animal Husbandry, Agricultural Engineering, Forestry, Food Technology, Fisheries Science, Community Science, Agri-Business Management, etc.

In India, majority of the graduates desire for stable jobs, preferably in Government sector. But, it is difficult to generate adequate avenues for providing job opportunities for all the pass outs. Therefore, it is essential to prepare graduates who develop their own enterprise and create employment for others. Agriculture being a professional discipline, can create job opportunity through self employment. The present course curricula of agriculture and allied faculties provide adequate opportunity for entrepreneurship development through experiential learning system. Agricultural education needs to be harmonized with existing and emerging issues related to changing climate, technology, market, etc.

Throughout the world, agriculture is becoming competitive in terms of price and quality of its produce. Therefore, it is essential to lay more emphasis on frontier areas such as biotechnology, nanotechnology, precision agriculture, information & communication technology, good trade practices, etc.

Agriculture has evolved in India over thousands of years. However, formal system for agricultural education started much later with establishment of agricultural colleges and universities. Our agricultural universities play a vital role for providing research outputs to strengthen the competitiveness and sustainability of agriculture.

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Challenges of Agricultural Education

In the present day context, agricultural education faces several issues, which need to be addressed suitably. These challenges affect the quality of education and have impact on rural development & food security. In many developing countries, the shift in focus to other developmental areas has affected funding of agricultural education and training. It had resulted in decline in funding for agricultural education institutions. Inadequate funding for agricultural education is very well reflected in the slow pace modernization of many agricultural universities.

Lack of creativity and inability to adjust to multidisciplinary needs of a changing sector has become a major challenge faced by agricultural education institutions. Many teachers of agricultural university are subject specialists, who need proper training as educator. They emphasize on theoretical lecture method without giving adequate practical exposure to the students. Agricultural education is expensive due to requirement of teaching aids, scientific and technical equipment along with well equipped experimental farm. The quality of facilities and equipments available are major factors in determining the quality of graduates produced.

The State Agricultural Universities (SAUs) are established through the Legislative Acts of the respective states and with major financial support from them. Agricultural research and education, particular in the university sector, has a crucial role in equipping our agricultural industries. The pace and quality of technology generation and human resource development in the SAUs need to be strengthened.

Strategy for Quality Improvement

Agricultural education is now required to evolve in the tune with changing national and international scenario. The challenges of agriculture sector are characterized by stagnating productivity and profitability, degradation and depletion of natural resources, increased risks associated with climate change, unsafe livelihoods for millions of small & marginal farmers, regional imbalances in agricultural

productivity, rising input cost, vulnerable market behaviour, changing food habit, increased quality consciousness, higher post harvest loss, globalization of trade and commerce, poorly coordinated natural disaster management system, etc. Future, situation necessitates a renewed thrust for better quality and relevance of higher agricultural education, which should facilitate and carry out function of human resource development to prepare self motivated professionals and agri-entrepreneurs in the light of changed higher agricultural education.

Modern agriculture practices are increasingly turning out to be knowledge-based and hence gaining expertise is a difficult task for many of our rural farmers. India requires education at all levels so that farmers are better equipped to handle the threats of globalization. In present time, several forces of globalization such as Intellectual property right, World Trade Organization and General Agreement on Trade in Services, etc. influence the decision making process in various aspects. Use of cutting edge and beneficial technologies like biotechnology, nanotechnology, bioinformatics, geospatial technology, etc. are getting prioritized. Therefore, the agricultural graduates on completion of their studies should possess knowledge regarding all such emerging areas. They should be able to handle the new challenges posed by globalized environment and possess required professional capabilities to deal with the concerns of sustainable development of agriculture.

Agricultural education should address the requirement of farmer, the ultimate user. Our education providers not only have the responsibility to instill the technical competency that will increase agricultural productivity, but the managerial skills and leadership required to operate agricultural enterprises.

Emphasis may be given on exchange of students and effective interaction between universities. We need high quality agricultural graduates equipped with problem solving and creative skills and ability to think and improve productivity of agriculture sector. Apart from the technical and generic skills, our graduates need leadership & entrepreneurial skills and put innovations into practice. There is need to strengthen and streamline higher agricultural education system to enhance quality of human resource in agri-supply chain to meet the future challenges through cutting-edge science and technology.

The provision of quality agricultural education facilitates inter-generational transfer of agricultural technology and provides platform for the farmers to acquire appropriate technology. There is urgent need to provide practical field experience to our graduates. This can be best achieved by making provision in the curriculum for internship during graduation. The internship could be in the form of attachment to private companies or allocating time to practice agriculture in the villages. At the post-graduate level, international exposure will provide valuable experience of working in advanced laboratories and developing long-term interactions.

Agricultural education should focus on effective marketing infrastructure and techniques of preservation, storage and transportation with a view to reduce the post harvest loss. Setting up of agro-processing units in production areas can help the students to acquire practical knowledge. The agricultural education in India has to identify its role in equipping the human resources for enhanced agricultural productivity and sustainable use of natural resources. There should be complete autonomy of agricultural universities to ensure academic excellence. Specialized courses in educational technology in agriculture should be developed to upgrade the teaching skills.

Refurbishment of Agricultural Education

Reorienting the course curriculum is to be prioritized to suit the demands of the job markets and to bridge the disparity between manpower demand and availability in different areas. Emphasis should be given on post harvest technology, agro-processing, value-addition, marketing and entrepreneurship development alongwith management intricacies. Agricultural education system should be made innovative to absorb futuristic trends and skill development. The system has to balance between classroom teaching and experiential learning.

Teachers should get opportunity to devote adequate time for extension education programmes so that they can be fully aware of the farmers' problems. Suitable research may be conducted on the traditional know how and indigenous technologies available with the farmers. The SAUs should have flexible course-credit system with continuous internal evaluation. SAUs may provide regular specialized training to rural youth, particularly school dropouts and adults who are not eligible for enrolling in formal agricultural courses. The successful models in agriculture demonstrated by the private sector,

business groups and industries involved in agriculture may be studied by the University.

In the liberalised educational policy scenario at the national, regional and global levels; it is essential to have a better coordination between institutions and universities to implement restructured and relevant courses. Private-public partnership is to be strengthened to harness the benefit for education, research and extension. Involving talented scientists of the private agri-research sector as guest teachers in Agricultural Universities may be of much helpful.

The agricultural education system needs to be reoriented in view of the emerging changes of climatic-technological-social-economic scenario. Agricultural education should emphasize on alternate farming, bio-fertilizers, pressurized irrigation, precision agriculture, integrated crop management practices, resource optimization, post harvest technology, etc.

A cadre of social scientists with clear insight into agriculture related disciplines such as agricultural economics, agri-business, marketing management, rural sociology and agricultural ethics need to be developed for solving various problems faced in the field of agriculture. Accordingly, agricultural education may be reorganized with emphasis on agriculture related social sciences. In India, there is a need to provide such a curricula reorientation to academic institutions to create responsive faculties to understand the problems of rural farmers.

Entrepreneurship development and self-employment orientation in agricultural education should receive high priority through blending of vocational courses. There should be periodic review of curriculum in line with national and global scenario, market trends, self-employment avenues and industry requirements.

The collaboration and cooperation should be strengthened at inter-institutional and international levels. Integration of population, environment and sustainable development themes with agricultural education programme can enhance the quality of teaching. Well trained human resources are to be developed for conducting research in advanced areas of science to become internationally competitive. Cost-reducing technological changes may be the product of applied research, which can help the common farmers. Modification of curricula in agricultural education may help to generate technology that can be beneficial to small and marginal farmers of the country. The future of agri-education should pave the path to produce potential agri-preneurs and solve various techno-economical problems faced by the farming community. ❑

COVID-19 Concerns

An Appeal to Readers

The Outbreak of COVID-19 commonly known as Corona virus has engulfed the entire world. The epidemic has emerged as one of the most dangerous pandemics ever faced by the human race. With great concern, the University News appeals to its Readers to stay alert and cooperate with the Government in adhering to the health advisories issued from time to time. By being careful and cautious we can beat the virus in maintaining its chain and prevent its wide spread. We wish wellbeing to the Readers and all our countryman/citizens as well and appeal to show solidarity in this hour of adversity.

Dr Sistla Rama Devi Pani

Assessment and Accreditation: A Strategic Tool for Quality Enhancement of Indian Higher Educational Institutions

Subramanian Raman Iyer*

As India is heading towards regional and global leadership, there is a renewed focus on our Higher Educational Institutions (HEIs). Rightly, HEIs are seen as enablers of knowledge creation as India wants to stretch out its knowledge power, across its frontiers. However, HEIs cannot be seen in isolation. We need to look upon several dimensions of our society, as we attempt to energise our HEIs.

There is a popular law in Economics. i.e. Gresham's Law. Bad money drives out good money from circulation. Bad money can be further explained as the money earned through unfair means, profit earned without revealing its tax liability, money that serves to enrich individuals at the cost of community and institutions, bad money that remains unaccounted but is powerful enough to challenge the good money of tax payers. If steps are not taken to control this 'bad money', that is capable of driving away good money, good investors will be discouraged from participating in economic growth. At a time, when black money and unaccounted wealth seemed to have overtaken the economy, measures like demonetization and GST have ensured that good money prevails as the economic driver.

Similarly, when too much of socialism demanded more and more of workers' rights and less and less of their accountability towards productivity, our Public Sector Undertaking companies, reached their nadir in productivity and to the present stage of disinvestment. Yes, bad management and bad employees drive out good management and good employees from performance. Fortunately, our early initiatives towards liberalization, privatization and globalization infused private sector to come up in a big way, in manufacturing and service sector both included, and today what we witness is a vibrant Indian economy, portraying global benchmarks in performance.

In medical parlance, there are cancerous cells in human bodies; some of them are even beneficial for our detoxification. However, when some of the cancerous cells become uncontrollable and start to multiply repeatedly, they over-power the good cells, and lead us to the inevitable. A much delayed chemo-therapy administered to kill the cancerous cells may lead to also killing the growing cells and the very patient himself, it aimed to cure. There is a need to isolate our cancerous cells, build our immune system, so that it counters the proliferation of cancer and keeps it under check. The same is true of the society which should get rid of its bad influences and bad morals, so that goodness prevails as a practice rather than an exception.

Going by the same analogy, we need to understand Indian education system. India's Taksha-Shila and Nalanda were the world leaders in higher education, centuries back. We have it in our genes to pitch education to its highest glory. In the early years of independence, rightly Government took it upon itself to start premier educational institutions. In the fields of higher education, IITs, IIMs, NITs, Central Universities, State Government Universities were set up. These institutions have remained a benchmark for academic excellence. Over the period, the demand for higher education has outpaced the supply. More and more government educational institutions are being set up, emphasis being on the numbers and not the quality of academics. It is at this point, some of the private players stepped into higher education, with their redefined emphasis on quality, albeit at a very costly tuition fee. For the common man, there was never any reluctance to pay higher tuition fee, so long the education he received gave him the knowledge, gave him opportunities for job and for entrepreneurship.

Unfortunately, here too, the race was lost, because of decreased academic rigour and over-emphasis on numbers by all the Universities. Numbers initially served well, so long as the University degrees were mere eligibility qualifications for entry-level government jobs. But government jobs are becoming extinct gradually. With sapping revenue in the hands of government, the budgetary allocation

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for education, that too for higher education, dwindled drastically thus leaving the State Private Universities to set up their own standards, so that their students get an entry-level job and survive in the competitive job market.

An integrated education system should add value to all its stake-holders. It must enhance the knowledge, and move along a continuum from.... Unknown → Known → To be known → Futuristic. Knowledge creation is swifter and dynamic than changes in the physical world. Also, the knowledge should be updated to remain continuously relevant, for the 'point or period of time' it aims to serve. The curriculum, its delivery and research orientation are all aimed at this aspect of the knowledge. The teaching, learning and evaluation process relates to absorption, adaptation of knowledge. In so transferring the knowledge, the teacher is just in an enabling tool amidst the structural and learning resources available beyond the class-rooms. Herein, owing to societal background and individual differentiation, the teachers are at different levels of competence. The students also have different levels of absorption. The teaching-learning process has to be customized and made student-specific. Too much of generalization, has withheld many potential students, from achieving their best. The burden of responsibility for bridging the gap between academics and industry expectations has slowly shifted to the students themselves. Teaching can no longer adopt 'take it – or leave it approach', wherein students simply compete for marks amidst uncertainty of their career and educational outcome. I can go on, saying these things, which are obvious, but what is the way out?. Is there a ray of hope, to make our higher educational institutions survive? For academic purpose, I will limit my discussions to 'State Private Universities' which form a major component of our higher education system in India.

Our experience with the Regulatory bodies like UGC, AICTE, State Government Regulatory Commission etc, have not been encouraging. From being facilitators, they became the super-policeman of the system. When some political big-wigs came forward to establish Higher Educational Institutions, the promoter-regulatory nexus got strengthened, leading to rampant corruption, monopoly of money and muscle power. Due to this, the genuine educational institutions, promoted by voluntary individuals, trusts and foundations, got marginalized. It is only recently, that the Regulatory bodies have become more flexible. Among all other regulatory bodies, National Assessment and Accreditation Council (NAAC) has emerged as a true enabler of academic excellence.

Scenario of NAAC Rating

As per UGC website, India has 50 Central universities; 409 State universities; 127 Deemed to be universities and 349 State private universities, thus a total of 935 Universities as on 01 February, 2020. We also have approximately 40,000 affiliated colleges. Ignoring the manual process of NAAC rating prior to 2017, only 1451 Colleges and 72 Universities have gone for NAAC accreditation, as per the Revised Accreditation Framework (RAF) from 01 July, 2017 to 25 February, 2020.

State Private Universities

Many of these State Private Universities are capital intensive, land intensive, and infrastructure intensive. Most of them are located in remote districts, not easily accessible by public and private transportation. Yet they were started with a noble thought of developing educational standards of hitherto 'unvisited remote corners' of the State. Initially, there was a lot of government support and public support to these maiden ventures, started with lofty intentions. However, over a period of time, commercial motives took over; short-sightedness became the order of the day, wrong management practices led to loss of reputation. When the regulator stepped in eventually, it was too late, too slow and too irreversible. Finally, the students, teachers, and all other stake holders, who aspired to benefit from these institutions, reached a dead-end I dare say this, because, it is not the time for 'Survival of the fittest',.. it is neither the time for 'Survival of the fastest'...it is now time for 'Survival of the Survivors' in the Indian education system.

Those of us, who have survived this current deteriorating educational standards, the promoters, the academic leadership, the teachers, students and every other employee related to academic institutions, must give ourselves a 'wake up call'. We cannot blame everything on the environment. We need to take responsibility for the present state of deterioration. Even academic regulatory institutions like UGC, AICTE and various Councils, cannot wish away their contributing role to the present deterioration. Only, when we accept the responsibility, both individually

and collectively, we tend to work towards eradicating our weaknesses. We need to introspect ourselves; hold open-forum in-house, conduct intra and inter institutional discussions, to know where we stand. Let not the competitive external environment tell us, where we stand. Knowing from them will be very painful. Let us decide for ourselves and take some self-regulating initiatives.

In Corporate world, the market forces ensure the quality and price for the products or services. Those who survive the competition, grow bigger and bigger and capture market share, while others just get thrown out of the market, or become extinct. In academic world, especially in Higher Educational Institutions, while those who offer quality education definitely survive and grow, those who are not competitive seem to exist as 'the living-dead'. Let us first revive these mediocre institutions rather than move them out of the environment. How do we revive them is a moot question. It can be done by creating compliance barriers in terms of minimum academic standards that their students must achieve in centrally administered (not internal) exams; their teachers must display academic excellence in some yearly exams or academic competitions or research endeavours; these institutions must show the increasing utilization of revenue earned towards growth of infrastructure and faculty development programmes for their teachers. Teachers must be pitched for providing more than just academic education e.g. health care, fitness-care, career counselling and placements, skill development, entrepreneurship, exposure to activities like yoga, naturopathy, gardening, farming, astrology, technical repairs, automobiles, driving, self-defence etc., the list is endless. Let not bad institutions, drive out some good institutions from existence. Let accreditation process support those who aspire to change to become good.

Before, I ask myself some of the questions, that will enable me to introspect, let me share a problem that all of us in the State Private Universities are faced with. Most of our students, who join our undergraduate programmes, have mediocre academic performance in their schools. Most of these admissions are through non-counselling route. The only advantage that connects students to State Private Universities is their proximity to the rural set up and their affordable fees. Most of the village parents cannot afford hostel and boarding stay for their children (especially for their girl children), neither can they afford to send their bread-winning children to singularly pursue their academics. This explains lack of attendance, frequent drop-outs and resultant low performance in the final exams. These are issues that must attract the concern of regulatory bodies like, UGC, AICTE etc. It is in this context, NAAC has introduced voluntary accreditation process, for all the HEIs. While the crave for accreditation is intense among State Private Universities, most of the Government institutions, have opted to stay-out of NAAC process, for reasons of non-mandating or for reasons of their own self-defined glory. Most of the government colleges, where flow of government fund is guaranteed, there is no threat to their survival, whether NAAC accredited or otherwise. Most of the Central Universities, IITs, IIMs, NITs, National Law Schools, IIITs, NISER, IISER etc., consider themselves superior to NAAC accreditation process. As pioneers of excellence, they must subject themselves to NAAC accreditation process. Even the new NITs, IITs and IIMs seem to be riding high on the brand name of their older version, without any accreditation. Those of us, who are alumni of IITs and NITs, know it well, that intake-merit of students is major compensating factor, towards some of the short-comings of even IITs and IIMs. I need not explain intake merit of students in terms of the rigour of JEE/NEET/GATE/CAT entrance exams/counselling route. It is the State Private Universities, which are put up with the residual merit of those students, who could not crack these examinations, for reasons beyond their control. In US, the State Municipality Commission is one of the parties invited to quote their rates and quality, among many other competing tendering parties. Whereas, our Government educational institutions continue to be 'single party-Lowest Bid (L1), of the exchequer, whether they perform or otherwise. If Aadhar linkage is desirable, where government subsidy is involved, the same analogy holds good for NAAC accreditation, where government funds and grants are given to educational institutions. By 2020, all government institutions, in receipt of government funds, must apply for NAAC and tell the environment, as to where they actually stand, in terms of NAAC rating.

I am surprised that a lot of State Private Universities and affiliated colleges, although eligible to apply for NAAC accreditation, are reluctant to apply. The latent fear is, if NAAC ranking is low, it will drive in the death-nail upon their Institutions. Why

expose oneself to NAAC, when it is non-compulsory. Some status quoi*st*s think that, it is better to go on without NAAC, till it becomes mandatory. NAAC is seen with more awe and fear than with confidence. Let me tell you, the NAAC you see today, is in its better form than it was in its early days. In no other country, you have such a professional outfit that is created to nurture, and support your push towards excellence, as we have in NAAC. I am sharing this, after my interaction with several NAAC professionals, who command enviable professional standing and are of impeccable reputation. Today, I see the situation differently. After a brief introspection, every State Private University and affiliated college should go for NAAC accreditation. It helps them to evaluate their relative standing and launches them on a professional platform to compare and contrast, improve and invigorate, grow and gain stature, in the academic world. I feel, applying for NAAC accreditation should be mandatory, for all educational institutions, private or public, that have completed five years of existence .

A small check-list will enable us to decide, as to whether we should go for NAAC accreditation. Before we go for NAAC accreditation, we must ask ourselves some relevant questions on our preparedness. For the sake of convenience, I have sequenced them, as per the Criteria, enunciated by NAAC.

Curricular Aspects

- Is our programme, course, subject curriculum in sync with the current development, in their respective fields? How do we find out our gaps, so as to make them current and job oriented?
- Did we add such current development, in our syllabus, question bank, examination and evaluation process?
- In terms of CBCS, are we able to offer sufficient courses that enable reasonable choice to students?
- Have we identified and imparted value added courses, (Generic for all students; Specific for a particular Programme?) that can improve the job opportunities of students?
- Are our Internships jobs oriented? Are our field works likely to generate entrepreneurship or social focus among students?

The answer to these questions will show how our students are fairing in UGC NET exams, GATE, CAT, CLAT and other competitive/job oriented exams... as these exams are based on updated and revised syllabus.

Teaching and Learning

- Are our teachers qualified, having academic excellence, teaching experience, paper publications, awards and recognition. Is our work environment, facilitating them to give continuity in their jobs?
- Do we have diversity among students, in terms of geographic representations, gender, reservation categories, age profile, disability etc?

How is the connect between teachers and students, in terms of teaching, learning, mentoring, enabling, special attention and counselling?

Research, Consultancy and Extension

- Does the research policy of the institution, encourage teachers and students to take up path-breaking research, so as to benefit knowledge creation and usefulness for the society?
- How do we justify the research activities in terms of number of Research scholars, qualified guides, topic-diversity, Projects execution, field-visits, collaborative activities, publications, seminars/ conference participation?

Infrastructure and Learning Resources

- Are our laboratories, libraries and computer centre adequate (both in size/numbers and quality) for administering our academic programme/courses, that will enhance the teaching learning outcome?

Student Support and Progression

- Are we supporting our students, in terms of free ship, scholarship, Educational loans etc?
- Are we facilitating special coaching classes for weak students: Competitive examination preparations, Skill development activities; Entrepreneurship development; Alternate career options; Counselling; Internship and placement activities; field/industrial visits; sports and cultural activities?
- Are we involving all other stake-holders like parents, alumni, industry and society for students' upliftment?

Governance, Leadership and Management

- Are our Vision, Mission and objective clearly aligned towards academic excellence?

- Are we adopting ethical practices, in a transparent manner, to ensure compliance of all the regulatory guidelines?
- Are we managing our institution in a professional manner, with clear delineation of responsibility and accountability?
- Are we using technology, to manage all aspects of admission, examination and evaluation, to include all connected details regarding source and utilization of funds?

Are we carrying out Academic and Administrative Audit (AAA) of our Institution, to identify our gaps and make a roll-on plan for the future?

Innovations and Best Practices

- Are some of our best practices relate to energy saving, sustainability, social inclusiveness, promotion of universal human values and social developmental programmes of the Government?
- How do we demonstrate our Institute's value orientation and distinctiveness?

Stop Questioning - It is Time to Act

My purpose of forcing you to question yourself is for you to see the chinks in your own armour. But let not the answers to the question deter you, from taking the next step. We must ponder over our strength, weakness, opportunities and challenges, but never be inhibited by their uncertainty. Start taking baby steps towards self-evaluation. Start taking small strides towards quality, start marching towards robust practices. The fact that you are moving forward is more important than the momentum of that initial movement. With the passage of time, you will have taken a grand leap, towards academic and administrative excellence. Thereafter, NAAC is just a step away.

Reimagining Indian Universities

I call upon the promoters of the university/ affiliated colleges, to set clear Vision for their institutions, with suitable mandate to execute them. Unlike the industrial products that have a pre-defined gestation period and are in a position to break-even in shorter time-frame, educational investments take a long time, to become sustainable, much less profitable. It calls for a lot of statesmanship to ignore the initial short-term losses, for long term gains. In academic investments, ploughing back the profit is more of a norm than an exception. The growing brand value and reputation for the promoters is greatly rewarding. The emphasis should be on sustainability of the educational venture, across two to three generations of efforts. I strongly feel academic institutions should be run professionally like the Corporate. The tendency to involve close family members to oversight the academic institutions, is simply perpetuating the status quo. Promoters should hire professionals, with diverse qualifications and dynamic experience to handle multi-faceted functions of the HEIs. Suitable portfolio management of educational institutions, in terms of varieties of programmes, enlarged diversity among teachers and students, quality orientation in all academic spheres, combined with regional and national level job opportunities, will take us to the next level of excellence. Stand-alone Universities, make very slow progress, when compared to those who have chain of schools and also chain of industries. Promoters should seamlessly invest on the captive supply chain of students from schools to industries.

I call upon the top Management, Vice Chancellors, Registrars, Finance officers and other officials, to remind themselves of the onerous responsibility they are charged with. Yours is a service rather than an employment. Your office is a public institution of deliverance of knowledge. The aspirations, hope and future of the students are in your hands. Without discounting your responsibility towards the promoters or top management, you need to be a students' champion. While majority of your decisions will be as per the laid down policies and guidelines of the promoters, do allow opportunities for exceptions, by extending your humane heart to the well being of the student community. In the long run, your nobility will stand out distinctly, than the profit you generated.

I call upon the faculty members, to remain updated in their field of knowledge. Every faculty member should add value to himself and the institution; he/ she is serving, through their Extension works, Paper publication, Conference participation and Research orientation. Each faculty must lead an 'influence group' that contributes to academic and administrative excellence of the institution. Simply confining oneself to academic matters will not suffice. Academic audit is individual as well as collective and is an on-going activity to assess the gaps in our aspirational efforts. The spoken reputation of the faculty members should

facilitate increased admissions in subsequent years. The faculty members must become the community ambassadors for the society, as much as they are seen as brand ambassadors of the University.

I call upon the administrative staff to ensure, highest standards of transparency. Pure administrative staff tend to limit their involvement to their narrow domain, whereas the need of the hour is multi-tasking, multi-skilling and multi-disciplinary activities. Every administrative staff must be qualified to take up teaching assignments, as per the dynamic requirement of the institution. There is so much of teaching, outside the four walls of the class-room. Administrative staff should become facilitators of co-curricular activities, industrial visit, field visits, awareness campaign, sports activities, women empowerment etc.

The students who join the State Private Universities are generally those, who have exhausted their options to secure admissions in premier Government institutions, through merit in the competitive exams/counselling. The economic disparity and social divide have marginalized these students to seek low paying jobs at a very young age. Some among them have also taken up their higher studies, with varying continuity. To such students, my advice is, not to get disheartened. You can work hard and create a niche for yourself. Many students who studied in average institutions have joined IITs, IIMs, NITs, for their post graduate studies. The huge infrastructure and abundance of learning resources available with State Private Universities will help you realise your ambitions. The institution will go extra length, to make it happen for you. Higher Educational Institutions must initiate multiple support measures, through free-ships, scholarship, educational loan, alumni endowment, crowd sourcing, fund-raising etc, to defray the cost of education, for the needy students.

I call upon the banking and other financial institutions, to enable students to take soft educational loans. For long, Indian banking sector has supported agricultural activities, infrastructure development and housing and car finance. Now it is time to focus attention towards education sector. Students, who are admitted to NAAC accredited institutions should be given soft loans, to pursue their higher education. Their subsequent academic consistency must be treated as collaterals, rather than entry-level merit.

I call upon the industries and entrepreneurs to facilitate students to 'earn when they learn', while the academic institutions must facilitate students' 'learning when they earn'. Round the year internship should be a routine, rather than an exception. The apprenticeship and internship opportunities need to be increased manifold. There should be smooth migration of students from regular courses to distance education and vice versa. Continuous credit system should facilitate academic upward mobility of students from Certificate Course to Diploma Course to Graduation Course.

I call upon the regulatory authorities, UGC, AICTE and NAAC, to understand the contextual differences of different educational institutions. Take the case of Navodya Vidyalaya Schools, which took quality education to rural areas. Today, we see many of these rural children excelling in different academic fields. Where are our Navodya Colleges to cater to rural higher education? IITs, NITs, and Government colleges have grabbed all the meritorious students through competitive exams and counselling. Where will go the non-meritorious students for their higher education, but to join the State Private Universities, in the close proximity of their villages. Like Navadaya Vidyalaya Samithi schools, there should be some Navodya Vidyalaya colleges/universities (from among the State Private Universities) which are nurtured by NAAC in rural areas where 50% reservation may be provided to rural students (on the earlier model of Regional Engineering Colleges). This will help bridge the gap between the rural and urban students on one hand and also pave the way for national integration on the other hand. Recognizing some of the quality conscious private institutions as regional Navodya Colleges and Universities, is the need of the hour.

Blaming the Victim

The quality of students in State Private colleges and Universities is a question now. Self-financing institutes depend on the admissions of the students, who have been left out in the competitive educational market. Private educational institutions are struggling to bring up these students, who score low to average marks. Due to internal marks, most of these students pass with higher grade, albeit their shallow theoretical knowledge. To maintain the

admission flow of newer intake, these self-financing institutes are liberal in the exit evaluation of students. Here is the catch22 situation. If you fail them, there will be no fresh admissions; if you pass them, they will be seen as unemployable. Perhaps this is the reason why recent studies concluded that among the engineering graduates including IITs, only 18% are eligible for employment. Blaming the students or the Private educational institutions, amount to blaming the victim, of the present education system.

Conclusion

In education sector, intake merit compensates for all other weakness. In the same vein, I dare say intake-mediocrity cannot be a reason for denying the higher education to the masses. I call upon the accreditation agencies for pragmatic approach. In your enthusiasm for merit and quality; do not ignore the baby steps, these institutions are taking towards excellence. Do not set the IIT standards. I call upon the political parties and leadership to redefine your priorities. At a time, when private educational institutions are trying to bring up the rural students as employees, entrepreneurs, social change-agents etc., please support these private institutions, for their distinctiveness. Approach them apolitically. Do not brand them as supporters of ruling party and opposite parties, but nurture them as rural catalysts. State Private Universities are victims of political changes. I call upon the religious institutions, to go support educational initiatives. You have the support and resources of the masses. Do utilize your resources and support-base, to create chain of educational institutions, for rural students, locally, regionally and globally. Do not thrive on the provisions of minority institutions. Let your institutions become the national and global hub of religious harmony. Now is the time for the grand leap in the education sector. Now is the time for multi-stakeholders' approach. Now is the time for innovation in education. I call upon individuals, Senior citizens and pensioners, to harness their individual social responsibility with institutional social responsibility of NGOs, Trusts and Foundations, the priority being Education, Education, and Education.

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Emerging Models for University Governance

S Vaidhyasubramaniam*

Global experience in university governance has experienced changes in the locus of power across different stakeholders and such changes have had a significant effect based on the needs of the relevant time period. Such dynamism in governance models is essential for the development, action, monitoring and review of universities' learning, teaching, research and social-engagement strategies. The post-independent evolution of Indian higher education is no different -beginning with controlled growth followed by accelerated growth through private participation, the system now requires a calibrated model providing space for policy, promoter, participant & market levers to operate in unison depending on the institutional character. Such a governance mechanism cannot come through a single formula prescribing a single proportionate mix of all the four levers and apply it across all types of institutions. There needs to be a prescriptive mix for different types of institutions each of them differing in the mix-formula.

The concept of flexible and modular autonomy is an attempt to suggest a prescriptive mix based on the institutional character. Institutions need to be characterised based on the progress & achievements and autonomy gradation must be applied based on the prescriptive mix. Indian higher education, just like any global education evolution, has been influenced by the 3Ms – massification, marketization and managerialism. The extent of influence is not uniform as the type of institutions are diverse. However, at a time when unit of resource is falling and competitive and with pressure on public funds, social sector like education needs a robust & rigorous system that can assure quality at a time when universities are expected to perform far more with far less funds.

Global experience has provided lessons from different models-Oxbridge (Oxford-Cambridge), Scottish, Humboldtian, American, UK's Higher Education Corporation (HEC), National University Corporation Act of Japan. etc. Global university governance models and reports have suggested different approaches to this concept of university governance. Beginning with Jarratt Report (1985) the Croham Report (1987), the McNay model (1995), the Lambert Report (2003), Shattock study (2013), etc. all of them have comprehensively dealt with almost all types of models. Despite being one of the largest providers of higher education, India is unable to suit to any of the models nor is it is able to design a characteristic model for itself in line with the global thought process. China has initiated an attempt in that direction. The present concept of graded autonomy is a welcome move to suit a diverse Indian higher education ecosystem.

The challenge in the Indian higher education ecosystem originates from the diversity across all layers – institutions, learners, teachers, recruiters, etc. To address this complex diversity, a global guiding model that touches on each of these in fair measure can be the starting point for a customised Indian solution. Dopson & McNay (1996) provide a university framework that identifies four key organisational cultures with one or two dominating and interplaying with the others at the background. Table-1 captures these four cultures.

Table-1 Four Organisational Cultures

Collegial	Bureaucratic	Entrepreneurial	Corporate
cult of individual	rules and regulations	awareness of the market	directorate with power
management by consensus	management by committees	management by marketing	management by meetings
person culture	role culture	task culture	power culture

While the bureaucratic culture forms the basic undercurrent that puts in place certain non-negotiable and mandatory principles of higher education, the operational model for autonomy must be chosen from the remaining three based on the type of universities and without any option, the bureaucratic can be retained for those that are found wanting in many areas of academic & research areas. The bureaucratic model can lay down the broad academic rules and regulations which are reasonable and without stringent restrictions, and allow institutions to follow the collegial or entrepreneurial or corporate model to operationalize the day to day running & strategize the short, medium & long-term planning. Institutions that are not matured to fit into these 3 may directly fall under the bureaucratic model. The prescriptive mix of Bureaucratic (B)+Corporate

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(Corp)+Entrepreneurial (E)+ Collegial (Col) depends on the type and character of the university/instituion. Flexible & modular autonomy shall create a multi-tiered institutions based on this prescriptive mix and provide them the autonomy based on the mix.

Tier 1 – Prescriptive Mix = B (10%) + Coll/Corp (40%) + E (50%)

Tier 2 – Prescriptive Mix = B (25%) + Coll/Corp (25%) + E (50%)

Tier 3 - Prescriptive Mix = B (50%) + Coll/Corp (25%) + E (25%)

Tier 4 - Prescriptive Mix = B (75%) + E (25%)

The selection mechanism to identify institutions under each Tier can be broad based and meet the following 3 criteria:

1. Universities/institutions consistently accredited by NAAC/NBA (all accredited programmes) with A Grade for two consecutive cycles
2. Universities/institutions that have figured in any of the recently announced Times Higher Education (Global or Asian) or QS (Global or Asian or BRICS) or AWRU
3. Universities/institutions placed in the Top 100 in University or Overall category of NIRF

Tier 1 – Institutions meeting all the above 3

Tier 2 – Institutions meeting 2 out of 3

Tier 3 – Institutions meeting 1 out of 3

Tier 4 - Remaining institutions

The proposed governance mechanism may be collective for the purpose of classifying institutions under different Tiers, the operational rules/guidelines may be notified separately for each category based on a multi-stakeholder consultative approach. This shall add clarity to the entire process and the classification may be tenure based & subject to review & reclassification once in 3 or 5 years to ensure competitive dynamics and strengthen the quality framework of higher education.

University governance should move away from regulatory strangulation to respiratory oxygenation. ❑

Research and Innovation Pertaining to Universities

Surender Singh Yadav*

Universities are known to impart Higher Education and the desired knowledge in various disciplines. It is a space that is designated to nurture knowledge, research and education and freedom to the children of the World to take from and give unto the reservoir of knowledge and research.

The functions of a university is to impart Quality Teaching, undertake need–based Research–Need-Based, promote developmental support, produce human resource for the society, continues improve/ update the curricula & syllabi to maintain relevance. There should be room for reassessment and reform which must be dynamic and respond to social change.

If we start at the bottom, it is suggested that to improve the standards of Higher Education, we must begin from Basic Education in the schools. Good students in the schools always try to improve their grades by obtaining Higher Education. It also boosts their Psychology in keeping the standards high.

Higher Education exists for humanism, tolerance, reason, adventure of ideas and search for Truth. Universities are workshops of *'Vidya'*- (Upanishad)- *Para-Vidya* Transcends mind into realm of wisdom and builds character. *Apara-Vidya*-Enhances skills developing technology and innovation provides a career to meet challenges of life. It is a career of an integrated personality with strong-'soul' and a tough-'self'.

There should be stress on Social Service as integral part of general education, stress on moral education and sense of responsibility. Vocationalisation of Secondary Education is essential. Open-mindedness, tolerance and objectivity should raise the level of dialogue among students. We need to transform the institutions from Learning System to Knowledge System.

Research and Innovation

Twentieth Century will be remembered in the history of mankind for the special events occurred and the progress proceeded at a pace unprecedented in the centuries of human existence. Advances in the technology, discovery of newer procedures have lead to spectacular progress. As a consequence of such triumph of technology, procedures are being practiced. However, technology is human created and market directed.

Research is looking beyond the visibles and is fundamental to governance. Meaningful research is possible only after Quality Education and Need-Based Training alongwith its effectiveness for the good of our society. Use the head, feet will follow.

It is true that research requires team work but somewhere, there has to be someone who does not listen to the wisdom of the prevailing world. I had been keen to learn about the waves of discovery. Curiosity drove me to dig out the historical information. These ideas have been vigorously debated on many but none caught on. This has been because many colleagues did not want the facts to be revealed.

Research can be conducted as 'Original' or 'improving the existing techniques' to the advantage of our people. Looking at the Indian Scenario, attempt should be made to improve the existing procedures to satisfy the needs of our people. We should accept the technology which is useful to the masses. At one stage people will laugh at your work, at the next they will oppose it, than they will remain silent and finally they will accept and recognize it. A bright star has its own energy but to light a lamp in dark is much more powerful and meaningful.

Performance always leads to success. Let there be innovation in harmony to create innovative ideas / technology for a diverse base. However, we must be committed to India's needs first. In our journey from 'Basic to Advanced', let us opt and practice those procedures that are beneficial to our people.

Traditionally we are used to follow the methodology originated from the West or Far-East. However, I firmly believe that the time has come when we must compete with the western technology and advocate procedures that are suited to our people. I personally feel that we are quite capable and have attained that status.

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As professionals, we must care for the significance of our standing in the Society. By observing a Non-Commercial outlook we can also maintain the respect and status enjoyed by our fore-runners in the profession.

Training of a Scientist / Researcher depends on where and how *'Vidya'* has been obtained. Training should be 'Need-Based'. Some of the good Yester-teaching methods have been deleted from the Text-Books. Moreover, there are many areas that lack our attention and if they continue to be neglected, these may get lost.

The Roof-Top Message is inclination and persistence towards Academics & Research, hard-work and self-confidence and spare time for Think-Tank (See what others can't). There may be initial resistance. We may have to take some risk. Finances always follow.

The importance of earning money has always existed but now it is gradually increasing. Goddess Lakshmi (Goddess of Wealth) seems to have surpassed Goddess Saraswati (Goddess of Learning).

Lack of accountability/feedback has been the major drawback. Funds are alloted, though anaemic, misappropriation of funds (Corruption), lack of adequate utilization and feedback is often not provided, Co-ordination between authorities is essential. Cold shoulder towards projects is detrimental, transparency must be the rule. The left hand must know what the right is doing.

If science has to progress, publication is a must. Publishing the results of the project is an integral part of a scientist's professional life. No doubt, getting an article published in a 'Peer-reviewed' Journal within its format is not easy. A post-doctoral dissertation is different than a scientific paper for the editor and the audience. A 'News-paper' publication is different. Poor Research can have a profound ill-effect on the Society.

What people fail to realise is that all achievements are eventually surpassed, Records are broken, Reputations fade, Tributes are forgotten. Destiny Prevails. We must be mindful of happenings elsewhere also but should be careful and not to follow the globe blindly. Revisit the old themes on the new canvases. We have a rich heritage. Role of a role-model counts. Relive History and Experience it. Headlines always do not reveal the truth. Technique may change but not the good qualities of a Human /Researcher.

Brains cannot be bought but must be found. Find finances for these research-talented brains. They need support and encouragement for need-based and result-oriented research interoception, commitment and dedication is a must.

We have been a Nation of endless discoveries and wish to continue this trend. The Nature of the original research should be such, which is useful to the common man in our Country, even if it has to compete with the western world. We gave 'Zero' to the World. Let us lead once again. We must prove ourselves as 'trendsetters' in bringing out the need-based procedures for a common man. As a matter of fact the World has been looking forward to the same. We should be trying to discover simple and cost-effective techniques for the complicated and multifacetal problems. Some of our procedures have been acknowledged as a benchmark in the armament area. We have to move ahead to reach our people, no matter how we travel? We need 'Thought-Leaders' who can be on the forefront of the 'Need-Based' Innovation. Indian wisdom must prevail.

A Researcher must work on the subject of his choice. However, it should be need-based for our people and the society. He has to decide honestly and firmly and will certainly find a way out. On the way one may find drawbacks and failures. Remember that a given stage in negative piece of information may prove to be an important observation to the concerned group. It has to be recognized and analysed. Finally success will follow.

Pre-requists of Research are long and deep commitment in the area and a thorough knowledge obtainable through reading and listening. It is essential to respect thoughts of others in the field and growing enthusiasm for transmission to the youngsters (Legacy).

Do consider the Past. Always take the positives from the Past to look back in all our presents. Preserve the past for future-generations. How does one hold on to yesterday? If it helps, turn the clock back. It does shape our imagination and culture. Let us go through the old leaves and then turn to the new pages to be the leaders in the world. A bright star has got its own energy but to light a lamp in the dark is more meaningful and powerful.

Premium Government Institutions and Universities with their history and legacy are not really better–off. The students line up simply because they have no other options if they wish to study at an Institution with the perceived prestige of legacy. It is often said that there is hardly any worthwhile research from our institutions. If we talk about the institutions carrying out good work / research, few names will emerge.

A true teacher is not an ordinary person. He is careful to give students important messages like Roots and Wings. Stand firmly and rise too. The status of a university may be judged by wise teachers and also by incoming intelligent and creative students. The President of Harvard University was once asked, "How Harvard remained a treasure house of knowledge." He replied, "Because of the freshman class brings so much knowledge and the graduating class takes away so little."

Funding has been identified as a constraint. It has also been observed that the grant of extra funds have not made a visible/ palpable difference. It is also true that the Indian Universities have to improve to make it to the list of important universities in the World. The cornerstones of the higher education in the Indian context, may be to persue linkage with other good universities, student mobility, collaborative research including joint projects. It is also necessary that the rules and regulations must be made simple.

In the recent years we have had examples of the distinguished scholars resigning in disgust, protesting against the interference of the controlling authority and vice-a-versa.

Such a proof is more than a wake-up call for regulators in high education facing urgent challenges. While no one doubts their intensions or credibility, their approach is simply not working. We need reforms and these reforms need to come in an honest fashion.

The basic needs are non-negotiable fundamental rights. Even ordinary citizens have a right to live with dignity. What is most disheartening is that these questions always remain unanswered and are consistently crying for reforms.

The Central Statistics Organization (CSO) is an Honourable Institution. However, the problem arises when certain facts remain elusive. There are many contradictions with no definite answer. One should be pro-active than re-active. In case the needs are met with, we can avoid sticks/ *'Dharnas'* and tremendous loss of public property.

The future of research is a strange thought with uncertainty. We all try to imagine what comes next? We have to look beyond the visible. It is an area of uncertainty beyond which the observer cannot see.

In order to be successful, one should Dream but with eyes open. Collect your dreams right now, carefully analyse them, exclude the impossible. Intellect without perception of proper means can be self-defeating. Now you must take-up the torch. You must carry forward the discoveries. Make new discoveries and make sure that Man survives on Earth. Assure the safety of the future. Leave behind a meaningful and loving legacy.

The fact of life is that the curtain rises, we perform and the curtain falls. It all depends, how we perform? The burning question is-where are we now? Where do we need to go? How do we get there?

Do remember, Man is Mortal and Life is short. Knowledge is the wing where-with we fly to heaven.

We can now decide as what should be on our Agenda? ❑

Promoting Quality Research in Postgraduate Medical Sciences: The Tamil Nadu Dr. MGR Medical University's Initiatives in Research Methodology Training

G Srinivas *, R Maanasa, S Valarmathi*** and Sudha Seshayyan******

Teaching, patient care and research are the trio of medical education. Amongst these three integral components, the performance of biomedical research ranks the poorest, although, research experience is considered to be invaluable for evidence-based healthcare practice as it imparts skills such as literature search, collecting and analysing data and critical appraisal of evolving evidence-based healthcare. Training for the development of research skills and gaining research experience early during professional career has been associated with continued scholarly academic work which may in turn help informed decision making during post-graduate resident's career. However, the research output from our medical campuses is not remarkable. Most of the postgraduate research remains unpublished (30 per cent) and there is considerable criticism about its quality. Thus, our University took up the initiative to train postgraduate students in medical, surgical and dental specialities on research methodologies and biostatistics as an initial step towards promoting research ideas. Regular workshops on the basis of research, organising literature, study designs, manuscript writing, and biostatistics were conducted and effectiveness assessed on improvement of knowledge of research methods and biostatistics. The post-workshop evaluation indicated that the workshop proves to be effective in enhancing the knowledge which would in turn significantly increase the quality of research output during the postgraduate dissertation.

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Teaching, patient care and research are the trio of medical education. These three components are independent but complementary to each other at both levels, i.e., the level of acquisition and the level of delivery. Health care graduates need to focus on these three components equally. Amongst these three integral components of medical education, the performance of medical research ranks the poorest (Crosby et al., 2000).

Most postgraduates do not take thesis work seriously. This is partly due to lack of knowledge for both mentors as well as the mentees on methodology or how to do research. Lack of motivation is a universal problem. To improve the quality of postgraduate research, all the postgraduate courses may have a training in 'Epidemiology and Research Methods' and only after completing this course, the registered postgraduates may be allowed to submit their research question with pre-proposal.

Research in biomedical field plays a vital part in learning, development and innovation on a focussed discipline and also help in its advancement. In today's biomedical sciences, the understanding of the quality of any of these disciplines is solely based on peer reviewed publications that constitute evidence-based medicine. This emphasizes the importance of research in their respective field which helps to evolve and pave way not only for enhancing post-graduate education but also for partaking in innovative discoveries. Thus, the need for augmenting the knowledge and skills probes the need for cutting-edge research among all medical, surgical and dental professionals.

Medical education and biomedical research are inseparable components of healthcare and this research holds paramount importance in providing knowledge with respect to:

1) Health status
2) Diseases relevant to our ethnic groups
3) Changing patterns in disease prevalence
4) Treatment strategies that are to be adopted and
5) Impact of various programs relevant to healthcare that are initiated by the Government

Over the past three decades, the importance of research in all fields of healthcare are being increasingly recognised ranging from basic sciences, translational and clinical research along with epidemiological studies. The dichotomies such as experimental and observational research and qualitative and quantitative research are mostly methodology related. Furthermore, operational research, implementation research, inter-disciplinary research and translational research primarily describe the impact of their respective disciplines.

Research experience is invaluable to evidence-based healthcare practice as it imparts skills such as literature search, collecting, and analysing data and critical appraisal of evidence (Anil Potti et al., 2003). Training for the development of research skills and gaining research experience early during professional career has been associated with continued scholarly academic work which may inturn help informed decision making during post-graduate resident's career (Aslam, Shakir, and Qayyum, 2005). The health care educational systems in India do not incorporate research methodology as a part of their curriculum. It is quite well known that research programs in medical colleges get the lowest priority (Giri, Bangal, and Phalke, 2014). However, in the recent times, certain institutions have come forward to support towards strengthening healthcare research in the country in all fundamental areas such as Pharmacology, Biochemistry, Physiology, Microbiology, Molecular sciences and Cell sciences.

All universities granting postgraduate medical degree as well as the Medical Council of India consider research or thesis work as an obligatory requirement, but do not insist on this requirement for postgraduate diploma courses. The fundamental principles of postgraduate medical education have been described in the World Federation of Medical Education and this document clearly mentions research competency as anessential requirement among all post-graduates (WFME Office, University of Copenhagen, 2015). There is an implicit expectation of their ability for appraisal and utilization of new scientific knowledge to improve clinical practice and scholarly contribution towards research and development in the chosen field of healthcare. This is expressed as the need for research oriented biomedical education in India.

In the immediate post-independence era, the role of medical postgraduates as researchers was not adequately emphasized. The Srivastava Committee (1975) popularly known as medical education committee and ICMR- ICSR committee on health status have made passing references to the importance of research in medical education. The XII five year plan and its document on social sector stresses on the importance of encouraging young researchers and mentions about introducing research scholarships at the post graduate level (Pillai et al., 2015).

The national health policy of the Government of India also stresses the importance of research over the years. They recognize the key role that healthcare research playsa vital role in the development of the nation's overall health. In knowledge-based sector such ashealthcare, where advances are rapidly happening, it is important to increase investment in healthcare research. The policy envisages strengthening the publicly funded healthcare research institutes under the Department of Health Research, the apex public health institutions under the Department of Health & Family Welfare, as well as those in the Government and private medical colleges (Ministry of Health and Family Welfare, 2017).

State of Medical Colleges in Promoting Research

There is general agreement that voluminous clinical material is available in the medical college settings and university archives. Although the doctors are well known for their clinical expertise, the research output from our medical campuses is not remarkable. Most of the postgraduate research remains unpublished (30 per cent) and there is considerable criticism about its quality. The Lancet reported that over 332 of 579 (57 per cent) medical colleges didn't publish a single research paper between 2005 and 2014. There is no denial of the fact that our medical fraternity is not conducting enough quality research as expected from them (Sharma DC et al., 2016).

The gaps in knowledge that is related to research methodologies and poor quality of research training at post-graduate level was mentioned in one of the editorials of clinical epidemiology and global health. 'Publish or Perish' attitude was critically looked by various stalwarts in the field of research. In spite of various initiatives at the institutional and national levels, primary preference to commitment towards clinical endeavours overrides scholarly research activities (Paul Grant et al., 2014).

For a medical faculty, most of the time is spent on teaching and administrative activities and research

gets little priority in the day-to-day routine. Hence only a few medical faculty members are able to pursue research diligently. However, postgraduate training lays a scientific, rational and ethical foundation for the futuristic practice of medicine.

Initiatives Taken by Tamil Nadu Dr. MGR Medical University

Most of the medical and dental colleges and their universities have strengthened infrastructure and taken initiatives to foster postgraduate research. They have included plans for training in research methodology, establishing institutional research and ethics committees, promoting students and teachers towards writing research projects and even providing funding for implementing research and presenting the same at conferences and research meetings (Pillai et al., 2015).

The Tamil Nadu Dr. MGR Medical University took up the initiative to train postgraduate medical and dental students on research methodologies and biostatistics as an initial step towards promoting ideas for research among them. Regular workshops on basics of research, organising literature, study designs, manuscript writing, and biostatistics were designed to be conducted on monthly basis for a year to evaluate its efficacy on promoting research.

Objective

To determine the effectiveness of periodic research methodologies and biostatistics workshops on promoting ideas for research among postgraduate medical students.

Materials and Methods

A series of regular bi-monthly workshops were scheduled in the university campus for postgraduate students from all medical colleges in the State of Tamil Nadu. The workshop focuses on research methodology, biostatistics, literature review and scientific writing for a total period of 3 days. A structured questionnaire involving 5 domains with a total of 20questions were used before and after the workshop session to evaluate their knowledge on research methodology and biostatistics. The domains included –

General Research

- Purpose of clearly formulated research objective.
- Research question in research protocol.
- Focus of good research proposal.
- Reliability of a study
- Depth of research.

Review and Organising of literature

- Citation meaning.
- Citation of reviewed literature.
- Organising literature – Zotero.

Epidemiology and study designs

- Study design type with example.
- Sensitivity of a sample.
- Prevalence of disease.
- Variable in experimental study.

Manuscript writing

- Impact rating of journal.
- Purpose of conclusion in a report.

Biostatistics

- Variability of data.
- Sampling.
- Testing of Hypothesis.
- Statistical test.
- Standard error.

During the period, i.e., from 1st of June, 2019 to 31st of January 2020, 15 workshops were conducted and a total of 2062 participants attended these sessions. These 2062 participant students both clinical and non-clinical, pursuing their postgraduate medical and dental education from various institutions under the affiliation of The Tamil Nadu Dr MGR Medical University Constitute the sample of the study.

Using questionnaire, the pre-test data were collected before the workshop and the post-test data were collected after 3 days of the workshop sessions and the results were classified under five domains.

The mean values of pre and post-test of all domains were 9.38 and 10.44 respectively and these differences were significant. In Domain 1–General Research, there was a difference in all sub-domains between pre and post-test proportion, of which Research objective, Research question and Research protocol showed more significant ($P<0.05$) difference of proportion, when assessed using z test for proportion (Table 1).

Result and Findings

Domain–Wise Result

Table 1: Domain 1 – General Research Including Three Sub-Domains

DOMAIN 1 General Research		PRE – TEST (n=2062)	POST TEST (n=1514)	P-value (<0.05)
		Frequency (per cent)	Frequency (per cent)	
Research Objective	Purpose of Clearly formulated research objective	560 (27.2)	738 (48.7)	<0.01
	Research question in research protocol	693 (33.6)	1042 (68.8)	<0.01
	Depth of research	1589 (77.1)	1207 (79.7)	>0.05
Research Protocol	Focus of good research proposal	1028 (49.9)	810 (53.5)	<0.05
Errors	Reliability of study	1027 (49.8)	750 (49.5)	>0.05

Table 2:Domain 2 – Review and Organising of Literature

DOMAIN 2 Review and Organising of Literature		PRE-TEST (n=2062)	POST-TEST (n=1514)	P-value (<0.05)
		Frequency (per cent)	Frequency (per cent)	
Review	Citation of reviewed literature	1399 (67.8)	1107 (73.1)	<0.01
	Citation Relevance	859 (41.7)	694 (45.8)	<0.05
Organising	Use of Reference manager	924 (44.8)	1205 (79.6)	<0.01

In Domain 2 –Review and Organising of literature, where all sub-domains showed statistically significant difference between pre and post proportions of which question discussing the goal of reference manager, showed the highest (Table 2).

Table 3:Domain 3 – Epidemiology and Study Design Including Five Sub-Domains

DOMAIN 3 Epidemiology and Study design		PRE-TEST (n=2062)	POST-TEST (n=1514)	P-value (<0.05)
		Frequency (per cent)	Frequency (per cent)	
Epidemiology	Sensitivity of a sample	903 (43.8)	1227 (81.04)	<0.01
	Prevalence of disease	821 (39.8)	967 (63.7)	<0.01
Study design	Clinical design	583 (28.3)	654 (43.2)	<0.01
	Other Study design type	1019 (49.4)	856 (56.5)	<0.01
	Variable in experimental study	923 (44.8)	700 (46.2)	>0.05

In Domain 3–Epidemiology and Study design, significant difference in proportions was found in all the sub domains except one discussing variability in a study, which is a part of study design (Table 3).

Table 4: Domain 4 – Manuscript Writing Including two Sub-Domains

DOMAIN 4 Manuscript writing	PRE-TEST (n=2062)	POST-TEST (n=1514)	P-value (<0.05)
	Frequency (per cent)	Frequency (per cent)	
Impact rating of a journal	1008 (48.9)	824 (54.4)	<0.01
Purpose of conclusion	1543 (74.8)	1268 (83.7)	<0.01

In Domain 4, manuscript writing was discussed and both sub-domains showed statistically significant difference (Table 4).

Table 5: Domain 5 – Biostatistics Including Five Sub-Domains

DOMAIN 5 Biostatistics	PRE-TEST (n=2062)	POST-TEST (n=1514)	P-value (<0.05)
	Frequency (per cent)	Frequency (per cent)	
Variability of data	1734 (84.1)	1375 (90.8)	<0.01
Sampling	807 (39.1)	994 (65.6)	<0.01
Test of Hypothesis	1297 (62.9)	1007 (66.5)	<0.05
Statistical test	607 (29.4)	991 (65.4)	<0.01
Standard error	360 (17.4)	308 (20.3)	<0.05

In Domain 5, we discussed biostatistics under 5 sub-domains and there was significant difference in all subgroups; however, Q16 – statistical test showed greatest difference.

We evaluated the knowledge of the students in research methodology which suggested that there is a significant difference in all domains before and after the workshop sessions. Every domain consisted a part of research methodology and last domain involved biostatistics and students expressed significant mean difference in every domain and sub-domain.

In the first domain – General Research, Research Objective and Protocol were discussed during the

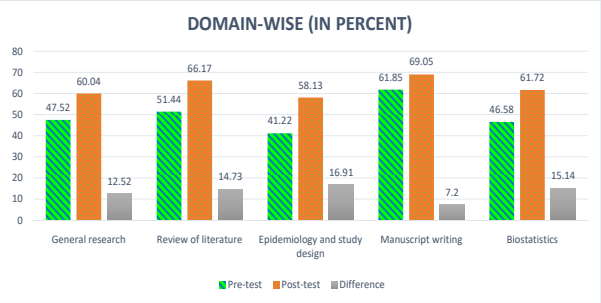
sessions and during the evaluations, students expressed significant improvement in the knowledge on focus of good research proposal in their post workshop test. In the second domain – Literature review: Organising and reviewing of literature were discussed during the workshop session. In both sub-domains, students answered better in their post workshop evaluation and demonstrated significant difference in their knowledge. In the third domain – Epidemiology and study design: both sub-domains were found to be significantly different during their post workshop evaluation relative to the pre workshop test. In the fourth domain – Manuscript writing: sessions were on journal impact, writing protocol and other related tasks and in this evaluation, significant difference was found during their post-workshop test. In the fifth domain discussing biostatistics, sessions on basic statistics, testing of hypothesis, sampling procedure, statistical tests and evaluation of standard error were conducted, and the evaluation was based on these sub-domains. Every sub-domain showed significant improvement in the knowledge of the students after the respective sessions and among them, question related to statistical test showed major difference in the gain of knowledge.

Thereby, among all the domains, Domain 3 showed the highest difference of 16.91 per cent between pre and post workshop evaluation which was followed by Domain 5 with 15.14 per cent difference and the Domain 2 ranked third with 14.73 per cent difference (Figure 1).

Discussion

As we compare the quality of biomedical research within India relative to the biomedical research around the world, we find that we lack in conducting quality research. There could be various reasons for lack of adequacy research such as lack of funding, workforce, resources and lack of or reduced research orientation in medical education as research methodology is not incorporated in medical education in India (Jayakrishnan et al., 2012). Through a retrospective statistical analysis of the past twenty years we would find that China has raised its proportion of published and indexed medical articles from 0.6 per cent by over 1100 per cent, whereas India lacks far behind and is shown to have a marginal rise, i.e., from 0.4 per cent to 1.5 per cent of published articles that are indexed in PubMed (Shrivastava M et al., 2018).

Figure 1: Domain-wise Comparison of Pre and Post Workshop Evaluation



The research methodology workshops are common ventures of medical colleges and hospitals in recent times. However, the workshop conducted by our university ranks differently relative to the workshops that are conducted in other institutions because our workshop is conducted within the university premises, where participants were invited from all parts of the state and were introduced to the research lectures delivered by eminent faculty who were invited from esteemed institutions, thereby making this study unique.

Various studies have concluded an increase in the level of knowledge among the medical students after attending these research methodology workshops or after attending a similar short-term research training.

The workshop on research methodology and biostatistics involving various sessions under five major domains of basic research techniques and biostatistics were found to improve the knowledge of postgraduate students. The session on group discussion on the topics are found to be helping students in understanding the respective research topics and their qualitative approach.

The postgraduate students were thus found to have poor knowledge on research methodology and biostatistics in their preworkshop evaluation which seemed to improve after the workshop sessions. The students are also given practical sessions where they are asked to develop any research protocol based on their speciality fields and complete these proposals with their statistical knowledge. This hands-on approach was also found to help the students understand their respective subject areas profoundly and promote their interest towards innovative research in the various fields of medicine, surgery and dentistry.

Therefore, the sessions in the workshop proves to be effective in teaching the basics of research and promoting research ideas among our postgraduate students.

Conclusion

Our study revealed that biomedical professionals in the field of healthcare maintain a good interest in research methodology and these workshops can play a significant role in imparting enthusiasm and interest in research to postgraduate students.

These periodic workshops on research methodology and biostatistics proves to be effective in promoting research priorities of relevance and principles of selecting an appropriate research design and planning the right analysis. In turn, these postgraduates become the future medical teachers who will enable conduct of quality research. Thus our experience of training the postgraduates of our affiliated institutions is positive and contribute in developing evidence-based medical practices and improving the quality of healthcare.

Note

The authors have no competing interests to declare.

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Is Education in Crisis: Teaching-learning Process in Pandemic Times

Anoop Swarup*

I touch the future. I teach, as I quote these ominous words of Christa McAuliffe, perhaps no one ever had thought of the looming disaster of the Covid-19 pandemic! Yes, universities have faced major challenges, such as in the wake of the technotronic age and the onset of the MOOC courses and have undergone major transformations, in their functions, nature and scope but none that will bring us to the ultimate challenge of new normal. Let us take a brief is however little in terms of their governance structures as also the teaching learning process and the pedagogy, to cope with emerging times both in the nature and value of knowledge dissemination, fostering innovation, creativity and imagination in relation to society and the economy, (Robertson, 2010). In a 2009 UNESCO Report (Altback, et al., 2009:xii) it was highlighted that higher education is indeed a major engine for social change and economic development with university, government-industry linkages (the' triple-helix'). There are issues intimately tied to the regulatory framework, governance matrix of universities in a federal polity and more than ever before increasing monitoring rather than facilitation and lack of autonomy be it public or private.

Bates however (2015, 15) argued that there is a real danger in tying the university too closely to immediate industry needs and labour market needs. From India's perspective as tuition and fee increase and public funding for universities gets tied to the ratings driven more by indicators such as placements and employability quotients rather than any infrastructure or quality imperatives students do tend to be allured by education abroad. Indeed many students are already judging higher education as a poor economic investment given their chance of employment after graduation. Well it is often quoted that *the mediocre teacher tells, the good teacher explains, the superior teacher demonstrates, the great teacher inspires.*

Let me cite from my own experience of Australia, as a student at Swinburne and much later at Monash University where I taught, on the evolving teaching and learning process. The question being asked now in light of the pandemic "whether a university education'' is at all a good investment for working life and citizenship in the new century or, more precisely, *whether it is good value for money*, (Barber, et al., 2013:1). Ernst & Young (2012:4) in a report argue that the dominant university model in Australia, where I once learned and taught, where a broad-based teaching and research institution, supported by a large asset base and a large, predominantly in-house back office — is proving to be unviable. This remains equally valid in India and elsewhere. Thus, a key challenge for higher education elsewhere as much as in our country, in these pandemic times, is the force of remote and online learning, technological change, intense competition and constrained resourcing 'to have the optimal mix of online and on-campus teaching as was argued by Gallagher & Garrett, 2013:9. As Plutarch, the Greek philosopher is oft quoted, *the mind is not a vessel to be filled but a fire to be kindled* and to kindle that fire, we at times may need even brick and mortar teaching and learning.

Let me briefly go to the root of the issue of the ''Teaching and Learning Process'' in our country and elsewhere in the world, where we follow the basic paradigm in higher education set out in Bloom's Taxonomy as modified to date. Indeed it is a case in point that most Universities here have not moved beyond Benjamin Bloom and his collaborators who laid emphasis on just six major categories: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. Let me state that the New Education Policy does try and address the issues of critical thinking and imagination but a lot more needs to be done for value education, character building and man making so critical to a diverse country as ours. Let me remind what Albert Einstein had to say, *it is the supreme art of the teacher to awaken joy in creative expression and knowledge.*

Following on Bates (2015:327), who questions the considerations regarding course design to include issues as to what kind of learners are likely to take this course? What are their needs? Which mode(s) of delivery will be most appropriate? What is the preferred method(s) of teaching? What is the main content (facts,

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theory, data, and processes) to be covered on this course? How to assess understanding of this content? What are the main skills that learners will need to develop for the course? What ways in which they can develop and practice these skills? How can technology help with the presentation of contents? What resources are required for this course in terms of: professional help from instructional designers and media producers; possible sources of funding for release time and media production; good quality open educational resources?

Peter Drucker mentions that *teaching is the only major occupation of man for which we have not yet developed tools that make an average person capable of competence and performance. In teaching we rely on the 'naturals', the ones who somehow know how to teach*. Indeed yes we learn as, in our country as abroad these questions become paramount in a post pandemic world. Let us have no doubt that the online and virtual or digital world takes precedence on the issue of mode of delivery. The commonly available learning technologies have been: learning management systems, *such as Blackboard, Moodle, Desire2Learn, Canvas;* synchronous technologies, *such as Blackboard Collaborate, Adobe Connect, and Big Blue Button*; lecture recording technologies, *such as podcasts and lecture capture* using tablets and mobile devices, such as iPads, mobile phones, and apps; MOOCs and their many variants (SPOCs, TOOCs, etc.); other social media, *such as blogging software, wikis, Google Hangout, Google Docs, and Twitter*; learner-generated tools, *such as e-portfolios*. Critical new advances in educational technology and the teaching learning process for higher education include, Consumer technologies, *such as 3D Video Drones, Electronic Publishing Mobile Apps, Quantified Self Tablet Computing, Telepresence;* Wearable Technology and Internet Technologies, such as *Cloud Computing The Internet of Things Real-Time Translation Semantic Applications Single Sign-On Syndication Tools* Social Media Technologies, Collaborative Environments, Collective Intelligence, Crowd funding, Crowd sourcing, Digital Identity Social Networks, Tacit Intelligence; Digital Strategies, such as *Bring Your Own Device (BYOD), Flipped Classroom, Games and Gamification,* using Location Intelligence Makerspaces, Preservation/Conservation Technologies, Learning Technologies, such as *Badges/Microcredit Learning Analytics, Massive Open Online Courses*, using Mobile Learning, Online Learning, Open Content, Open Licensing, Virtual and Remote Laboratories; Visualization Technologies, such as *3D Printing/Rapid Prototyping, Augmented Reality, Information Visualization,* using Visual Data Analysis, Volumetric and Holographic Displays; and Enabling Technologies, such as *Affective Computing, Cellular Networks, Electro vibration, Flexible Displays, Geolocation Location-Based Services, Machine Learning, Mesh Networks, Mobile Broadband,* using Natural User Interfaces, Near Field Communication, Next-Generation Batteries, Open Hardware, Speech-to-Speech Translation, Statistical Machine, Translation Virtual Assistants and Wireless Power. Here I would reiterate that here or anywhere in the world, he *who dares to teach must never cease to learn* and not to forget, what Mahatma Gandhi once said, *live as if you were to die tomorrow. Learn as if you were to live forever*. So let us learn to unlearn and re learn these new normal techniques.

Yes, post COVID-19 teaching and learning process and pedagogies will be disruptive and technology will bring about a decisive change in higher education through an online and virtual learning to start with followed by blended learning and internships. My favorite poet, Robert Frost, once quipped, *I am not a teacher, but an awakener.*

The teachers and the universities have to be adaptive and flexible to provide real-time feedback and support to the students in smaller groups and peer-to-peer learning. The integration of pedagogy, technology and virtual reality of the new normal will define the emerging model of blended teaching and active learning with particular attention being paid to remote mobility, flexibility and multiple device and technology fusion and usage. To conclude, let me quote, Mustafa Kemal Atatürk, and as teachers for us to remember, that *a good teacher is like a candle – it consumes itself to light the way for others.* And the challenge before us, in the new normal has to be taken by the horns for the New Positive.

Learner-centered education through appropriate methodologies facilitates effective learning as teaching-learning modalities of the higher education institution are considered to be relevant for the learner group. Although it is true that diversity of learners in respect of their background, abilities and other personal attributes will influence the pace and extent of learning, learner-centered education calls for appropriate methodologies that can be used by teachers to provide a variety of learning experiences, including individual and collaborative learning.

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Discovering the Personal Legend in Teaching: Transformation of Higher Education Teachers in India

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Technology and Education

Teaching and education are considered the most revered occupations on earth. Since ages, we believe that the making of civilization isn't just credited to the technological advancements but teachers have a significant role in it. The teachers of yesterday are the makers of today and the teachers of today are certainly making our tomorrow. The question arises: Are they capable of securing the future in the advent of conspicuous dangers to the civilized world? The sense of loss among masses has been there because we do see a lack of the demanded skills for employment. There has been a well-visible lack of human values and some fundamental humane virtues. The global standards of education are not tough to match but we have not been implying the known. We may need to seek corrections in the following: Experiential and Project-Based Learning; Integration of Technology to the Classroom Delivery; Empowerment of Teachers and recruitment based on skills; less madness about the number of publications and concern for utility-based quality research and; case study and story-telling based instructions. Pant (2020) highlights that two major forces are shaping our future: 4th Industrial Revolution (which is driven by artificial intelligence, machine learning, blockchain, quantum computing, internet of things, 3D printing and augmented reality / virtual reality etc; and 4th Education Revolution where these technologies are changing the structure, governance and scope of universities today.

Can we blame teachers in the classroom for this? Are we ready to face tomorrow with incapable and uninterested appointees in the jobs? Is there a way to bounce back and train these very teachers to do their job for a better today and reasonably better tomorrow?

This paper deliberates on the established and acknowledged decent ways of keeping teachers inspired and competent. However, a discussion is presented on the aspects of Capacity Building, skill development, enhancement of personality and academic acumen, inculcation of empathy and collaborative instinct, critical thinking as well as a handsome hand in Innovative Practices in ICT-cum-EdTech.

The Learning Matrix

Paulo Coelho wrote a legendary book (*The Alchemist*) on the pursuit of Personal Legend by humans. He had nothing in mind about the outcome he says. But the book was based on his certain understanding and experience of 'life expedition'. The book is one of the most read books in the world with its translation available in more than 60 global languages. The Pursuit of Personal Legend is not based on fiction but on the realities of struggles and predicaments we face each day. Because, most of us, who can read and write, converse and conference, describe and discuss are made by teachers, the applicability of this Personal Legend Allegory can be applied on the occupation of teachers and the teachers in making.

When we see the Indian Higher Education (Higher Ed) landscape, there are visible remains of age-old supremacy of our education system. It was primarily based on the four virtues which have now become the 21st Century Skills:

1. Communication
2. Creativity
3. Collaboration
4. Critical Thinking

These four are inter-related and inter-dependent. These are also stand-alone skills to be mastered by the learners. The deliberations and contemplative contrasts over the four skills led us to develop the following.

Learning Matrix

When we see the left side of the table, we pronounce them as the leading global skills that are either there in us or not there. We forget to mark the process and reject the idea of holding our feet firmly. Many of our teachers and students have to make these 04 Skills part of their being. But in the absence of a confident eco-system, they also fall prey to the

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Figure: 1: 21st Century Skills and their Manifestations for Education

Skills	Indian Ethos	Rewards-Virtues
Communication	Interpersonal Skills, Conferencing and Oratory Skills	Professional Excellence
Creativity	Aesthetic Sense and Sense of Appreciation	Happiness and Engagement with Nature & World
Collaboration	Social Engagement and Group Learning	Empathy and Sense of Belonging
Critical Thinking	Project-Based Learning, Experiential Learning	Innovation and Advancements to Improve Life for Self & Others

laxity of the process. Globally, the list of skills that employers demand and the general human skills that one must have to live a good life can be classified in the discussed broad categories.

Before we move on to elucidate the inter-relation between the global standards in HigherEd, we can look back with concern on our own *Indians* of Education. We all celebrate Eklavya as the pioneer of 'Learning' and 'Respect' towards the Guru. We all know that when it comes to citing an example of a Good Student, we name Eklavya. However, what we miss is the worthiness of the guiding philosophy of learning. The –ism, inspired by Eklavya, is an important driving force to help us to:

- Align the Higher Education Vision to Global Learning Goals
- Focus on Employability Enhancement and Skill Development
- Inculcate Values and Ethics to Make the Individual a Better Citizen
- Be a Learner First then a Practitioner and Teacher

Eklavyaism

The philosophy that narrates that we are the creators of our own self – has something uplifting for teachers in job and teachers in making as well. It says that the determination and dedication that the practitioners carry in their mind, when they join a preparatory course or the qualified ones who have joined teaching already, plays the central role in what they do to the students. There is nothing like an institution, curriculum, careers or building; there is only one thing at stake and that is students. If we can make good students, who are competent enough to enter the functional landscape of life and careers, we have done our part. However, as in the case of Eklavya, the Change Maker Guru always remains with the Disciple. The conviction of becoming a teacher with a definite focus on becoming the best one is the key. As it was for Eklavya, he never wandered away from maintaining the standard of his learning, our teachers also need to shun every possibility of compromising on the quality standards of their learning.

The training and development of school teachers in India with thousands of teacher-education institutes and the newly inducted plans to train the HigherEd Teachers can be a change maker. What is missing is the realistic approach and delivery in the former and the holistic and honest implementation of the later. The Diploma or Graduation in Education, which is meant to transform one into a teacher from an academician, has failed tremendously. The upskilling of college and university teachers is also facing the threat of hitting the dead end. There are millions spent and there are billions on the cards. But the skill-gap is expanding and the gap in the accomplishment of the mission goals isn't seen by anyone. Someone has to tie the bell but unfortunately, none can see the cat.

There has been an imposed struggle on the teachers in private institutions (Universities or Colleges). It is about their salaries as well as their working conditions. The policymakers and owners need to realise that until we see that we have hired them as teachers only and not as some wooden-blocks to fill the gaps in the wall, we cannot establish a Sense of Purpose and Motivation among teachers. The unreported and unacknowledged exploitation should come under a check and education must not be allowed to become a business for profits. As the health sector, honest conduct is what we need here. We have seen that the greed of money-making leaves the whole system paralyzed. This has been visible in education as well. Hence, there is an utter need to intervene and interject a good amount of correction even in the private sector of education.

Competency

The availability of in-service capacity development for teachers through Academic Staff Colleges and Human Resource Development Centers (HRDCs) can give a consistent push to improvement incompetence. But there has been a vicious circle hampering the whole process of improvement. The damage is being caused by a deficit of trust and far-sightedness. We may not advocate creating an American Dream but there has to be a definite agenda based on our own requirements and strengths. Not to forget the madness towards the API Scores and the hunger to add a number to their research data. There has been a global fashion to file and register and publish without consideration to make use of the findings.

There is not an alien difference between India and the elite west in terms of infrastructure. To a large extent, we are also finding that the government is spending huge amounts to raise the bar. It is the approach that we train our teachers with. Our teachers aren't trained to walk the extra mile and that is why their flights are restricted. At a time when technology has overpowered each segment of life, even the relationships and religion, we are still declaring the presence of Technology as a Taboo. Educational Technology principles are applicable to all topics and subjects and hence are basic to all curriculum development (Dorling Kindersley, 2012).

Pedagogy

Indian HigherEd has been knocking at the wrong door by expecting transformational changes into learning via Pedagogy. Our teachers think that there is only one methodology of teaching and that is Pedagogy. They may even pronounce it different from the standard pronunciation it has in English, the understanding is limited as well. The freedom to the learner- which is the trademark of successful Models of Learning in the World- is missing in our Pedagogy. Our Education Policies have focused on the Schools and the instructional mode is for the K-12 here. However, the 'ringmaster' role of the teacher is a thing of the remote past now.

Facilitating the Learners in the classroom, empowering them to develop their own understanding and presenting the answers that they have curated; customising the lessons and notes according the comprehension level of students; adding technology to the classroom by moving beyond projectors or power-point presentations; changing the age-old Pedagogy into Andragogy and Heutagogy, are some of the best options we have to meet our own expectations. Andragogy and Heutagogy are based on the premise that the Learners should be taken to learning by providing a supportive and strategically designed learning atmosphere. In these approaches, we get to see the role of child psychology and the ease of delivering results which aren't measured mathematically.

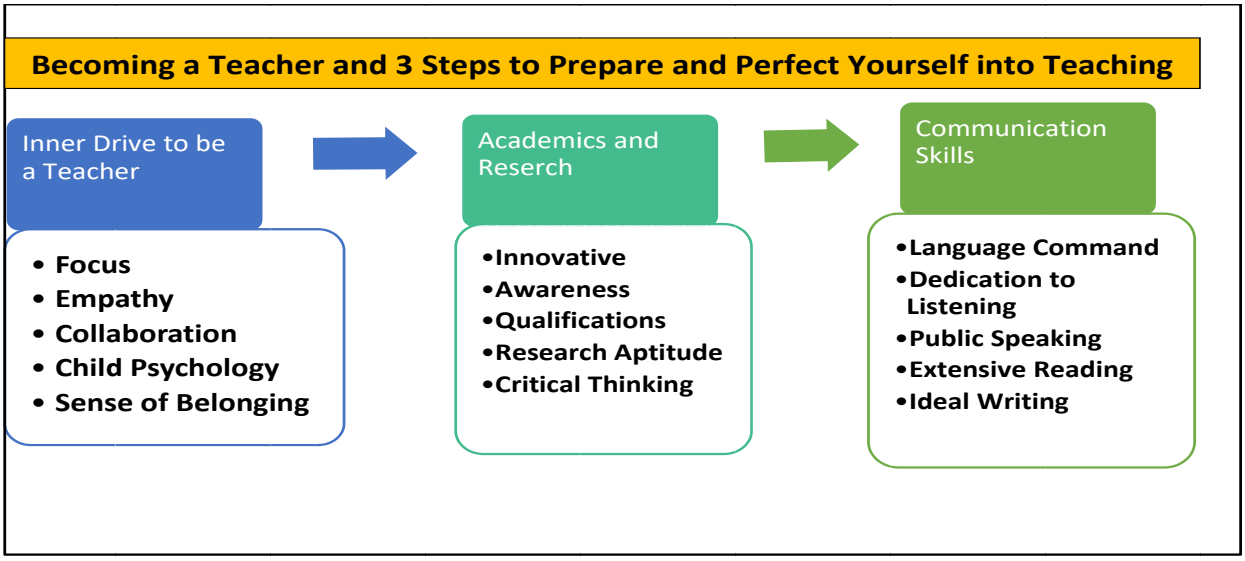
Going for a globally acknowledged HigherEd, there is a need to introduce sincere and sustained corrections in the HigherEd:

- Teachers' Training Certification as a Prerequisite at par with B.Ed. or D.Ed.
- Recruitment Criteria should be based on Skills to Execute Learning in Classroom
- Teachers' In-job Skill Enhancement
- Guidelines to Pay a sustainable salary across the country to ad-hoc/temporary faculty
- Strengthening of Library and Guiding Teachers to Integrate this into their Teaching
- Integration of EdTech based Resources to the Teaching-Learning Methodologies
- Accountability to be fixed for Teachers about Employability of Graduates
- Human Values Inculcation and Regular Life Skills Development Among Teachers
- Promote National and Global Association with Educators
- Dynamic Curriculum and Teachers' Leading Role in the Process of Revision

Teachers have two aspects. One is their strength area and the other of course, their limitations. The limitations might be on the level of their interaction with technological advancements like computers and internet-based tools or it can even be their personal reservations. The latter is not expected to remain active because a teacher has to be liberal enough to allow his vices to go away.

The Global Education and Skills Forum writes on their portal, "Our classrooms are changing, and without a doubt, they will look quite different in five or ten years than they do today. New technologies are being developed quickly, and with so many different

Figure: 2 : 3-D Path Selection Process for Aspirants of Teaching Profession



trends taking hold, it is yet to be seen what will be shaken out and what will stick. Will MOOCs or a similar online learning concept start to take over? Will we have robots for teachers"

On the question of adapting to EdTech and ICT, it seems that almost all the human resource expenditure is going towards Innovative Teaching Practices and training teachers to take the 'Modern Day Approach' in the classroom. The saying of the 20th century that technology will replace teachers has not proved to be true. But there has been another confident prediction. Technology will not replace teachers. But Teachers Using Technology will replace Teachers Who Do Not Use Technology.

We are not raising rhetorical questions on the teachers and or to those who are incharge of the teachers' entry into HigherEd. We are actually raising the red flag to call for action. There is a need to bring ringing endorsements for the Global Best Teaching-Learning Processes in Higher Education. The newness in the world is on the following grounds:

- The Teacher is a Facilitator
- The Teacher is Ready to Adapt to Technology and Master its Use
- Teacher Creates a Beyond the Walls Connect with the Students
- Teacher Develops his own Profile to Strengthen the Teaching of the Subject
- Teacher Earns a Global Collaborative Association with Teachers across borders
- Teacher Aligns the Subject to the Career and Employability Preparation of Students
- Teacher Prepares Teachers

The last one deserves an explanation. We know that something that we can explain to others and make them understand properly, is something we can claim we actually know. Each Student Has to Be a Teacher in Itself. If the concepts and subjects covered in the classroom are explained swiftly by the students, the teacher succeeds in delivering sustainable learning. In September 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development. This futuristic agenda includes 17 Sustainable Development Goals (SDGs) with explained targets. Based on the principle of "leaving no one behind", the SDGs present a holistic approach to achieving meaningful education for all: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development (United Nations, 2015)

There has been tremendous development at the speed of light in the world when it comes to advanced technology entering the classrooms. UNESCO

celebrated Mobile Learning Week 2019 from 4 to 8 March and this time it was celebrated as Artificial Intelligence for Sustainable Development and a global conference was organised. One of the objectives stated was: "Leverage AI to enhance education and learning – improve education management systems, AI-boosted Learning Management Systems (LMS) or other AI in education applications, and identify new forms of personalized learning that can support teachers and tackle education challenges" (UNESCO, 2019).

Conclusion

The Swath of Honour should not go to those who are documenting but not delivering for the students. There must be a starting point when we start looking at Teaching with a sense of duty not just a matter of disposition. One who has taken up this mission (calling it job seems odd) has to follow the regimen truthfully. The priorities are required to be on reset when we get to teach young children. The children in the K-12 world can probably digest instructive mode but the Higher Education world is beyond the teenage swirl. The minds are expanding and exploding around us. The need is to channelise and utilise their creative potential. The teachers, if themselves are not capable of driving their own life to purpose, will never be possible to become the guiding light for the thousands assigned to him in the classroom.

Change is possible. It is a question of awareness- the awareness of the duo 'who selects' and the other 'who serves'. To accomplish the global best practices, we need to see how we perceive HigherEd. Is it just to make robots to serve in factories or we are also transforming them into sensible citizens of a great country? Normally we don't see that our assumptions are affecting the nature of our observations. But the assumptions affect the way we see things, the way we experience them, and, consequently, the things that we want to do. (David Bohm, 1996)

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Teaching-learning Process in Higher Education: An Indian Perspective

N K Ahuja* and D C Saxena*

"Teaching is more than imparting knowledge, it is inspiring change.

Learning is more than absorbing facts, it is acquiring understanding."

William Arthur Ward

The ancient education system in India was based on the fundamentals of the transience of life and the world, the ultimate death and the futility of worldly pleasures. It had its foundation more on the philosophy of Hindu religion than anything else. The teaching and learning processes aimed at development of the pupil's powers for his all-sided advancement and the control of mental activities connected with the so called concrete world (Chitti Vridhinirodha).

Sitting at the lotus feet of 'Guru' in calm, natural and peaceful environment , the pupil would learn through listening, meditating and interacting with outside world thus acquiring practical knowledge. The teachers symbolized good ideals, traditions and code of behavior and the pupil emulated these through close contact with their teacher. The pupil were taught dignity of labor and social service in a practical manner. The modern concept of 'Learning By Doing' was the hallmark of education in ancient India. *Taxila, Nalanda, Valbhi, Vikramshila, Odantapuri, Mitthila* and *Nadia* are but few examples of ancient great Indian educational centres, where pupils from many countries used to come for learning.The education, in ancient India, was free and without any control or interference of society or state. The debates and discussions were encouraged. The *'gurukula tradition'* was adhered to.

The Brahamanic or Vedic system syllabus comprised of the four vedas (*Rig Veda, Sama Veda, Yajur Veda* and *Atharva Veda*) six *Vedangas* (ritualistic knowledge, metrics, exegetics, grammar, phonetics and astronomy), the *Upanishads*, *Tarka Shastra* (logic and reasoning), *Puranas* (history), and more. The main subjects in the Buddhist system were the three Pitakas (V*inaya,* A*bhidhamma* and S*utta*), the most recognized works of all 18 Buddhism schools. Certain other subjects common to both the systems were arithmetic, military science, law, performing arts, ethics, and art and architecture.[1]

However, we are at crossroads today and, despite global research, unable to find an ideal solution to the teaching learning process that has its application globally. Each nation has uniqueness of the process practiced. It has also been argued by some that various factors like finance, religion, resources, physical facilities, traditions and customs, culture, etc are barriers to the universality of one single process of teaching and learning like finance, religion, resources, physical facilities, traditions &customs, culture, etc are barriers to the universality of one single process of teaching and learning.

Given all this past wealth and glorious knowledge, what has gone wrong with our time honored education system today? Not only India, the entire world is face to face with this problem. Though the budget allocation, share of GDP, access to and availability of education has improved by many fold since independence in India, yet the teaching and learning process in higher education is still far away from perfection.

The World is facing learning crisis.[2] Education is at the center of building human capital. The latest World Bank research shows that the productivity of 56 per cent of the world's children will be less than half of what it could be if they enjoyed complete education and full health.[3] For individuals, education raises self-esteem and furthers opportunities for employment and earnings. And for a country, it helps strengthen institutions within societies, drives long-term economic growth, reduces poverty, and spurs innovation. Delivered well, education – along with the human capital it generates – benefits individuals and societies.[4]

Ms Annette Dixon has aptly addressed the issue;

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"It's never too late for young people to have opportunities to learn. Our youth deserve to be equipped with the skills they need to thrive in an increasingly demanding and uncertain job world. Given that today's students will be tomorrow's citizens and leaders, a good and relevant education is essential to turn aspirations into reality."

Annette Dixon
Vice-President, Human Development, World Bank

The Teaching-Learning Process has three critical components; the teacher, students and the methods and the tools employed. The role and importance of each one in effective delivery of education cannot be underestimated.

In the first place, the teachers have to be good learners themselves. This aspect has been addressed quite aptly in the new National Education Policy. The role of higher education institutes in the training of teachers has been elaborately explained. An effective teacher should be able to ignite in students the quest for information, knowledge, exploration and analysis. Some of the innovative modes of teaching, like creative teaching, employment of audio-, and video tools, real world learning, brainstorming, classes outside the class rooms, role play, story boarding, etc are being practiced globally.[5]

There is an urgent need for differentiated instruction methods to meet the divergent need of students. Besides, the differentiation may be carried out for content, process, product and the environment. This approach shall have impact on individual student learning, successful uptake of course objectives and the ultimate academic success of students. The UGC has already put lot of focus on identification and effective management of the struggling and the gifted students. The students can be effectively involved in learning through engaging them with the course content, designing fair assessment methods, regular communication and exchange of feedback.

Lastly, the process or methodology of teaching and learning has two components; the process & methods of learning and the tools or medium employed.

Kolb identified two separate learning activities in the learning cycle;

a. Perception – the way information is taken, and,

b. Processing – the way information is dealt with.

Then, for each activity there is convergence, divergence, assimilation and finally the accommodation of the new knowledge gained.[6]

The modern technology has made teaching and learning more meaningful and purposeful. It is a tool and catalyst for change in the process of both teaching and learning. The integration of new tools and technology has redefined the relationship between teacher and student. The teacher is more an adviser, guide and inspirer today. He has to integrate the pedagogy and technology for efficient delivery. The integration of specific tools in subjects has further simplified both the teaching as well learning. The *'Divyang'* students are benefitted immensely through use of assisting technology. But the resources and unequal access to technological tools both at institution and student level is a matter of concern. Evaluation and the follow-up of technology based education is an essential element for assessing their success and effectivity.

In the end, I would like to quote Alexendra K Trenfor – *"The best teachers are those who show where to look, but don't tell you what to see."* The higher education institutions in India have taken up the challenge and moving in right direction. Thanks to the adoption of new strategic approach by the UGC, our students, today, are better placed to face competition in global environment.

Footnotes

1. *www.indianmirror.com/scriptures/vedas/html*
2. *www.worldbank.org/en/publication/wdr2018*
3. *www.worldbank.org/en/news/press-release/2018/10/11*
4. *www.worldbank.org/en/news/immersive-story/2019/01/22*
5. *www.ibo.org>globalassts>dulfer-ita-final-report-en*
6. *https://learningcommons.ubc.ca/tutoring-studying/selfassessment/the-learning-process* ❑

Reflections from a Comparative Study for Reimagining Indian Universities

Shamim Suryavanshi*

In September 2017, The Times of India reported measures proposed by a high-powered panel set up on the behest of the Prime Minister of our country for a makeover of the higher education sector. This endeavor has received a major thrust in the form of the Draft National Policy (DNEP) released in July 2019 in August 2020 the new national education policy came in to fore. Various "path breaking reforms" in the policy aim at access, equity, quality, affordability and accountability in education system. Significantly, these also include moving teacher education housed in thousands of stand-alone colleges across the nation to multidisciplinary higher education institutions (HEIs) and universities!

Now, considering that most top performing education systems in the world have since long shifted the gravity of teacher education toward universities, the above recommendation should be fully endorsed. However, lessons from around the globe also point out that the transition of teacher education was not easy. In case of India, looking at these experiences is most critical keeping the geographical diversity of its vastness and complexity of its education system at fore.

This comparative education research paper attempts to make a humble contribution in the above exercise by presenting a case study of Pre-service Teacher Education (PSTE) at one of the world's top 500 universities. The highlight of the project is that findings shared are a product of empirical data collected first hand by the author from field visits, interviews, programme website and official documents. The end result is that comparative reflections could be drawn for the better teacher education system in India and subsequently for its higher education as envisioned in the DNEP, 2019.

It is hoped that this modest piece of comparative research will be of service in reimagining Indian universities into future ready institutions while being preservative of its rich heritage so far.

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The paper is divided into three parts. The first will first present a synopsis of observations and recommendations in NEP-2020 vis'a vis' teacher education in India. It will be followed by a brief literature review of history of transition of teacher education in different parts of the world, the ensuing challenges and emerging urgent need for comparative perspective in policy making.

In the second section the author will present key aspects of the comparative education research method and technique of inquiry, data sources and data collection, data analysis, limitations of the study and the key findings with respect to context, process of curriculum planning and reform and theory and practicum integration.

The last section will then put forth the author's comparative reflections for teacher education in the reimagined Indian universities and future research directions for the same.

Recommendations in National Education Policy vis-à-vis Teacher Education in India and Global Trends

The National Education Policy is formulated in India with the aim to meet the changing dynamics of the population's requirement. It aims to strengthen quality education, innovation and research; leading India to become a knowledge superpower. As stated in the introductory paragraph of this article, one of the lofty goals presented in this direction is to overhaul the teacher education system by moving it into multidisciplinary colleges and universities. It is proposed that integrated programmes of teacher preparation for all levels of education, and in all areas of the curriculum, must be launched while single-stream programmes currently offered by stand- alone teacher education colleges must be phased out. This 'radical action'-policy makers believe- will transform teacher education in the country. It will bring back high quality to the system in accordance with multidisciplinary requirements of modern education.

A thorough literature review indicates that the above recommendations are definitely in accordance with global trends. While in most parts of the world today, teacher education is either provided by universities or validated by universities. Historically–in the USA, the move took place primarily in the 1930s; in England, in the 1970s; in France, in the 1990s; and in South Africa, in the rest decade of the present century. While countries moved at varied time scales what remained common was the changing position of teacher education. The shift in location of teacher education from écolenormale, teacher education colleges, teacher education institutions (different terminologies used for institutions engaged in preparing teachers) to the universities raised the status and ambitions of teacher education. However, this was not happening without underlying challenges. This, as Moon (2016) observes, could be due to two reasons. Firstly, teacher education is a relative newcomer to the world of universities. It does not have the historical lineage of medicine or law. Secondly, teacher preparation is a large-scale, mass, not elite, endeavor. Hence, till date the quest for legitimacy of teacher education in institutions of higher education (Clifford & Guthrie in Zeichner 2016) has only been partially successful. Teacher education has remained the poor relation in many parts of higher education. Moreover, despite of known and acknowledged advantages of university-based teacher education it continues to face unrelenting criticism at least on one front i.e. the practical component. Teacher education has repeatedly come under attack for gaps in articulation of practice and the practicum taking up only a small component of time in many education courses across the world. For these and other reasons-Moon (2016) concludes- "for the most part, bringing teacher education into the university has been, and is still, a problematic process".

One result of the above situation has been that countries have begun retracing their steps. Teacher education has started to move to schools. According to long time author, researcher and teacher education Ken Zeichner, even in the USA (the country which pioneered the shift in locus of teacher education) it was only for a relatively brief period of time (1960-90) that colleges and universities held a virtual monopoly on preparing teachers. Post1990s, there has been a tremendous increase in non-college and university sponsored teacher education programmes, including new for profit programmes.

Despite of known and acknowledged advantages of university-based teacher education, teacher education continued to face unrelenting criticism. As Moon (2016) concluded on the basis of evidence from case studies from 12 countries across geographical context spread across the globe that for the most part, bringing teacher education into the university has been, and is still, a problematic process.

Coming back to India, the proposed shift in locus of teacher education has raised at least four distinct concerns. Firstly, the upgradation of stand-alone teacher education institutions to university level would not be a simple linear process (Sharma, 2019). It would require a complete overhaul in the country's teacher education system that is networked with a variety of institutions and structures such as examination boards and teacher recruitment systems. Secondly, there are significant variations in the teacher education system in various states of India. This will make it difficult to adopt a standard route to implement change. Thirdly, the proposed moved would be a challenge in the case of private institutions that constitute the bulk in the system. Fourthly, the shift will also entail challenges of upgradation of faculty and institutional contexts of curriculum development and transaction. Needless to say, all of the above would entail considerable cost implications necessitating careful planning and implementation. With the stakes so high, it can be easily seen that there still exists a great need for much more and improved use of scientific evidence (Wiseman, 2010) for successful implementation of NEP -2020.

Urgent Need for Comparative Perspectives

One approach that can really help in current scenario is- comparative education. Way back in 1969 Harold Noah and Max Eckstein (in Hawkins and Rust 2001)claimed that the potential of the field of comparative education could be enlisted in four spheres. First, these studies promise to extend the generality of social and educational propositions beyond the commonness of a single society. Second, it has the potential to test propositions that can only be tested in the cross-national context. Third, it has the capacity to further cross-disciplinary activities. Fourth and most importantly for our discussion- it has the potential to serve as an instrument for planners and policy. These salient features of comparative education research can be summed in the words of

Halls (1990) who explained that comparative studies are a striving to enhance our knowledge of education. According to him, these studies are means to work on our ambitions to improve educational institutions, content, processes and methods. They can play both practical and reformative role!

It was with the above perspective that this researcher attempted to look at teacher education in Indian universities (specifically with reference to recommendations in NEP-2020) with comparative lens. However, for such an endeavor it was also critical to make appropriate choice in terms of units of comparison. The researcher has zeroed down to Chinese university for the three reasons. Firstly, extensive literature review led to an understanding that phenomenal economic growth in China and India during the past few decades has drawn wide scholarly attention to the relative performance of these two countries in various spheres. China and India had faced similar conditions and challenges in education during their rapid industrial and social transformation. Unfortunately, very little analytical comparison of their education systems in general and teacher education in particular has been done. Given the importance of teacher education in economic and social development, and the fact that these two countries host the world's two largest education systems, this was concluded as a critical gap in research. Secondly, around the time of the research government of India was also looking at China for raising the status of its universities. During an event widely reported in the media NITI Aayog CEO, Amitabh Kant, remarked that India needs to benchmark its universities against those of China. Thirdly, this researcher had an opportunity to stay in Hong Kong (the English-speaking region of China) for six long years. The professional and social network that she had cultivated over this period, made it possible for to gain invaluable glimpse of the almost impenetrable world of Chinese society and their educational institutions!

Methods and Technique of Inquiry

Comparing teacher education in Indian university with that in Chinese university was a unique problem in which one did not know the variables. Even after a thorough review, literature could not yield much information about the phenomenon especially in the Chinese context. The researcher eventually realized there she could move ahead only by gaining first hand understanding from participants through exploration (Creswell, 2008). Moreover, there were cultural barriers to be bridged it being cross-national study. Thus, qualitative research was found best suited for this research (Suryavanshi, 2018). It was also decided to use case study approach as 'case studies can penetrate situations in ways that are not always susceptible to numerical analysis' (Cohen, Manion & Morrison, 2000).

Data Sources and Data Collection

Keeping factors such as accessibility and available resources (this being non-funded and individual researcher project) a university in Hong Kong was zeroed down for the study. After a series of interviews with key informants' and ongoing literature survey, interview protocol and assent forms were finalized. Finally, in depth interviews of three senior most teacher educators of University A were conducted between January 2017 and May 2017. Convenience and critical sampling were used to gather data. Data was collected through semi structured interviews conducted on campus in interviewees' office. Each interview had to be completed within the specified one hour. The researcher had to continuously think on the spot to locate emerging themes and explore further using responsive interviewing style. Hard copies of student handbook, programme brochures and school experience handbook were also offered for the study. Contemporaneous notes were made during the interview and field visit. Each of the interviews were in the end transcribed.

Data Analysis

Analysis is a matter of giving meaning to first impressions as well as to find; compilations (Stake, 1995). However, as Bassey (1999) cautions 'case study work usually produces a great deal of raw data'. This was true for this study as well. Mounds of data was collected through field visits, documents and interviews. These were analyzed and triangulated concurrently. Bereday's framework of comparison (1964) was continuously referred to for analysis and presentation of findings.

Limitation of the Study

Teacher education is a vast area and there can be difference in policies and practices within same country. This study was conducted within a single University in the English-speaking Chinese city of

Hong Kong. Moreover, the study focused only on pre-service teacher education (PSTE) programme for secondary school teachers. Concerns about confidentiality may have also affected interviews. Hence, pseudonyms are used while referring to the university under study as well as while sharing actual excerpts from the interviews. This is done consciously as ethical issues are especially critical in qualitative research (Johnson & Christensen, 2014).

It being a qualitative study; cannot be generalized. Also, international comparison has the potential of being abused, exaggerated, and used without appropriate contextual information. All these can be listed as a limitations of this study.

However, great care has been taken in conducting and reporting this study to minimise all dangers. It can said with some degree of confidence that propositions of this case study can be effectively utilized for other cases (Bryman, 1988)- especially in these times of finalising the new National Policy of Education in India.

Findings Context and Teacher Education at the Chinese University

The Chinese University under study and henceforth referred to as University A is located in Hong Kong, Special Administrative region of China (HKSAR). It is amongst the oldest tertiary education institution in the region. It is one amongst the four major teacher education providers in Hong Kong.

University A is ranked almost 25th in Quacquarelli Symonds (QS) World University Ranking and is in top 5 in QS Asia University Rankings.

Teacher education is offered on its premise by its *Faculty of Education* (a term that can be considered as synonym with Department of Education in Indian universities). According to the Faculty's official website it is a regionally and globally engaged educational hub. They offer four double degree undergraduate programmes, two post graduate diploma programme (Part time and full time), six Masters programmes and Doctor in Education and Ph.D. Programmes in Education.

Thus, making teacher education as their "core business".

The findings below are with respect to the Post Graduate Diploma in Education (PGDE) programme that aims to prepare university graduates to teach in Hong Kong. It is a qualification that is recognized by Hong Kong government's apex educational body- the Education Bureau and is acceptablein sectors ranging from kindergartens to secondary schools. The programme is also valid for jobs in training institutions, community colleges and international schools. It is offered in full time and part time mode.The full time programme (aspects of which are covered below in this paper) is equivalent of the current two -year Bachelor of Education (B.Ed.) programme in India.

The programme runs throughout the academic year from September to June on weekdays from Monday to Friday. Students may be required to join evening classes or Saturday classes for some courses.

Process of Curriculumre form of the UGC Funded PGDE Programme at University A

All the four teacher educators in University A shared with this researcher that the Faculty of Education enjoyed complete autonomy where curriculum planning was concerned.

We are totally autonomous in terms of developing our own curricular.

Jeremy Mathews/ Teacher educator/University A

This was even applicable while reforming the publicly funded PGDE programme that was implemented in 2015.

An external assessment committee had given the programme 'a very positive review' and rated it 'incredibly successful' on most benchmarks. Even the student satisfaction data collected by the Faculty scored the programme 'through the roof"!

Despite such acclaim teacher educators at University A decided to go ahead with major overhauling because:

We, as teacher education providers, also need to reform our programme. Number one- the outside world has changed. Number two- the population has changed. So, we need to change!

Ada Chan/ Teacher Educator/ University A

With the above background and a growing realisation that their PGDE programme had a very

traditional model of delivery, the Faculty of Education at University A initiated curriculum reform.

The process was led by the head of the Faculty of Education- the Dean. The first step was setting up a task force called the "reform committee". As the first members of this committee researched into global trends in teacher education. In words of one teacher educator:

So, one thing we have done over there is global audit. So, we undertook...I broke the committee into subsections and said you are taking Oceana, you are taking north America, you take UK, you are taking Asia. Let us all go and do some research about practices that are successful.

Angela Hudson/ Teacher Educator/ University A

The findings from this step were fed into the next stage wherein the team then came up with the concept of '21st century teacher'. This concept included qualities envisaged for the 21st century teacher. Being a teacher was expanded beyond subject matter knowledge to include "101 things" such as being inclusive, being socially engaged, being a facilitator etc. This concept of a teacher laid the foundation for further deliberations. It was incorporated on university website as well as study material like student handbook and school experience handbook for teacher educators and school personnel.

Theory Practicum Integration

Respondents for this research shared that reviewers in 2009 had advised the team of teacher educators at University A to look at ways of achieving better theory practice integration in their curriculum. Moreover, the old PGDE model had two components viz. the Educational Studies I (Educational Psychology) and the Educational Studies II (Educational Sociology) which were perceived disconnected not just by student- teachers but also by teacher educators themselves.

During the reform process, the conceptual framework of "21st Century teacher" became a practical framework for resolving the above challenges. The new programme had a 'distinctive feature' named "Educational Inquiry" that integrated theories, practice as well as other components within the PGDE. Here, the student-teachers spent one day a week (Wednesday) in schools throughout the academic year as against the designated internship period in earlier curriculum. On these days student-teachers-in addition to their subject teaching- were now expected to draw out experiences related to a particular theme assigned to them each week. Thereafter, discussions were held on scheduled days in university classrooms around the cases, problems, issues and the concepts.

It must be noted here that in order to support curriculum coherence, the above themes were not addressed across methods by '*tutors*' (equivalent of Method Masters in Indian universities) but also by '*mentors*'(school teachers) at school (Suryavanshi & Maheshwari,2017).

The new programme also demanded internal cohesion amongst the teacher educators who were now expected to co-plan and co-teach. An example shared was:

When I was teaching my geography students how to design worksheet, then my co- partner in educational inquiries will come in. He will inject, say for example: the theme of learning diversity. So for example- my students will duh duhduh.. all these Howard Gardners and motivational learning theories...how can they be applied in my geography classroom situation when they want to design a student centered student based task sheet by taking into consideration students coming from all walks of life.

Ada Chan/ Teacher educator/ University A

Challenges Faced

In addition to gaining support from the schools for the newly designed teacher education programme, the faculty faced internal challenges as well. Getting all faculty members on board was one such challenge.

Because we are all very ego, we are all very ego people here. If we are not ego how can we present our service. So we are all very ego. We all have great confidence and we are all proud of our own work. And now you ask I have to work together,, I have to learn from you. It takes our colleagues some time to learn to adjust to this.

Ada Chan/ Teacher educator/ University A

Thus, bringing faculty members to even work as teams to co-plan and co-teach in the above example was also reportedly difficult. Traditionally, there had been a culture wherein teacher educators could easily work in isolation with even "the Psychologist don't necessarily talk to Sociologist…"

To circumnavigate these issues, for the first year only six themes that were considered more practically relevant were taken up. Plus, in order to further facilitate co-planning and co-teaching; time was slotted within the teacher educators existing workload allocation. To boost the staff morale informal lunch time meetings were used as platforms to share and learn from each other.

Comparative Reflections for the Reimagined Indian Universities

The findings from the above case study and the preceding literature review on university based teacher education around the world leads us to four major implications for the future of pre-service teacher education in India. Firstly, as evident alternate routes in pre-service teacher education are a well-established part of teacher education landscape in high performing societies including Hong Kong. Consecutive and concurrent models of PSTE coexist in many universities. It is strongly believed that both B.Ed. and PGCE/PGDE programmes have their relative merits and appeal to different target groups. It would not be preferable to adopt either exclusively. What is important in PSTE is to attract quality applicants via different entry points at both the undergraduate and postgraduate levels, and enable them to acquire the professional standards expected of a beginning teacher (Chan, Wai & Lee, 2002). Other than this, in Indian context, it also means that the decision on the structure of teacher education should be taken by simultaneously deliberating on what is it that we in India want from our teacher education programmes?

Secondly, the findings from this research strongly support the DNEP 2019's observation vis a vis lack of teacher autonomy lead to a severe lack of faculty motivation and scope for innovation. The Faculty of Education at University A definitely seem to have taken bold and innovative steps to enhance their educational offerings because they have the academic and administrative autonomy to do so. If Indian teacher education is to move towards being world class faculty, autonomy in higher education is a pre-requisite. In order for faculty members and institutional leaders to innovate and explore in their teaching, research, and service; they must have the individual autonomy -as proposed by NEP-2020 is definitely the right step ahead.

Thirdly, one has to remember- as evident from the case study- that getting faculty from multiple disciplines together will need patience and good management skills. The assimilation of teacher educators belonging stand-alone teacher education institutions and faculty from institutes of higher education will have to skilfully navigated. Newer and more creative ways will have to be devised for team building, integration and raising staff morale as all undergone unprecedented change in not only what they teach but also how they teach and where they teach.

Last but not the least, criticisms of university teacher education from within universities by Arts and Sciences faculty as being academically weak, and from outside universities by the schools as being too theoretical and not succinctly concerned with the realities of practice (Clifford & Guthrie 1988 in Zeichner 2016), is a universal dilemma. Indian teacher educators and teacher education departments in universities will have to gear up to face this reality. As teacher education institutions become part of the universities, the transition will have to take care that research and scholarship does not overshadow the existing 'practical' work of preparing teachers for the classroom. There will be a genuine need to share the responsibility of raising teacher education standards amongst all concerned stakeholders.

Taking care of the above laid implications as an essential condition for while finalising and subsequently implementing the DNEP 2019 will ensure that its vision surely translates into reality leading better education not only for our teachers but in turn for our millions of children!

Future Research Directions

Individual researchers like this author have limitations of reach and resources. Despite of that an honest attempt has been made to give an insider-outsider view of the policy and practice around teacher education in one of the world's top universities. This research can be considered as sowing the seed for much more exhaustive studies that can be conducted at institutional levels. The author believes, cross national collaborations and co-operations are the

need of the hour if India has to learn from lessons elsewhere.

Conclusion

Teacher education in India has faced relentless criticism. The aim of this paper was to reach beyond the rhetoric and political positioning associated with teacher education policy to examine comparatively the actual experience of PST Eglobally. Research efforts were directed at uncovering the strategies and practices underpinning the working of university-based teacher education in a world class university. It is hoped that the findings and implication presented in this paper will be valuable to everyone with a stake in the way universities prepare teachers. The case study and the accompanying analyses is trusted to offer a mirror that will allow anyone with an interest in this process to think about the ways their own policies and practices might develop.

The key message is for teacher education to be successful it will need due legitimacy, respect and supporting systems and structures. It will need to be considered as a serious and combine responsibility by the entire university or HEIs and not just that of education departments. These apparently will be one of the hall marks of the world class Indian universities envisaged by National Education Policy 2020!

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Skill Based Education: A New Paradigm towards Gainful Employment of Students

Swati Mujumdar*

Statistics indicate that unemployment is the highest amongst the educated youth. Periodic Labour Force Survey (PLFS) conducted by the NSSO states the unemployment rate in India was highest in 2018 at 6.1 per cent. According to a report prepared by the Centre for Sustainable Employment at Azim Premji University, unemployment among the well-educated is thrice the national average. There are approximately 55 million people in the labour market with at least a graduate degree – of which nine million are estimated to be unemployed.

Our education system has been grappling with the challenge of employability for a long time. Out of 8 million students that graduate every year, nearly 6 million students do not find employment, even when there are jobs available in the market. This gap exists due to lack of employable skills amongst the youth. Thus, there is a need to re-imagine our higher education system that will be responsive to the changing demands of the market.

Skill development can be the key to address this gap between employment & employability. The changing market dynamics and technology advancements have given rise to many new job roles requiring completely new skill sets. The challenge is to provide our youth with 21st Century skills, which will enable them to be readily employable. World Economic Forum report 'The Future of Jobs Report 2018' indicates that four specific technological advances—ubiquitous high-speed mobile internet; artificial intelligence; widespread adoption of big data analytics; and cloud technology-are set to dominate the 2018–2022 period as drivers positively affecting business growth. To meet this challenge of skilling at such a large scale with speed, high quality and long term sustainability, it is important to create a seamless Skill Development framework providing vertical mobility options to students interested in pursuing skill courses. Social acceptability of skilled manpower being one of the major issues, providing specialized skill courses from certificate to degree level will attract more and more students to skill based education.

There is a need to identify emerging sectors, job roles and competencies required by our workforce for ready employment. These competencies need to be further translated into skill development courses and offered at all levels. Skill development can also provide opportunities for re-skilling and upskilling for the unemployed youth.

Symbiosis Skills Universities located at Indore and Pune have disrupted the higher education landscape by evolving a new revolutionary approach to higher education which focuses on creating future ready youth by offering sectoral specific skills based programs. This model has been developed after carefully studying similar models in foreign countries such as Germany, China, Australia, UK, Sri Lanka etc. In these countries, Skill Development Universities are a bee-hive for new and innovative product development and have contributed to increase in growth of the vocational sector. With a well-defined pathway of vocational education and 'ladderization', that is, the ability to move from one level to another and the ability to move laterally across sectors, the vocational stream has become an extremely popular choice for students in these countries. The Symbiosis Skills Universities have adapted this model and aligned it to the ethos and culture of India.

The educational institutes of today need to research the flow of investments that are happening across sectors, keep a tab on the corporates that are setting up factories or observe trends in the sector and only then propose long term and short term programs in the sector. The Symbiosis Skills Universities are attuned to the changing market needs and ensures all its programs are aligned to emerging job roles in the market. One of the biggest differentiator of Symbiosis Skills Universities is its unique teaching learning pedagogy that imparts 70 per cent learning through hands-on teaching. Both universities are equipped with industry standard machinery, learning factories, skill centers and workshops that provide students with simulated industry environment on the university campus. Industry relevant projects, case

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studies, simulation based exercises form an integral part of the course curriculum. The teaching on campus is further reinforced through yearly industry internships. The assessments for all courses of the university are competency based ensuring a focus on learning outcomes and skill attainment in delivery of education. Skill assessments by industries further validate the competencies acquired by the students.

The success of skill based education model largely depends on the involvement of the industry in various facets of the university functioning and curricula delivery. Symbiosis Skills Universities have established meaningful collaboration with industries. Unlike conventional universities or institutions, Symbiosis industry partners not only set up workshops and skill centers for students but also participate in the academics by training teachers, conducting joint training programs for their own staff as well as helping the University enhance its curricula to align with industry needs. Placements and internships have become by-products of this industry-institute interface and synergy.

Both Skill Universities have a special focus on re-skilling and upskilling of existing workforce. The university continuously engages in dialogue with the industries to identify areas for training. Short term skilling programs of varying duration are offered to address existing skill gaps amongst the working professionals.

Recognition of prior learning means the acknowledgement of a person's skills and knowledge acquired through previous training, work or life experience, which may be used to grant status or credit in a subject or module. RPL is one of the key enablers in bringing non formal workforce into the mainstream of education. A skill based model of education should be able to address the aspirational needs of the society. The Symbiosis Skills Universities acknowledges this fact and has set up a separate Dept for Recognition of Prior Learning. This Department helps students map their learning pathway by measuring their competency levels. Bridge courses are offered to the students to enable them to enter the mainstream of education.

All programs offered by Symbiosis Skills Universities' are modular in nature, making them most flexible for aspiring learners. Learners can bank their credits with the university and rejoin to complete the program. The multi-entry exit facility allows such students to become lifelong learners and provides them the opportunity to complete their education at their own pace and time.

Another challenge this model aims to address is lack of employability of our freshly graduating youth. Symbiosis Skills Finishing School provides employability skills including technical and soft skills to make our graduates readily employable.

Skill based education model is set to bring anew paradigm towards gainful employment of students and shall lead the way for creating future ready universities that are responsive to the economic and social needs of the community. ❑

Skilling in Higher Education: Initiatives of Logistics Sector Skill Council

S Ganesan* and Gayatri Harish**

Educational Programmes at the degree level are expected to land the graduates in a gainful employment. Though a few graduates may want to get into entrepreneurial ventures, the proportion of such graduates is minimal. Degree programmes were able to get gainful employment as long as the country had regulated economy. Graduates were picked for jobs based on their degrees or institutions from where they got graduated. Ever since the economy was liberalised, corporates had to be keen on matching their productivity and cost to their international peers. This made them choosy while recruiting people; focus has changed from degrees to skills, and significance got shifted from institutions to attitude of the applicants.

This shift in the focus of recruitment from mere degree to skill and attitude made the degrees awarded by most institutions meaningless, as their graduates did not possess the vital skill and attitude to convince the corporate recruiters. The number of unemployed or under-employed graduates piled up over the years.

The Skill India Mission of the Government of India had addressed this issue with the introduction of apprenticeship-embedded Under Graduate Programmes in humanities. In the meeting on 'Mainstreaming of apprenticeship in Higher Education' held at NITI Aayog in January, 2018, it was decided to Integrate Skilling in Higher Education with an aim to enhance employability skills of undergraduates to make them Industry-ready. It was also decided to embed apprenticeship training within the programme period to skill the Degree students. The Sector Skill Councils were given the responsibility for industry connect with Higher Education Institutions to ensure on boarding of degree students for apprenticeship training.

In July, 2018 a few Sector Skill Councils, including Logistics Sector Skill Council (LSC), were assigned with the task of designing apprenticeship-based degree programmes and launch the same in collaboration with Higher Education Institutions. With the well-defined Programme Outcome of creating skilled resources for gainful employment in Logistics Sector at entry level of Supervisory/ Junior Managerial position, Logistics Sector Skill Council (LSC) launched the nation's first apprenticeship-based UG Degree Programme in 15 HEIs across the country in June, 2019.

The Degree Programme has been designed as per the various guidelines issued by the Government, such as:

1. Guidelines for Curricular Aspects, Assessment Criteria and Credit System in Skill based Vocational Courses under NSQF
2. Guidelines for Introduction of Bachelor of Vocation Programme in Universities and Colleges under the National Skills Qualifications Framework (NSQF)
3. Skill Assessment Matrix for Vocational Advancement of Youth

While the proportion of Academic Component was kept at 40 per cent, the Practical Component was fixed at 60 per cent in the first-ever apprenticeship-based UG Degree. In a significant improvement over B.Voc. programmes, the Practical Component has been designed to be delivered through on-the-job-training in the form of Apprenticeship. The Practical Component has been scheduled in all Even Semesters, so as to facilitate the students to be in industry under the provisions of Apprentices Act, 1961 for the continuous period of the entire Semester. As the students take up on-the-job-training under Apprentices Act, 1961, they are provided with a monthly stipend during Apprenticeship period.

The fifteen intuitions that have launched the apprenticeship-based BBA / B.Com. Degree in Logistics encompass all types of higher educational institutions like State University, deemed to be University, Private University, Government college, Autonomous college, non-autonomous college, aided and unaided colleges. LSC consciously included all types of HEIs in the new experiment in higher education in order to make the experiment inclusive. A total of 447 students joined the programme in all

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these institutions during the year – 2019-20 – of introduction itself. The programme, as opined by the Collaborating Institutions, has got enthusiastic response from parents and prospective students. A few institutions have mentioned that the programme has become a premier programme on the first year of its launching itself.

Pedagogic Support by LSC

The following crucial supports had been provided by LSC to all its Collaborating Institutions to ensure effective implementation of the programme. Provision of such services had become necessary, as the programme and its pedagogy are new to the country.

Programme Curriculum

LSC, with the help of an Experts Committee comprising industry executives, and academia, has developed a model curriculum for the programme. Being industry linked programme, the curriculum was developed with much reliance on the suggestions of industry executives in the Experts Committee, while academic members helped them in putting their thought process and suggestions into the regular curriculum format. The Hon'ble Minister of Human Resource Development released the Curriculum in February 2019. The Collaborating Institutions, understanding the importance of industry-driven curriculum, implemented it without any modification in the syllabus.

Sensitisation of Faculty Members and Admission Team in Collaborating Institutions

In view of the special nature of the degree programme, LSC conducted Sensitisation Workshops to the Admission Team and faculty members of Collaborating Institutions on the salient features and requirements of the programme. Brainstorming sessions had been conducted in all Collaborating Institutions to make the Admission Team and faculty members to understand the quality of students suitable for the programme. This has been done to ensure appropriate students' body that is prepared for Apprenticeship Training – as part of the degree programme – is admitted to the programme.

Course Material

Understanding the lack of appropriate textbooks on domain related courses in the curriculum, LSC took upthe responsibility for creating Course Materials, and making them available to faculty members and students. Accordingly, LSC engaged industry executives and academia to write course materials for all domain related courses. These materials were uploaded in the Logistics Learning Management System maintained by LSC along with appropriate number of live process videos and Standard Operating Processes. These resources were given access to the students and faculty members of all Collaborating Institutions. Students and faculty were able to access the course materials using their smart phones, making it easy for them to refer the materials wherever they are.

Academic Calendar

In view of the involvement of Apprenticeship Training, LSC created Academic Calendar Template and shared the same with all Collaborating Institutions. The Calendar was embedded with all key activities relating to academic teaching and Apprenticeship Training. This had become necessary, as the Institutions were new to onboarding their students for Apprenticeship Training, and not aware of various steps in the process.

Faculty Training

Realising the criticality of preparing the faculty members for teaching Logistics courses, LSC conducts Faculty Development Programmes on teaching various domain specific courses included in the curriculum. Senior executives from industry were involved as Resource Persons for the Faculty Development Programme. In order to make it easy for the faculty members of Collaborating Institutions which are widely spread across the country, LSC conducted the programme at different cities; faculty members were encouraged to participate in the programme held closer to their working locations. Three to five faculty members from each Collaborating Institution participated in the programme.

Guest Faculty Panels

Being new, faculty members might face difficulty in not only teaching the courses but also would not have proper understanding of the Logistics processes. Hence, Collaborating Institutions were required to identify 20 per cent of the syllabus and were required to utilise the services of industry experts as guest faculty. In order to assist Collaborating Institutions, LSC created a network of experts in Logistics in all regions of the country. Panels of experts from the network were prepared and shared with Collaborating Institutions, which

were free to choose an expert from the Panel and utilise their services as Guest Faculty.

MoU with Industries for Provision of Apprenticeship Training

The LSC executives fanned throughout the country and obtained willingness of many Logistics companies for proving Apprenticeship Training to the students. The member-companies in the General Council – number about 110 companies – readily came forward to provide the required number of apprenticeship assignments at multiple locations in the country. Many companies also signed MoU with LSC for providing Apprenticeship Training to fixed number of students annually. LSC identified a set of ten companies in the vicinity of each Collaborating Institutions. MoU's were executed with these companies to take care of ensuring Apprenticeship to all students admitted to the programme. The first Apprenticeship Training for the students admitted in the Academic Year 2019-20 has commenced during the middle of December 2019.

Apprenticeship Assignments

The students pursuing in the programme had completed their First Semester of study during November – December 2019. Sensitisation Workshops were conducted for students in all Collaborating Institutions to prepare them for Apprenticeship Training. LSC tied up with Logistics companies across the country for providing Apprenticeship assignment to all students, and conducted Apprenticeship Sourcing Drives in the Collaborating Institutions during November - January 2019. All students were successfully on boarded in companies for Apprenticeship Training. Location preferences of students were positively considered, and posted in the locations of their choices. Apprenticeship assignments had been arranged to all 449 students with monthly stipend in the ranging from Rs.9,000 to Rs.15,000 with an average of Rs.10,000.

Longitudinal Research Study on Skill & Attitude Development

Realising the national importance of Skilling in Higher Education, LSC has launched a Longitudinal Research Study on Skill and Attitude Development in students through the programme. T.A. Pai Management Institute, Manipal has signed for this experimental research as Knowledge Partner. All students pursuing the programme at various collaborating institutions constitute the Population for the study. It was decided to have complete enumeration of all students to have reliable data and meaningful analysis.

New Degree Programmes

Encouraged by the successful conduct of the Apprenticeship-based BBA/B.Com. Degree in Logistics, and on the persistent demands of the industry, LSC has designed six new apprenticeship-based UG Degree Programmes on various sub-sectors of Logistics viz,

1. Agri Storage & Supply Chain,
2. Air Cargo and Aviation Services,
3. E-commerce Operations,
4. Exim & Express,
5. Land Transportation (Rail and Road), and
6. Maritime Logistics.

Suiting their core focus of creating managerial skills in chosen verticals, these programmes are named as Bachelor of Management Studies. LSC has identified various cities based on skill-gap analysis and plans to launch them in 54 institutions in the ensuing Academic Year 2020-21.

In addition to the above six UG Programmes, LSC has also designed apprenticeship-based 'Diploma in Logistics Technology', to address the maintenance aspects of Material Handling Equipment, Warehouse Automation, Port Terminal Cranes and Container Handling Equipment, Liquid Terminal tankages and equipment, Air Cargo Handling Equipment etc. The Diploma programme would be launched in ten select Polytechnic Colleges.

On the directives of AICTE , in order to improve employability of Engineering Students, 'Logistics Specialisation Module' in 7th Semester followed by a spell of apprenticeship training for 6 months has been designed and activities to launch the programme in select Engineering Colleges have been initiated. AICTE has approved this in Mechanical, Electrical and Electronics, Mechatronics, Automobile, Marine and Production Engineering. The Diploma in Logistics Technology for Polytechnic Colleges, and Logistics Specialisation Module have been duly approved by All India Council for Technical Education.

LSC has also proposed an MS by Research program titled Data Science in Logistics and Supply Chain. We hope to get approval for the first time in country nomenclature in the ensuing Academic year.

Learnings from Implementing the Programmes

Most colleges approached by the Education Initiatives Team of LSC could not accept embedment of Apprenticeship within the programme period. They had counted the Teaching Semesters alone as the programme period. 'How can the apprenticeship period be counted as programme period, as the students would be away from the campus?' – the LSC Team faced this typical question from almost all institutions. The LSC Team understood in a hard way that the general assumption that private institutions would be much progressive, and would be willing to take initiative in introducing a new out-of-the-box programme was not true. Most 'progressive' and 'professionally' managed institutions turned down the programme citing different unfounded and unworthy reasons.

The institutions and faculty members did not understand the differences between 'Internship' and 'apprenticeship'. They treated apprenticeship training like what they do for internship assignments. Hence, they could not properly counsel the students even before they were on boarded on apprenticeship assignment.

Students, due to the lack of mentoring by faculty members, took considerable weeks to adjust themselves to the new environment during apprenticeship. Some students started behaving how they would do inside the college premises. Taking leave without prior approval, absenteeism, and improper behaviour / attitude with co-workers in the workplace went against the students. Students who did not correct themselves even after repeated warning were suspended from Apprenticeship Training. Few students pulled out of the degree programmes saying that they joined the programme 'only for studying', not 'working'.

Excessive 'care' of parents prevented many students to join the allotted workplace, as it was long distance from their homes, non-availability of 'homely' food, unacceptability of manual work during training, etc.

End Note

About 8 per cent of the students were either suspended or pulled out of the programme on their own due to the above reasons. However, the students who continued the apprenticeship training in spite of the above 'odds' have started enjoying their training. They provide many positive feedbacks to LSC getting skill imparted, their attitude getting shaped up during the training period, and enjoying the fact that they had become earning members of their families at the young age, and being recognised by the parents for their ability to work and earn during studies. This joy of new-wave students, and the positive feedbacks from them make the LSC Team tuned to make the programme successful. ❑

Making Education Employable: The Tasks Ahead

Swaraj Basu*

Philosophically speaking education is empowerment of mind with rationality and thinking. Education provides enlightenment and familiarizes one with discipline specific knowledge and cultural values to be educated. However, generally education is viewed as means of achieving skills to get gainful employment. Recently it is in the news that Ministry of Human Resource Development (MHRD), Government of India, is aiming to achieve massive enhancement in Gross Enrolment Ratio (GER) and also to provide quality higher education to the unreached. This is a commendable initiative and at the same time a major challenge before the nation. What is important to take note in this context that education needs to be linked with employment, otherwise we have a number of studies done to show that there is serious problem in terms of required skills for employment among graduates in various disciplines which include technology.

Price Waterhouse Coopers projects that automation and new style of working is going to create demands for new job resulting in a potential shortfall of 85 million qualified workers globally by 2020. But present employment scenario in India is a matter of concern for all. Automation is replacing jobs and skilling is yet to adapt to the situation.

'With the changing nature of work and workplaces, business activities are increasingly being delivered via a network of teams. The traditional silos of departments are being questioned and a new set of skills are required at individual contributor and manager level…Increasingly the desired skill sets of most occupations are likely to compromise of skills that are not yet considered crucial to the job today. As per certain estimates Cognitive Abilities, Systems skills, Complex problem solving, Content skills, and Social skills are some of the top skills that are likely to be a growing part of the core skills requirements for many industries. As per the World Economic Forum the future of jobs report, cognitive ability such as creativity, logical reasoning and problem sensitivity, will be required in jobs in 2020.'[1]

The All India Survey on Higher Education (AISHE) 2017-18 report highlighted that out of total enrolment in higher education about 79.2% are enrolled in Undergraduate level programme, maximum enrolment is in B.A. followed by B.Sc. and B.Com. Degree awarded to B.A. 23.89 lakh; B.Sc. 11.52 lakh and B.Com 9.39 lakh. Scenario at masters' level is not much different from this trend. Even in technical and professional institutions employability of students is a major concern. As per different surveys majority of them lack employable skills resulting in growing number of unemployment in India. Major reason for this is that most of teaching-learning experience is academic and not related to the real-job environment. It has been suggested by a study that present unemployment scenario is due to following factors:

- Lack of demand –driven skill training,
- Little use of technology in small and medium enterprises,
- Flawed labour reforms.

Generally people in education sector and industry are well aware of the situation but there is lack of action oriented strategy at policy making level to address the concern. Let us look at options which can be considered in the given scenario of higher education in India.

Enabling Curriculum

Entire education system at all levels is so much focussed around examinations that hardly there is any space for creative learning. Revamping of curriculum at all levels making it more experiment based and problem solving rather than emphasising on merely rote learning is the first step towards making education more meaningful. Experimental learning and learning beyond classroom should be core objective of teaching-learning at all levels. Higher educational institutions have turned into factories producing graduates having similar traits but not trained with desired skills required by employers. Educational institutions in general are failing to be the place where students can be groomed in such structured way that they develop skills to face the challenges of the changing world. We need to overhaul our curriculum to impart skills of critical thinking, creative thinking and culture of working in a team. To overcome the existing drawbacks in our

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curriculum planning and pedagogical approaches the Draft National Education policy document prescribes that:

'Curriculum and pedagogy in higher education will move away from rote learning of facts and mechanical procedures. They will help young people prepare to contribute both as active citizens of a democracy and as successful professionals in any field….A National Higher Education Qualifications Frame-work (NHEQF) outlining the learning outcomes associated with degree/diploma/certification shall be the guiding document for curricula across all disciplines and fields….Classroom processes including pedagogical approaches will move decisively away from pure rote learning, and will encourage rigorous training with conceptual understanding, development of fundamental capacities and dispositions, practical and hands-on exercises, discussions, and a sense of excitement about learning. Faculty must be empowered and supported by the HEIs to innovate and adopt pedagogical approaches that help make this happen. This would require going beyond the standard lecture method to use pedagogical approaches that involve student participation and dialogue, relevant field work and hands-on activities, and facilitating student ownership of learning experiences. Seminars, symposia, independent reading scaffolded by the teacher, and group and individual projects are some examples of pedagogical strategies that can be adopted. Cooperative and peer-supported activities can help substantially in empowering students to take charge of their own learning. A significant part of classroom pedagogy may be devoted to the 'how' of things, i.e., the application of theory and ideas.'[2]

There is no doubt that efforts are being made by UGC and AICTE for overhauling curriculum and they have also prescribed model curriculum to be adopted by universities and institutions. But there are practical problems in transacting the prescribed curriculum because of lack of adequate qualified faculty and also variations in standards in terms of resources available at various levels of institutions. In the absence of required qualified faculty and resources students are denied of benefits of proper learning. This creates problems with student engagement and motivation. Besides ensuring good teacher-student ratio, we should shift to learner- centred curriculum and problem-centred curriculum that would equip students with abilities to face challenges. Learner-centred curriculum focuses on student needs, interests and goals. This approach helps learners to shape their education through choices. Problem-centred curriculum design teaches students how to look at a problem and formulate a solution. This model helps students to develop skills which equip them to face real-life issues. This encourages creativity, innovativeness and collaboration in learning. In the backdrop of this when we look at curriculum design and delivery, both in general and profession education, one finds hardly any opportunity in most of our institutions to transact curriculum keeping in view the diverse needs of learners. As a result entire focus of teaching-learning is centred around getting degrees and not creative minds with ability to face challenges.

In this context I would like to draw attention of our readers to the choice based credit system and model curriculum prescribed by UGC for undergraduate and postgraduate studies in colleges and universities at national level. There is no doubt that such an initiative is expected to bring in desired quality in our higher education system. The new curriculum has inter-disciplinary courses and skill oriented courses which have been made compulsory to complete graduate degree, however majority institutions do not have academic resources to deliver the courses. This reality is known to everybody and such a noble idea ultimately fails to produce the desired outcome. We cannot ignore the hard fact that to-day most of higher education institutions do not have adequate number of faculties and even thousands of sanctioned faculty positions are lying vacant for various reasons. In such a scenario ideal curriculum development and transaction becomes difficult. Ultimately students are left to be happy with earning a degree which makes them not suitable for the employers. Therefore, prescribing curriculum is not enough unless the institutions are provided with required physical and academic resources to transact the curriculum. On this account both at the national and local level, due to bureaucratization and lack of policy initiatives, there is a major road block to initiate meaningful reforms in transaction of curriculum and also counselling students in right direction. The draft National Education Policy felt this gap and therefore suggests career support for students in its recommendation. It states, 'All institutions will ensure occupational readiness in their students. The curriculum will help students develop capacities for the world of work. In addition, institutions will

help students in other ways, e.g. through: placement/ counselling assistance to help them clarify their occupational choices, facilitate processes to identify employment opportunities, and set up interactions with potential employers; and workshops and short courses on specific workplace skills that may not be part of the regular curriculum.'[3]

Educating for Employment

We have to explore various options available before us to make education employable not only as policy but in reality. Over the years we have witnessed growth in number of universities and colleges and as per all India survey of education report we are having 993 universities, 39931 colleges and 10725 stand alone institutions.[4] But private participation in higher education is increasing faster than government funded higher education and as on date number of state private universities and deemed universities together form the largest number of universities compared to government funded universities. It is important to understand in this context that in spite of growing presence of private institutions graduates passing out of these universities failing to make much difference in terms of getting employment. Rather private institutions are focussing much on technical, management, medical and teacher education leaving general education for government funded institutions. Still except a few, majority of private institutions are yet to be the first choice of students and employers. There are reasons for that which needs separate discussion. Point to be noted is that private investment in education is not going to solve the problem of employability issue of graduates till decisive steps are taken by the government in this direction. Union government is trying to focus on skill development education, UGC in its portal provides curriculum framework for vocational education and attempt is also being made to make skill-based education mandatory for school and college curriculum framework. This is not enough to bring in change in the existing scenario. What is needed is integration of education with industry and soft skills. To achieve this challenge, we need a paradigm shift from the conventional approach with focus on innovation and new teaching and learning methods.

How to equip the youth with employable and entrepreneurial skills is the task ahead of us. Education is expected to create assets in the form of knowledge and skills which is referred to as human capital. We need to empower our youngsters with requisite skills to gain and retain appropriate gainful employment. All cannot be provided technical/vocational skills, we also have to impart better communication and problem-solving skills. We have to ensure that education facilitates to develop capabilities for critical and analytical thinking. Skilling needs to be an integral part of the education system. In many countries in Europe this has been achieved through participation of government, employers, academia and community. They focus on skilling from school level which sets the foundation for quality education.

Apprenticeships are an integral part of the skilling process which helps students to have job specific training and make them more relevant to the demands of the employer. This is globally recognized as effective means of skill development because of apprenticeship provides 'learning by doing' and 'learning while earning'. This equips students with on-the-job experience. Direct employer involvement in apprenticeship programme ensures relevance of the skills acquired. There are number of recommendations to strengthen the apprenticeship scheme which can be part of corporate social responsibility but this has not been executed in a big way. Industries of various levels-small, micro, medium and large should hire apprentices and this connectivity with industry makes higher education the best career route for the youth. Credit system needs to be introduced for training that they get in industry and this should also entitle them to get lateral entry into degree programmes. The success of apprenticeships lies in combining the formal educational opportunities with the workplace experience. Effective regulatory mechanism needs to be in place to keep check in the system so that desired output is achieved.

I would like to share in this context such an experiment made by the Oberoi Group of Hotels in collaboration with Indira Gandhi National Open University (IGNOU) for its apprentices who have joined them after doing their schooling. All these apprentices were selected all over India after doing their schooling and they were given stipends for three years when they were working for the hotels. Simultaneously these apprentices were admitted in degree programme with IGNOU and provided learning facilities like other students. After completion of three years all apprentices got certificate from Oberoi Group of Hotels which have market value for employment and completing examination they got graduate degree from IGNOU which provide

them opportunity to move to higher education if they desire so. In similar fashion we may think that huge number of undergraduates enrolled in about 40000 thousand colleges for general degree which does not equip them with desired skills required by employers. There are various skill oriented courses tying up with open universities and skill institutes that can provide additional skills to students. Take for example in agriculture and food processing one can have six months or one year courses in agricultural products marketing, food processing, poultry farming, horticulture, organic farming, etc. which may not only provide job opportunities but provide skills to start own business. Similarly short term courses in office management, banking parctcies, retail, data processing, etc. will help in getting employment or start own business. Besides these, there are many such avenues which can be explored.

Today jobs are becoming more and more specialized which need multidimensional skills and because of these employers emphasize more on capabilities instead of qualification. Technology is transforming the jobs and the skills required to deliver, therefore creativity, adaptability and decision-making abilities are much in demand. Along with domain knowledge technical and managerial skills are very much in demand, so the concept of upskilling and reskilling is also very much in requirement. Need is therefore to take initiatives to make education employable and relevant for youth as well as for the nation. Steps to be taken:

- Integration of skill curriculum at school level and learning should focus on problem solving capabilities.
- Vocational education needs to be integrated in general curriculum rather than be simply a distinct stream failing to attract best minds.
- Blended mode of learning is the need of hour keeping in view various forms of challenges we have. To cater to the complexities of problems of learning blend between open and distance learning, online, onsite, on the job and on campus for comprehensive development of capabilities may be an ideal approach to adopt.
- Decentralization of regulatory authority and accountability is needed to work in this direction.
- Public-private partnership with due diligence is very much important to accomplish this mission.
- Community college scheme needs to be effectively worked out and optimum utilization of physical and academic infrastructure of existing vocational training institutes is very important.
- Policy framework needs to be developed making apprenticeship/internship mandatory for private and public industry.

The way forward is effective collaboration between government, industry and academia to create a culture of self-learning and a sense of dignity for pursuing training and internships while studying. I am suggesting some areas for a few disciplines in Tables-1A to1D which can be extended to other disciplines where through collaboration between government, industry and academia short term need/skill oriented course can be offered to make education employable.

Rabindra Nath Tagore way back in the early twentieth century can be credited with taking the first path breaking steps in the field of education by establishing Visva Bharati (Shantiniketan)

Table 1 A: List of Programmes in Agriculture

Sl No.	Area of the programme	Level of programme (Certificate/dip/deg)	Independent or part of conventional programmes	Target groups	Collaboration envisaged
1.	Organic farming, Vermicompost production,	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	ICAR, KVKs, Sate Agril universities, ITIs, Agril colleges,
2.	Fruit and Vegetable processing	(Cert/dip)	Independent as well as AOCs	Rural youth, Farm women Farmers, Rural entrepreneurs	ICAR, KVKs, Sate Agril universities, ITIs, Agril colleges,

3.	Food safety	(Cert/dip)	Independent as well as AOCs	Rural youth, Technicians, Rural entrepreneurs	ICAR, KVKs, Sate Agril universities, ITIs, NABL Labs, Govt. labs,
4.	Mushroom production	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	ICAR, KVKs, Sate Agril universities, ITIs, Agril colleges,
5.	Poultry housing and management	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	ICAR, KVKs, Sate Agril universities, ITIs, Agril colleges,
6.	Beekeeping	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	ICAR, KVKs, Sate Agril universities, ITIs, Agril colleges,
7.	Sericulture	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	KVIC Institute, ICAR, KVKs, Sate Agril universities, ITIs
8.	Watershed management	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	KVIC Institute, ICAR, KVKs, Sate Agril universities, ITIs
9.	Water harvesting	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	KVIC Institute, ICAR, KVKs, Sate Agril universities, ITIs
10.	Solar pump operator	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	KVIC Institute, ICAR, KVKs, Sate Agril universities, ITIs
11.	Value added products from cereal, pulses and oilseeds	(Cert/dip)	Independent as well as AOCs	Rural youth, Farmers, Rural entrepreneurs	KVIC Institute, ICAR, KVKs, Sate Agril universities, ITIs

AOCs: Application Oriented Courses

Table 1B: List of Programmes in Livestock Sector

Programme	Target Audience	Collaboration
Diploma in Dairy Technology (DDT)	Technician level human resource for dairy industry. Upgrading technical proficiency of in-service workers in dairy & allied sectors Entrepreneurship & self-employment in dairy processing activities.	Ministry of Food Processing Industries; Ministry of Agriculture & Farmers Welfare; ICAR; NDDB; State Agriculture & Veterinary Universities; State Animal Husbandry Departments.
Certificate in Poultry Farming (CPF)	To provide basic knowledge and technical skills in Poultry Feeding, Housing, Management and Health Care. To develop human resource in the area of Poultry Farming.	Ministry of Agriculture & Farmers Welfare; ICAR; State Veterinary and Fisheries Universities; State Animal Husbandry Departments.
Awareness Programme on Dairy Farming (APDF)	To imparts knowledge and technical proficiency in Dairy Farm Management Practices, Animal Healthcare, Fodder Production and Clean Milk Production To encourages entrepreneurship among youth for self-employment.	Ministry of Rural Development; Ministry of Agriculture & Farmers Welfare; NDDB; ICAR; State Agriculture & Veterinary Universities; State Animal Husbandry Departments
Diploma in Fish Products Technology (DFPT)	Technical human resources in post-harvest management of Fish and Fish Products. Upgrading technical proficiency of in-service workers in the Fish Processing sector.	Ministry of Food Processing Industries; NFDB; ICAR; State Veterinary and Fisheries Universities.

Diploma in Meat Technology (DMT)	Development of human resource for meat industry. Training of personnel for self-employment and creating awareness and competency in the meat processing & poultry processing.	Ministry of Food Processing Industries; Ministry of Agriculture & Farmers Welfare; ICAR; State Veterinary and Fisheries Universities; State Animal Husbandry Departments.
Diploma in Animal Husbandry (DAH)	To build the capacities of para-veterinarians in animal health and production.	Ministry of Agriculture & Farmers Welfare; NDDB; ICAR; State Agriculture & Veterinary Universities; State Animal Husbandry Departments
PG Diploma in Animal Welfare	To build capacities of multiple-stakeholders in animal welfare science, ethics, issues and standards.	Ministry of Agriculture & Farmers Welfare; Ministry of Environment and Forestry; ICAR; State Agriculture & Veterinary Universities; State Animal Husbandry Departments; Animal Welfare Board of India

Table 1C: List of Programmes in Information Technology

Sl No.	Area of the programme	Level of programme (Certificate/Dip)	Independent or part of conventional programmes	Target groups
1.	Certificate / Diploma in Mobile Application Development	Certificate/ Diploma	Independent	10+2
2.	Certificate in IOT	Certificate	Independent	10+2
3.	Certificate in Data Analytics	Certificate	Independent	10+2
4.	Certificate in Machine Learning	Certificate	Independent	10+2
5.	Certificate in Blockchain	Certificate	Independent	10+2
6.	Certificate in Building Chatbots	Certificate	Independent	10+2
7.	Certificate in Responsive Website Development and Design	Certificate	Independent	10+2
8.	Certificate in Deep Learning	Certificate	Independent	10+2
9.	Certificate in Artificial Intelligence	Certificate	Independent	10+2

Table 1D: Food and Nutrition

Sl No.	Area of the programme	Level of programme (Certificate/dip/deg)	Independent or part of conventional programmes	Target groups	Collaboration envisaged
1	Certificate Programme in Food and Nutrition	Awareness level programme	Independent	Rural, Urban Women, youth, entrepreneurs, social workers, medical, paramedical workers, Government functionaries	ICMR, State Home Science colleges/Universities.
2.	Certificate in Nutrition and Child Care	(Certificate)	Independent as well as AOCs	Rural urban youth, women, entrepreneurs, day care centre workers	ICMR, National Home Science Colleges, Mobile crèches
3.	Food safety	(Certificate/Diploma level)	Independent as well as AOCs	Rural, urban women, youth, Food handlers, supervisors, managers technicians, food sector entrepreneurs	FSSAI, Sate Home Science Colleges, NABL Labs, Govt. labs,

4.	Nutrition and Health Education	(Diploma)	Independent as well as AOCs	Rural, Urban Women, youth, entrepreneurs, social workers, medical, paramedical workers, grass root level Government functionaries	ICDS, ICMR, Home Science Colleges, NGO's
5.	Pediatric Nutrition	(PG Cert/dip)	Independent	Health professionals, nutritionists, paramedical staff, pharmacists, food scientists, entrepreneurs	ICMR, Government and Private Medical Colleges and Hospitals, Food and Nutrition colleges/ departments, Dietetic departments, private institutions
6.	Dietetics and Food Service Management	(Master level programme and PG Diploma)	Independent	Health professionals, nutritionists, paramedical staff, pharmacists, food scientists.	ICMR, Government and Private Medical Colleges and Hospitals, Food and Nutrition colleges/ departments, Dietetic departments, private institutions
7.	Food Science and Technology	(Master level programme and PG Diploma)	Independent	Health professionals, nutritionists, paramedical staff, pharmacists, food scientists, entrepreneurs	KVIC Institute, ICAR, KVKs, Sate Agriculture/ Home Science Universities, ITIs
8.	Sports Nutrition	PG Diploma	Independent as well as AOCs	Physical education graduates, nutritionists, home scientists, coaches, athletes, sports persons, Pharmacological and nutraceutical industry workers, Rural , urban youth	Sports Authority of India, Food and Nutrition Departments/colleges, SAI Training centres
9.	Public Health Nutrition	(Cert/dip/PG level / Master's programme)	Independent as well as AOCs	ICDS/NRHM workers, Health professionals, nutritionists, paramedical staff, pharmacists, food scientists, social workers, economists	ICMR, Government and Private Medical Colleges and Hospitals, Food and Nutrition colleges/ departments, Dietetic departments, public health institutions

at a time when the country was confined to the European mode of education based on textual and examination oriented knowledge within the boundary of classrooms. He broke the tradition and introduced new concept of experimental education based on skill and human values for the welfare of community. Time has come to make education free form the shackles of examination and to create an environment of experiment oriented learning to ignite potentialities among students.

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Internationalization of Higher Education and Positioning Indian Universities in Global Rankings

Manoj Pant*

In today's world internationalization of higher education is unavoidable. With enormous advances in communication technologies, any institution which fails to cater to an international curriculum and outlook will fail by the wayside. In particular, today almost all companies are global in nature as production itself is highly internationalized in global value chains. Hence, business students must be familiar with international issues political, economic and legal. Higher education institution also need to have international focus as competition is now at a global level for a global set of students.

Hence, looking at ten years ahead, institutions will have to reflect on the implications of a changing international scenario. Here, the issue is the need to change the way in which teaching is organized. Major changes will be required in the standard business school curriculum which must include discussions on the dynamics of international politics. This implies that in these institutions reform in education cannot happen unless the incumbent faculty itself has an international outlook in terms of teaching, research and case studies. A continuous development of the faculty will itself require systematic and continuous interaction with foreign faculty and students. This objective is best served where institutions have a fairy heterogeneous set of faculty both in terms of national and international origins.

We have already noted that internationalization of higher education implies that institutions must also cater to a global set of students rather than looking at the national scenario. However, as competition for higher education intensifies, both at the local and international level, the choice facing prospective students become larger and larger. Here, the issue of international accreditation comes in. International accreditation landmarks (for example as given by AACSB and AMBA) are now increasingly becoming standards by which students can make a reasoned choice. Apart from this, as institutions collaborate and compete internationally, the ranking parameters give some indications as to which are the most suitable collaboration partners. It is not to say that international accreditation (global rank) is the only criteria as many countries have crucial local social issues to address. However, it does allow students some objectivity in making an objective choice. More and more students are using such ranking and accreditation criteria in choice of institutions. This is particularly important in business schools.

Last but not the least in internationalization of higher education, curriculum and global standards implies that such institutions which face international competition must be provided a level play field. Here, the most important factor for any institutions is autonomy of operations (hiring of faculty, starting new courses, changing curriculum etc.). In India, too such flexibility is crucial subject to an objective regulatory framework with limited political inputs.

It is evident that India today is moving towards such a framework. If however, such autonomy is not quickly extended most institutions in India will fail in facing global competitiveness. ❑

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Attracting International Faculty and Students to Indian Higher Education System: Challenges and Opportunities

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Being largest education system in the world, there is huge potential for further development through constantly focusing on quality of education and strengthening its position in the global student market. The Government also realized the importance of attracting international faculty and students to Indian higher education system to bring diversity and cross-cultural exposure by launching many schemes like 'Study in India', Rusa, Sparc, Impress, Gian and Vajra. All the initiatives are timely but also require adherence to various strategic planning to make it successful. Union budget 2020 is woven around three themes – aspirational India, economic development, and compassionate (caring) society. India has always been an international center of learning by embracing courses on theme of 'Studying Indian context' like Compassion, Yoga, Mindfulness, Social, Emotional, and Ethical Learning (SEE-Learning). Such courses are also the core of thought and vision set by present Government of India, known as 21st century skills, also considered to be prime attraction for international footfall in Indian education sector. In alignment to set agenda as per Union Budget 2020 for India, JK Lakshmipat University successfully introduced a course on SEE-Learning for its MBA students. Indian higher education institutions have the right blend of ambition and potential to attract international students.

India's prospects as a rising power on account of being world's fastest growing economy with integration into global economy, strategic culture, and material position in the international system have received significant attention; further to achieve status of internationalization, India should take advantage of its position in global world order by providing more opportunities driving hefty growth of international faculty and students in Indian higher education system (Monga, 2016).

Internationalization is mandate for strengthening global perspective of Indian Higher Education System. Inbound faculty-student mobility, internationalization of education through range of academic practices, research collaborations, inclusion of international and intercultural dimension in programs, are major pathways for institutes and universities to embark on global landscape.

In the spirit of the essential modernization, liberalization and globalization; no institution can suffice with prime focus on imparting subject skills and knowledge. Students graduating from Higher Education Institutions should include plethora of skills with global mindset to function and communicate well in cross-cultural environment of 21st Century. Offerings for international students can be varied from full degree programs, to a year duration or semester-long exchange programs, practice schools, internships, and cultural immersion programs (Star, 2018).

Having more international faculties or students will definitely embrace cultural diversity, value-based education system, and also strengthen relationships at international front. This will significantly usher global experience, valuable knowledge, and cross-cultural lessons into the Indian classrooms. Some institutions in India are privileged enough to brag foreign faculty and international students, still a lot has to be done to increase the number. International faculty and students bring diversity, new perspectives and insights to research and teaching. The increased numbers of international faculty and students is the significant parameter by the global rankings.

Challenges

Internationalization should become an integral part of continuous change process of Indian higher education system, as it provides juncture to exhibit the brand value of an institution and its programs to global audience. According to an International Association of Universities survey, 1336 higher education institutes surveyed from 131 countries reflected that 53 per cent possess international policy/strategy, while 22 percent are in preparatory stage. Further, 66 percent are assessing implementation of internationalization policy and 61 percent have a dedicated budget for internationalization.

In 2017-2018, there were only 46144 international students in India and only 40 foreign faculty teaches

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across the 23 IIT's which is less than 1 per cent of all 5400 faculty members. Polluted environment conditions and high crime rates are not easily favorable for any international person to sustain. While the count of foreign faculty is reasonably good at some private universities but still the total number of international faculty teaching in India is overall very low. Government initiatives help IITs to attract more foreign students and teachers. However, challenges still persist in hiring scientists and technocrats who have many good options to consider. Indian institutions should offer competitive salaries and perks to international faculties comparatively more than locals. In world ranking framework, an international outlook is evaluated by the number of international faculty members and students; as well as international research collaborations. Thus greater internationalization at Indian universities will surely improve global rankings (Pushkar, 2018).

Opportunities

India needs best practices to capitalize on internationalization opportunities. Governments introduced Rashtriya Uchchatar Shiksha Abhiyan (RUSA) scheme to get associated with international universities. Other schemes like SPARC and IMPRESS are for promoting research and academia collaborations with foreign universities. Study India is another government initiative and the objective is to promote India as a destination for international students. "Study in India" scheme was launched jointly by four ministries—human resource development, external affairs, home and commerce. Vision of this initiative is to "Learn and Experience fascinating niche courses". The University Grants Commission (UGC) allows excelling universities to hire 20 per cent international faculty on tenure basis as part of total sanctioned faculty strength. This will also help in attracting academicians of Indian-origin. Courses related to liberal arts, engineering, management and law increase international competitiveness and strengthen position in global rankings. UNESCO statistics reveal the places of choice of overseas students to study further. India does not appear in top 20 destinations. Even Malaysia, Egypt, and UAE attract more foreign students than India. In July 2019, India's finance minister Ms. Nirmala Sitharaman said that Rs. 400croreshave been earmarked for 2019-2020 under the head 'World-class institutions' (Altbach, 2019).

Indian universities are working for broader visibility as centers of quality global education by meeting standards of global ranking frameworks. Organizations such as Quacquarelli Symonds (QS), Times Higher Education (THE) and US News are ranking Indian Universities on global perspective. Presently, India is striving hard to make it into positions amongst top 200 institutions globally. Government is also taking initiative by instituting a National Institutional Ranking Framework (NIRF) to ensure that Indian institutions meet global standards. Government is also devising strategic funding channels to designate some private and public universities as Institutes of Eminence expecting high operational standards. Such initiatives will help Indian institutions to emerge as global centers of education and research excellence. Internationalization through appointment of global staff is one of the elements towards attaining the status of 'Institution of Eminence". Government goal is to attract 20 per cent international faculty to the Indian Institutes of Technology (IITs). According to the Association of Indian Universities (AIU), presently India has more than 79000 international students enrolled and thus India possesses credibility to attract and retain foreign faculty and students. Draft National Education Policy – 2019 (DNEP) envisions a robust program of internationalization by providing scope for student and faculty mobility, international research partnerships, cross-border delivery of higher education programs, easing the process of enrolling students from across the globe, as well as the possibility of carrying credits internationally. The emergence of the new global environment has increased inward mobility of international students to Indian institutions mainly from Asian and African countries, possibly because the cost of pursuing higher education and cost of living in India is quite low. Indian government waived all prior security clearance requirements, now institutes across India can hire foreign faculty members without clearance from Ministry of Home Affairs and External Affairs. However, there is still mandatory clearance check to foreigners from Pakistan, Afghanistan, Iraq, Sudan, etc. (Yeravdekar, 2018).

IITs are free to set the fees for foreign students to make it competitive and affordable to many countries. To attract international faculty and students in Indian higher education system, IITs and other institutions should give priority to course diversity in the area of humanities and social science programs. Good institutes are in the race to join the ranks of global world-class higher education institutes,

however, Indian academic salaries are not globally competitive, and research funding for professional development and resources available as per global standards are critical. China and a few more countries primarily focus on significant research funding offered to foreign faculty. Rigidness in curriculum design, evaluation and assessment process, and traditional Teaching-Learning Processes are some other challenges (De 2015).

By diving deep into international academics, one category is senior professors which are tough to lure to India as they have established careers at attractive international salaries, therefore considering relocation is not attractive. Another category is retired professors but they may no longer be productive researchers. Next to it, are NRIs who have good academic record and interested to come to home country on tenure track basis. Lastly, younger scholars who have sometimes limited ties with universities and local communities and hence are more mobile. The last category might not lead to immediate impact to Indian universities as they have not achieved high in their career but still they can provide quality teaching and significant contribution in research, that lead to useful international perspective. The steps and initiatives taken by the private universities have proved that is it feasible and possible to attract foreign faculty (Altbach 2019).

Best Academic Practices in Indian Higher Education System

International faculty and students will come to India for illustrious educational history (University of Takshashila and Nalanda) and rich cultural heritage. People are attracted to know and learn more about India in terms of Business, science & Technology, Flora & Fauna, Geography, Culture, History, Spirituality, and rich contribution of India for society. Courses stretched or designed for term, semester and year long duration on theme of Studying Indian Context would be great help for International learners in the role of faculty or student. Studying specific Indian courses like Social, Emotional, and Ethical Learning (SEE Learning), Compassion, Happiness, Yoga, Spiritualism, Art of Living, Mindfulness, Ayurveda, Indian economics, politics or anthropology are prime attraction for international footfall in education sector. India's education system is vast and diverse which itself attract students to study "Indian-Context". Among one of the old civilizations with cultural-diversity ranging from Himalayas to the Rajasthan, India is also growing in the area of cutting edge technologies. Studying in India is affordable and experiential. In modern India, presence of guru like Sri Sri Ravi Shankar, Baba Ramdev, Sadhguru, etc. make students life-ready and life-long learners.

Figure 1: Step-Up Strategies to attract International Faculty and Students

JKLU Initiative Towards Internationalization

First, the Teaching-Learning pedagogy at JK Lakshmipat University is project based learning under the mentorship of one of the world's best engineering institutes – Olin College of Engineering, USA. As part of new curriculum development at JKLU, project-based learning is a major component, which will drive experiential learning and hands-on experience for the students. With the guidance of mentors from Olin who regularly visit the university to train JKLU faculty, and work on curriculum and assessment. At the campus, JKLU students are immersed in projects, understanding and solving different problems. Second initiative toward internationalization is that JKLU has been able to attract foreign faculty in significant percentage over total faculty members and has embarked on a journey which is a big step for any private university.

As third initiative, JKLU students are studying various courses related to 21st century skill sets such as Power of Storytelling, Law and Ethics, Design Thinking, Critical Thinking, Social, Emotional, and Ethical (SEE) Learning and many more. SEE Learning is a 20-hours duration course for Pinnacle MBA program focusing mindfulness, compassion, and ethics which is foremost requirement in expanding the students' horizon. This course draws inputs from various fields and ideologies stressing the need of holistic approach to education that cultivates a values driven professionalism.

The course contents are based upon the syllabus developed by the *Center for Contemplative Science and Compassion Based Ethics* at Emory University, USA. It intends to develop competencies in three domains: social, emotional and ethical. Course includes sessions, lectures, discussions, field work, group assignments, and reflective exercises as an engaging experience towards nurturing the competencies. From this course, students will be able to gain attentiveness and awareness of their own thoughts and feelings and develop self-regulation skills. Learning from this course also helps in developing consciousness and compassion for others and their interdependence in broader systems within which they live. Assessment and analysis of the importance of ethical behavior in professional life as well as in building a sustainable society is also a learning objective. This particular course helps students to explore self-compassion in the personal domain with regard to the body,

Figure 2: SEE-Learning at JKLU

the mind, and emotions; compassion for others and compassion in a systemic context. It also helps the students in exploring the important role of our bodies, and in particular our nervous systems, play in our happiness and well-being. It helps students learn simple strategies to enhance resilience to stress and adversity. Students develop fundamental literacy about emotions, able to cultivate practices of emotional discernment and emotion regulation for the benefit of both oneself and others. System thinking is critical to ethical and responsible decision making. Students are induced to think that if decisions are repeatedly made without thinking about long term consequences for self and others, they will less likely be responsible and beneficial (Raina 2019).

The measures as per Indian standards taken by JK Lakshmipat University with various innovative initiatives are determined and committed to step ahead in making such courses as part of curriculum. Through such steps it is feasible to attract international faculty including faculty having Indian-roots.

Conclusion (Way Forward): Indian Higher Education Globally Competitive

Indian higher education system should primarily focus on strengthening the institute position in World Rankings (QS World University Ranking, Times Higher Education World University Rankings etc.), constantly work for teacher's training from world's top universities. Intense check on student intake quality, fair evaluation and assessment policy should be as per global standards. Standard academic practices, ethics and integrity are to be maintained at zero tolerance. Hiring of globally recognized domain specialists in the roles of faculty needs enhancement. Teaching pedagogy should meet global practices like experiential and hands-on-learning in academics. University administrations need to regularly work for diversity on academic campuses by making use of government programs such as Global Initiative of Academic Networks (GIAN), Visiting Advanced Joint Research Faculty Scheme (VAJRA), Scheme for Promotion of Academic and Research Collaboration for international collaborations, etc. Liberal funding policies to promote research, consultancy, research labs, IPR, publishing and salary structure as per global standards are some ways to which international faculties can be positive for relocation on tenure track. Food quality, health issues and security are concern of highest order for any international faculty and students. Curriculum flexibility needs to be provided, e.g. in a blended curriculum in terms of adaptability and accessibility conducive to international students' needs and expectations. Enrichment of classroom and beyond-classroom experience will play a major role in international student satisfaction.

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Internationalisation of Higher Education and National Qualification Framework: Imperatives for National Education Policy 2020

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Higher education systems across the world is undergoing rapid change with many innovations in teaching-learning, research, evaluation and all other processes involved in transaction of a university system. Changes are steered by corresponding needs and requirements of the VUCA world. Indian higher education system too is in the process of transformation through the reforms initiated by the government time to time. But there was a need of major policy reform as the last education policy was revised way back in 1986 and many of the recommendations of National Policy on Education (NPE), 1986 are either half implemented or yet to be implemented. In the meantime, 34 years have passed and within this long span of time much water has flown under the bridge. The old policies have become obsolete holding no relevance to the demographic, economical, environmental and technological and other changes ushering into the society at a rapid pace. In this scenario, the effort of Government of India in launching the much needed National Educational Policy (NEP)-2020 is laudable. The Policy envisions an education system rooted in Indian ethos that contributes directly to transforming India into an equitable and vibrant knowledge society, by providing high-quality education to all, and thereby making India a global knowledge powerhouse. The Policy gives life to the long standing aspiration of the people of the country to regain its past glory of becoming V*iswaguru* and reviving its ancient vibrant knowledge system. The implementation of the recommendations of this Policy will give quantum leap to Indian Higher Education System provided they are executed in right spirit and in timely manner. To accomplish this onerous task for a country as large and as diverse as India, the key will be finding the grey areas and eliminating the existing contrasts in the system to give an upward thrust to the quality of higher education.

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The interesting trend that has emerged in the Indian higher education system is its steep progression in some areas and acute lagging behind in other areas creating extreme contrasts. Consequently, the system is dwindling between the contrasts and grappling with diversified issues. On the one hand we are the third largest higher education system in the world and on the other we find no place in the list of world's best universities. One finds impoverished universities and colleges in every nook and corner of the country and simultaneously we have five star elite institutions which nourish the chosen ones who are rich and influential. There a few islands of excellence and large pool of institutions infested with mediocrity. With the present Gross Enrollment Ratio (GER) of only 26.4 per cent, still about 73 per cent of our youth in the age group of 18-23 remains outside the periphery of university system. When it comes to relevance, most of the graduates of Indian universities are neither equipped with knowledge and skills for gainful employment nor are ready for self-employment or entrepreneurship. Though, we accolade ourselves in the areas where we are doing well, we are lagging behind in many other areas which needs immediate attention. Some of the glaring areas which need cognition are:

Skewed Supply-demand Gap

At present India has 1041 university level institutions and about 52,627 colleges. Total enrolment in Higher Education (HE) is estimated to be about 38 million with Gross Enrolment Ratio (GER), calculated for 18-23 years age group is 26.3 per cent. The Higher Education sector in India is the third largest in the world and the fastest growing one. It is estimated that by 2027 India would have the largest populace enrolling for collegiate and other higher institutions and by 2030 it is expected to be one of the top youngest nations in the world with the largest population in the tertiary education age bracket. This is aptly regarded as a Demographic Dividend and it needs to be capitalized upon. But to achieve this, skill and competency-based education of international standard needs to be provided to the masses to convert India into the largest talent pool in the world. With about 73 per cent youth remaining out of the university portals, it is a tough target to achieve the enormous unmet demand

for higher education. The number of higher education institutions are very less to bring such a large chunk of youth to the portals of higher education. Also, the access to higher education is uneven with multidimensional inequalities in enrolment across population groups and geographies.

Low Quality of Teaching and Learning

The system is beset by issues of quality in many of its institutions: a chronic shortage of faculty, poor quality teaching, outdated and rigid curricula and pedagogy, lack of accountability and quality assurance and separation of research and teaching.

Constraints on Research Capacity and Innovation

With a very low level of PhD enrolment, India does not have enough high quality researchers; there are very few opportunities for interdisciplinary and multidisciplinary working, lack of early stage research experience; a weak ecosystem for research and innovation, and low levels of industry engagement.

Uneven Status to the Higher Education Institutions

In India, 93 per cent of students in Higher Education sector are studying in state universities, and colleges affiliated to these universities and 7 per cent of the students are studying in central universities and other higher education institutions. But the impact of reforms are mainly seen institutions catering to 7 per cent students and institutions catering to 93 per cent students struggle with fund deficits. The funding pattern between central universities and state universities is presently lopsided with central universities getting the major share of funding, although state universities are catering to majority of the student population.

Lack of Skill Component and Technology Component in the Courses

The courses offered in Indian universities are highly compartmentalized and confined to subject knowledge without sufficient skill base. The components like technical skills, communication skills and interpersonal skills are lacking in the graduates which makes them unemployable and un-entrepreneurial.

Lack of Uniform Credit Based Evaluation System

Despite several efforts by University Grants Commission (UGC) and Ministry of Human Resource Development (MHRD), Credit System is not adopted uniformly in all the universities. Consequently, the students at the graduation and post-graduation level have limited choices to opt for a course from another university. They are deprived of the benefits like credit transfer, credit accumulation etc. which are being enjoyed by the students in Europe and other countries. Moreover, the Indian education system is so diverse it creates problems of comparability and difficulties in establishing equivalence in the country itself.

Lack of Qualification Framework

There is no defined National Qualification Framework in the country to enable decent exit and entry of the students in the courses as per their interest and convenience. Education being in the concurrent list, many states have their own qualification frameworks and nomenclature to the courses. The system is fragmented, disjointed and uneven due to which it is not able to assert effectively in the present age of globalization. However, for technical courses, a National Vocational Qualification Framework (NVQF) has been devised by All India Council for Technical Education (AICTE).

Lack of Clear-Cut Policies and Strategies for Internationalization

Notwithstanding the fact that India has become the founding Member of General Agreement on Trade and Tariffs (GATT) since its establishment in 1948 and also a signatory of GATS, the policies and strategies of internationalization are not clearly laid down. The pace of internationalization of higher education in India as far as inflow of universities, faculty and students from other countries is rather very slowly. The ration of inflow and outflow of students is quite disproportionate as about 8 -10 lakh students go abroad for higher education making India second largest in sending students to other countries, whereas hardly, 46,000 students come to our country for studies which is a matter of great distress.

On the whole, the situation of Indian higher education is quite paradoxical at this juncture. On one hand it made several strides and brought several laurels for the country on the other hand it is yet to provide wide access and bring a large chunk of its youth population of the age group of 18-23 to the portals of higher education and equip them with adequate level of knowledge and skills to meet the targets of modern knowledge economy. The development has been lopsided with sectors like Engineering, IT booming, and others like History, Social Sciences etc dooming. This contrasting situation can be attributed to '*Systemic Unpreparedness'*.

The universities can respond to this challenge by realigning their roles in the line of reforms and innovations suggested in NEP-2020 to meet the

demands of fast changing world where the educational possibilities are innumerable. Indian Higher Education has to adapt itself to contemporary requirements and respond to forthcoming challenges. As per the authors' view, the most urgent requirement is to make pace with the race of internationalization, apropos globalization with other countries which has become an all-pervasive phenomenon in the higher education system across the globe. This is also an essential step to achieve top ranks in Global Rankings of Universities. In other words, the Indian Higher Education system needs drastic reforms to meet these unmet needs. In this article, certain dimensions of internationalization and the need for creating National Qualification Framework for Indian Higher Education in the context of New National Education Policy have been discussed. The discussion is aimed at providing strategies to address these issues which will go a long way in reimagining Indian Universities as well as evolution of higher education to next phases of development viz. Education 4.0 and Education 5.0 which are standing at the door steps.

Brief Sketch of Internationalization of Higher Education in India

Our national enthusiasm for internationalizing the higher education sector basically stems from the all-encompassing globalization process which included education among the other service sectors and converted it to a tradable commodity under the World Trade Organization (WTO) and General Agreement on Trade in Services (GATS) framework, on the enforcement of the Marrakesh Declaration 1995. Nevertheless, internationalization has been an ever-existing phenomenon in Indian Higher Education. The Indian universities have been maintaining their interaction with international bodies that seek collaboration and partnership. But the situation is not reciprocal as mentioned earlier, the inflow and outflow of students are quite disproportionate with about 8 -10 lakh students going abroad for higher education and hardly 46, 000 students coming to our country for studies.

Earlier, though some sporadic measures were initiated for accelerating the pace of internationalization of higher education, the new policy for the first time has made a concrete attempt in devising structured policy for giving a thrust to the efforts. It targets on making India a knowledge hub attracting foreign nationals and to promote research collaboration and student exchanges between Indian institutions and global institutions through organized efforts. Exchange of Credits between foreign universities and home institutes will be permitted, to be counted for the award of a degree in appropriation as per HEI. This is a significant reform that would benefit in seamless education and industrial jobs across the globe. With this, the pace of internationalization of higher education in India; which so far was taking place rather slowly, will gain momentum.

With the recommendation of allowing foreign campuses, the Indian higher education will be having both hopes and apprehensions. Hopes are increased supply and therefore, greater access of international higher education at door steps for Indian students, support for the knowledge economy, development of joint degrees, fusion or hybridization of cultures, support in market-based approach, economic benefits for education providers, and diversification and generation of new academic environments. The apprehensions are concern about quality of provision, inequality of access leading to a two tier system, the growing problem of physical and virtual brain drain on the developed and developing country axis, homogenization of culture, weakening role of the state in establishing national policy objectives, growth in market-oriented programmes such as business and information technology, etc. Though the policy advocates liberal arts programmes, but the foreign campuses may be more interested in market oriented lucrative courses.

India's strategy with regard to internationalisation of higher education should be based on its potential to be an effective aid to the mitigation of the basic problems facing this sector. So far, the liberalisation policies have induced foreign providers to focus only on certain technical and professional fields of study that can earn them good market returns. In contrast to these, it is better to design a strategy that taps foreign universities and institutes of acceptable quality to work together with Indian universities/institutes to improve both access and quality. Augmenting and strengthening the capacity to produce more faculty in selected fields through such partnerships will help public universities play a more effective role in higher education. Despite strong ambitions and efforts, the Indian higher education system is lagging behind in the area of Research as is evident in World Rankings of universities. There are very few scholars in our country whose writings are cited internationally. There are insufficient resources, facilities and quality faculty to guide the students leading to low profiling of our research output. All these need special attention in the process of internationalization.

The Road Ahead

As discussed, the road ahead for internationalization is not that smooth as we have to address and resolve certain issues which include:

i. Scale up the inflow of students from foreign countries for higher studies through projects like Study India Programme;

ii. Facilitate the admission of foreign students in the distance education and online programmes of Indian universities;

iii. Permit foreign universities to establish branch campuses in India to offer educational programmes on our terms and conditions, as already mentioned in the NEP- 2020.

iv. Encourage foreign universities to offer joint programmes in collaboration with Indian institutions on a much larger scale. This could include twinning, franchising and other modes;

v. Offer contracts to reputed foreign universities to collaborate in the creation of world-class universities in India;

vi. Make our top universities/institutes a destination for foreign students on a large scale; and

vii. Encourage Indian institutions to set up campuses/ collaborations in other countries to meet the growing international demand for higher education.

Each of these can be evaluated in terms of its likely contribution to solving the problems of our higher education system. Certain questions in this regards are: Will it improve access and quality? Will it augment the reach of higher education and achieve the goal of equity? Will it help the country to augment resources or improve its regulatory effectiveness? Is it likely to succeed at this stage of the country's development? Perhaps, none of these options will satisfy all of our criteria. But some indication of which modes are more appropriate and timely may come out if assessed properly.

Some Vital Issues for Effective Internationalization of Indian Higher Education

In its document for quality provision in cross-border higher education: *Where do we stand*? The OECD UNESCO 2005 provides Guidelines for participating countries for successful internationalization of higher education. The Guidelines recommend that:

- Countries put in place systems of quality assurance and accreditation for cross-border higher education, and make it clear under which conditions, if any, foreign educational providers and programmes can operate in the country. This can be a shared responsibility across several groups, most notably governments and quality assurance and accreditation bodies.
- Existing frameworks and arrangements for cross-border higher education be comprehensive and cover cross-border higher education in all its forms (people mobility, programme and institution mobility, distance and e-learning) and for both public and private provision.
- Student and consumer protection meant to limit the possible risks of misinformation that cross-border provision can entail for students, but also other stakeholders (parents, employers, consumers of professional services, etc.).
- Countries should be transparent about their cross-border higher education frameworks and arrangements. Transparency refers to the publication or ease of access of information for foreign providers interested in delivering cross-border higher education in a country and, to a lesser extent, the predictability of the outcomes of the framework.

In a complementary spirit to consumer protection and in line with the transparency objective for providers, the Guidelines recommend to make information about tertiary education institutions, accreditation and quality assurance bodies easily accessible to potential international students, including the procedures and outcomes of their assessment. A final objective of the Guidelines is to encourage national and international collaboration between all stakeholders, in order to foster better mutual understanding, trust, capacity development, and, ultimately, a better recognition of qualifications. (OECD 2005).The guidelines focus on protecting the students from risks of misinformation. This can be done by increasing transparency about their cross-border higher education frameworks and arrangements. This includes making information about tertiary education institutions, accreditation and quality assurance bodies easily accessible to potential international students, including the procedures and outcomes of their assessment. Most importantly, this should facilitate better recognition of qualifications and facilitate Mutual Recognition of Academic and Professional Qualifications.

In response to this all the leading countries have concretized their National Qualification Frameworks. A Qualifications Framework is an instrument for the development, classification and recognition of skills, knowledge and competencies along a continuum of

agreed levels. It is a way of structuring existing and new qualifications, which are defined by learning outcomes, i.e. clear statements of what the learner must know or be able to do whether learned in a classroom, on-the-job, or less formally. The Qualifications Framework indicates the comparability of different qualifications and how one can progress from one level to another, within and across occupations or industrial sectors (and even across vocational and academic fields if the NQF is designed to include both vocational and academic qualifications in a single framework (Tuck, 2007). National Qualification Frameworks are structured around a hierarchy of reference levels that are intended to reflect the relative challenge required to achieve the knowledge and skills encapsulated by a qualification (Leighton Ernsberger, 2012). According to South African Qualification Authority, the NQF is a set of principles and guidelines by which records of learner achievement are registered to enable national recognition of acquired skills and knowledge, thereby ensuring an integrated system that encourages lifelong learning. It provides a vision, a philosophical base and an organisational structure, for the construction of a qualifications system. It will also facilitate and, in the long run, eliminate the cumbersome process of gauging equivalencies of degrees and diplomas within the collaborators (IUCEA, 2014).

The approach adopted to prepare the National Qualifications Frameworks by different countries depicts that it is a framework of Credits. For example the National Qualifications Framework (NQF) is a former Credit Transfer System developed for qualifications in England, Wales and Northern Ireland. In 2010 it was replaced with the Qualifications and Credit Framework. Today a need has been felt for a transition to a course credit system where degrees are granted on the basis of completing a requisite number of credits from different courses, which provides learners with choices. A review of the Credit Systems operating in many parts of the globe does indicate some nationwide variations in terms of the numerical values assigned to a single Credit Point, but the conceptual meanings of the related terms remain uniform across the board. It therefore facilitates ease of movement and opportunities for students and higher education providers in terms of international recognition of qualifications. This also facilitates the much-desired mobility of students, teachers, and researchers for promotion of internationalization.

Framing National Qualification Framework in India

National Qualification Framework (NQF) provides a structure of well-defined, nationally accredited qualification acceptable at international level as well. In India too the efforts are on towards creating NQF as a mechanism to make education competitive and compatible with market demands. Major requirement for creating NQF is to create credit based education system. As far as Credit System of evaluation is concerned it is not new for the country. It has been in vogue in institutions like Indian Institutes of Technology (IITs) Indian Institute of Science(, IISc) etc. and Distance Education Institutions like National Institute of Open Schooling (NIOS), erstwhile National Open School and Indira Gandhi National Open University IGNOU since their inception. It has been implemented by some universities almost 25 years back. The first move to have a National Qualifications Framework (NQF), was initiated by National Knowledge Commission (2008) in its recommendation which advocated for setting up a National Qualification Framework which establishes equivalence and provides horizontal mobility between various Vocational, Technical and Academic streams at more than one career point and a Trainee Placement and Tracking System for effective evaluation and future policy planning. In 2009 UGC in its Action Plan for Academic and Administrative Reforms included Choice Based Credit System (CBCS) as an important reform and wrote to the universities to prepare a roadmap for its implementation. In response to this, several universities came forward to prepare the roadmap and implement. University of Mysore is first one to do so.

All India Council for Technical Education, (AICTE), the apex body for making and maintaining the norms of Technical Education in the country has framed a National Vocational Education Qualification Framework (NVEQF) for the polytechnics and Engineering Colleges. NVEQF is introduced by Government in order to formally integrate vocational education together with its current conventional educational streams across school and higher education space and provide an opportunity and incentive to students to explore a large universe of opportunity. (AICTE, 2013)

India can come out with National Qualification Framework for all the disciplines on the basis of these experiences. Most importantly, the models of IGNOU, NIOS and some universities where the Credit Based Evaluation System and Choice Based Credit System are prevalent and flexibility and transfer of credits are practiced can be followed to prepare Comprehensive National Qualification Framework. NIOS gives a lot of flexibility to the students in matters related to examination such as (no compulsion of appearing in

all the subjects at the same examination) appearing in one or more subjects in the examination as per the convenience, credit accumulation, many chances to appear in the public examinations; and transfer of credits from other boards, etc,. They have set an example to create room for breaking away from the rigid time schedules of university programmes by allowing students to (i) accumulate credits over longer or shorter periods, (ii) choose to learn under different delivery modes during different stages of the academic career, (iii) help in eliminating duplication of learning and effort, which not only demoralizes learners but also wastes resources and time, delay development and growth, and finally (iv) accommodate regular and vocational education and on the job education and training. The Master of Computer Application (MCA) Programme at IGNOU allows vertical movements along with outlets at various points depending on the credits accumulated. For example, on accumulation of some specific credit points, a student eligible to get certificate in computing; on accumulating some more points the student gets entitled to get Diploma and on accumulation of all the credits the student gets a degree.

Online education has come a long way in India with the potential and popularity of ICT in the country. India is one of the nations that is developing at an exponential rate in terms of ICT. Programmes like SWAYAM 'Study Webs of Active Learning for Young Aspiring Minds' provides an integrated platform for various online courses across the educational levels and subject areas also covering the skill sector courses. Swayam hosts 1900 complete courses including teaching videos, weekly assignments, exams and credit transfers as well. All the Massive Open Online Courses (MOOCs) developed under the aegis of MHRD-GoI by various National Coordinators like, All India Council for Technical Education (AICTE), National Programme on Technology Enhanced Learning (NPTEL) for Engineering, University Grants Commission (UGC) for non-technical post-graduation education, CEC (Consortium for Educational Communication) for under-graduate education, IGNOU (Indira Gandhi National Open University) for out-of-school students, Indian Institute of Management, Bangalore (IIMB) for Management Studies, and National Institute of Technical Teachers Training and Research (NITTTR) for Teacher Training programmes. All these courses follow the 4-quadrant approach and are being hosted on the web platform of SWAYAM. Now the more developed new version of SWAYAM 2.0 for hosting MOOCs is available, more exciting features are added in it. The SWAYAM platform is also accompanied by a mobile application for easier access to the courses. The courses provided through SWAYAM platform can be accessed by the registered students of the respective course in universities and colleges for certification and credit transfer, as all the other registered learners also can access the platform and take courses in which they are interested, they can get certificates on successful completion of the courses. The assessment is being done through online evaluation processes as well as offline proctored examinations. The credits of these courses get transferred to the report cards of the students. Now in many cases the external exams of SWAYAM courses are conducted and evaluated by the National Testing Agency (NTA). Furthering all these innovations and initiatives India can create a National Qualification Framework for the Higher Education System of the country. In this context, it is in the fitness of purpose to discuss the granting equivalence of degrees and in India and role of Association of Indian universities in it.

Indian System of Granting Recognition to Degrees: Role of Association of Indian Universities

Association of Indian Universities (AIU) has been vested with power as well as objective 'to assist universities in obtaining recognition for their degrees, diplomas and examinations from other universities, India as well as foreign'. Accordingly, AIU has been issues equivalence to the degrees that have not only helped students to pursue higher education at the Universities in the country but also to seek employment. At present AIU is the only National organization in the country authorized for granting academic equivalence to the degrees awarded by the accredited foreign universities and institutions for the purpose of admission to higher academic courses and employment. Besides these, throughout the year the Evaluation Division of AIU provides professional assistance on the status of foreign qualifications to Universities, Ministries of the Government of India, Union Public Service Commission, Indian Council of Cultural Relations, Medical Council of India and other Central/State Government agencies dealing with nomination/selection of prospective foreign students intending to pursue higher education in Indian Universities.

Initially the equivalence was accorded to Conventional Degree programmes but soon with the increased demands the area of according equivalence also widened because there was no other agency to accord equivalence. This included various School Boards and Examinations conducted by institutions

like Banasthali Vidyapeeth, etc. In addition to this several other examinations conducted by the Army, Navy and Air Force for their personnel were also accorded equivalence for the purpose of higher education as well as employment which includes Examination conducted by the Army and Naval Engineering College with B.E degree, Passing out Examination of Indian Navy and a number of other such examinations conducted by the Armed Forces.

AIU has also accorded equivalence to the Examinations conducted by the Professional Bodies such as final examination of Institute of Chartered Accountants of India, Institute of Surveyors, Institute of Cost and Works Accountants, Institute of Company Secretaries, Institute of Electronics and Radio Engineers, Institute of Engineers, NITTE, etc. The equivalence accorded by AIU to the examinations conducted by these Professional Bodies, is widely accepted by all Government and Private Organizations for the sake of employment.

It would not be out of context to mention that apart from above a request was received from the Election Commission of India, for grant of equivalence to the 'Oriental Title' Examinations conducted by the Annamalai and Madras Universities equivalent to a degree for the purpose of election from the "Graduate Constituency" where such constituencies exists. Equivalence to this effect offered by AIU was accepted by the Election Commission of India.

The Procedure for Granting Equivalence

Initially, when the students mobility was less and also the number of Indian Universities were comparatively fewer, every individual case of equivalence was assessed by the experts, which were referred, either by Indian or foreign Universities, Indian Mission abroad or by other Government Agencies. Normally the proposal for equivalence of foreign qualifications was received from Indian Mission aboard or through the university concerned. The equivalence was established on course to course basis, based on the information on the following points:

- Structure from Primary to University education
- Entry requirements
- Nomenclature of the course certificate/degree
- Accreditation status of the University/Institution in the home Country
- Syllabus/course curriculum and regulation of the course
- System of evaluation
- Requirement for passing
- Parity of the degree outside the country –documentation thereof
- Sample copy of the degree and academic transcript
- Any other relevant information

Thereafter, each case for equivalence was examined with reference to International documentation available with AIU. These include "International Handbook of Universities (Published by IAU); Commonwealth Universities Yearbook (Published by ACU); International Guide to Qualifications in Education-British Council Publication; American Association of Collegiate Registrars and Admission Officers (AACRAO) publication; World Guide to Qualifications in Higher Education – UNESCO Publication; Accredited Institutions of Postsecondary Education- an American Council on Education Publication. Supporting information is also obtained from Foreign Mission in New Delhi. The matter is also referred to International Agencies like United States Educational Foundation in India, British Council Division, German Academic Exchange Service (DADD) etc.

Each case of equivalency was referred to the Expert(s) for their Expert opinion and after the opinion was received the same was placed before the Equivalence Committee for their consideration and was finally placed before the Governing Council for their ratification.

The Policy adopted by AIU to accord equivalence to the degree has been as follows: AIU accords equivalence to the degrees pursued by the candidates' full time on the campus of the university of its origin, provided the eligibility requirements, duration etc. remains the same as that of Indian Universities. The three basic components which play a vital role in the determination of the equivalence are:

- Eligibility requirements
- Duration of the programme
- Course curriculum etc.

Thus, AIU issues equivalence certificates only for the degrees which are pursued full time on the campus of the university(s) subject to fulfillment of the above parameters. The Ministry of Human Resource Development, New Delhi, vide their letter dated 13th March, 1995 issued a Notification that the equivalence done by AIU will be valid for the purpose of admission to higher education as well as for employment, in the country.Till few years back AIU

followed the same Policy, but after the increase in students mobility and also the numbers of universities where from the students have obtained their degrees from various parts of the world, AIU found it difficult to examine each and every case of equivalence and therefore, the equivalence is now established on the basis of the following parameters:

- Eligibility requirements
- Duration of the programme
- Accreditation status of the University(s)

Thus, AIU continues to issue equivalence certificates in respect of degrees pursued full time on the campus of the university of its origin, provided the duration of the course and eligibility requirements remains the same as that of Indian Universities. AIU facilitates the students by issuing Equivalence certificates to those students who have obtained their degrees after fulfilling the above parameters, from accredited foreign universities.

Degrees which are offered by the foreign accredited universities but are pursued, either partly or fully in India, are not accorded equivalence by AIU. The AIU also does not issue equivalence certificates for the degrees which are lesser in duration in comparison to the Indian degrees. Similarly, no Equivalence is issued for Diploma level programmes (offered in the field of engineering/short term Diploma programmes etc.) conducted in various parts of the world.

Setting the Tone for Internationalisation and Creating National Qualification Framework

India has a tradition of strong resistance to change from every quarter whenever a new reform is initiated. There may be some resistance now also for implementing the new National Education Policy. Most important way to deal with such resistance is providing autonomy and academic freedom to the institutions, motivating them and simultaneously fixing accountability. The flexibility of being able to teach what needs to be taught, being able to learn what one intends to learn, being able to pursue a course as per one's choice and interest are some of the most crucial components which needs to be incorporated in Indian higher education system. But the with rigidity of the system the students as well as teachers are tightened in shackles. Students are compelled to take set pattern of courses. Even if the offering institute gets flexible, there is no scope for the pass-outs to take up further studies in other universities. They are not encouraged to take courses according to their abilities and pace. There is no freedom for the first-year student to take an advanced course or a third-year student to take an introductory course. Students are compelled to be inside the classroom for the entire five hours a day schedule leaving no scope for independent study. Interesting example is of Senior Secondary Pass outs of National Institute of Open Schooling where there is a flexibility to opt the subject of their choice but if they choose untraditional subject combination, they will not get seat in any university for further study. An MBA Finance graduate is not eligible to teach Finance Courses to M. Com Students. AIU is bound with its set rules so it cannot give equivalence in such cases on the basis of credits.

Career of many graduates is getting affected due to partial adoption of new trends. For example, Indian universities started several new untraditional courses, but the graduates of such courses are not able to secure desired jobs. Since they are uprooted from their parent discipline, they are not eligible to go back to even their parent discipline. For example, graduates of Masters in Genetics are neither eligible for Botany discipline nor for Zoology and Genetics as a discipline has very less scope of getting good employment for students. These are some of the issues which have been taken into consideration by the Government while framing the Policy but unless threadbare analysis is done the complexity of situation cannot be understood.

Conclusion

Internationalization of higher education promises to bring significant gains for India. However, the current educational scene is not quite encouraging and supportive in terms of infrastructure, faculty readiness, flexibility in curriculum, etc. Internationalization of higher education is in full bloom all over the world. India cannot remain aloof and should exploit the opportunities. There is a need to encourage reputed foreign universities to open their campuses in India. It will improve our educational standards as well as solve the burgeoning problem of enrolment. With comparatively low cost of living, India may become a preferred destination for students from many developing countries. To achieve our ambitious goals, India needs a strong regulatory mechanism which hopefully would be in place very soon, especially with the implementation of the New National Policy 2020. The regulatory framework must be strong enough to identify and debar sub-standard foreign institutions. The educational administrators must expedite the process of reforms and encourage innovation in all aspects of education including curricular, teaching, learning and research.

Foreign universities can create additional scope and expansion of Indian higher education. It can also encourage reform and improvement through example and competition. There is no doubt that opening of Indian higher education to foreign competition will benefit the country and boost the growth by foreign investment in higher education. It will not only solve the problem of enrolment to some extent but also encourage many students to seek higher education in India itself and thus save precious foreign exchange and may provide a solution to the issue of brain drain. As per the policy recommended in NEP 2020, the provision for inviting top 100 foreign institutions to open their campuses in India is certainly going to be milestone in the process. With competition looming large, Indian universities will also strive to improve education quality, infrastructure and technology.

Internationalization is has become an inescapable reality of present times. India, an emerging economy and aspiring knowledge super power cannot remain isolated. Better sooner than later we make the country ready to embraces the process and go with the currents of change, lest we will miss the bus. Of course we must not lose the sight of our indigenous roots of knowledge system, intellectual traditions and ethos which has been emphatically stressed in NEP -2020.

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Innovations for Teaching-learning in Post COVID-19 Era

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Today, COVID-19 pandemic, emerging as a health crisis has become a challenge for not only India but other countries of the world as well. Students and teachers around the world are currently facing educational disruption created by the novel coronavirus, one of the most serious health hazards in the last few decades, forcing schools and colleges/ universities to shut down in order to deal with the health hazard.

The crisis displays the dilemma policymakers are facing between closing schools (reducing contact and saving lives) and keeping them open (allowing workers to work and maintaining the economy). The severe short-term disturbance is felt by many families around the world: home schooling is not only a setback to parents' productivity, but also to children's social life and learning. Teaching is moving online, on an untested and unprecedented scale. Student assessments are also moving online, with a lot of trial and error and uncertainty for everyone. Many assessments have simply been cancelled. Importantly, these interruptions will not just be a short-term issue, but can also have long-term consequences for the affected cohorts and are likely to increase inequality.

In such times, promotion of academic interests of students is the biggest challenge and it calls for designing an integrated approach to support the student and teaching fraternity towards continuous learning and development. The interruption caused due to the pandemic may have unintended consequences for parents, teachers and students, which leads to the fear of falling behind in terms of education and completion of curriculum. This necessitates an immediate need for creation of supportive academic and environmental conditions that foster strong relationship between the Universities and its students, productive teaching-learning strategies that support self-directed learning and system of academic, health and social support for dealing with adversities related to the pandemic.

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We, at Chhatrapati Shahu Ji Maharaj University, Kanpur are fervently coping up with the situation, not only adopting best practices in teaching-learning but also performing our duties towards the society for the prevention and control of the disease.

Indian Perspectives

India has been the centre of advanced learning since time immemorial and the institutions, despite various challenges, have never failed to keep themselves updated and adopt innovations to provide for world class education. India, like other advanced education systems of the world, has adopted technology integrated instructional pedagogy in the past and regulatory bodies such as the UGC and AICTE have been encouraging higher education institutions to integrate online courses in their curriculum. The online education market has grown considerably in India and is expected to grow eight times to reach USD 1.96 billion mark by 2021 as per a survey by KPMG in India (KPMG, 2017).

To prevent the infection spread in the community, India along with many countries have decided to go for complete lockdown. The schools, colleges and Universities were closed in the first phase. This was followed by Janta curfew on 22nd March, 2020 and the railways, flights, buses and other inter-city and inter-state transport systems were blocked to stop the chain of viral spread. This was clearly a tough decision in the light of weak economy of the country but essential for saving human life.

Negative Impacts on Students

The global lockdown of education institutions is going to cause major interruption in students' learning; disruptions in internal assessments; and the cancellation of public assessments for qualifications or their replacement by an inferior alternative.

What can be done to mitigate these negative impacts? More resources are required to rebuild the loss in learning, once they open again. How these resources are used, and how to target the students who were especially hard hit, is an open question.

Given the evidence of the importance of assessments for learning, schools should also consider postponing rather than skipping internal assessments. For new graduates, policies should support their entry to the labour market to avoid longer unemployment periods.

Online Platform

Online education system has become more meaningful in the context of corona pandemic, with more and more institutions reaching their learners through this mode. To help reduce the spread of the disease, students in Hong Kong started learning at home, in February, via interactive apps and in China, 120 million Chinese got access to learning material through live television broadcasts (World Economic Forum, 2020).Teachers are drawing upon online instructional strategies including faculty conferences, recorded lectures posted online, live lectures and discussions and online submission of assignments and other materials for course assessment. The new scenario will probably help in creating lasting changes as this scenario will help instructors, even those who hesitated earlier, to learn new skills and identify the potential of online learning. Also, students will be able to understand how being in classrooms is an opportunity and will help them to take responsibility for their own learning. Moreover, the global crisis will clearly establish the fact that virtual learning and working spaces are the future, and it is essential for students to adapt to this before they feel left behind. Most teachers are now learning to operate in the virtual learning environment.

E-learning programs seem to be obvious solutions to this problem. Many large colleges have well developed online course management systems integrated with in- person classes, which is why their communication with students stand uninterrupted during this crisis. However, the underprivileged institutions in countries facing this crisis will require support by public -private partnering or even cross-country educational coalitions for better access to knowledge. With many homes in India lacking ICT infrastructure, wi-fi access, the breadth of the digital divide has been disclosed as education system struggles to substitute in-class system with online ones.

Government Initiatives

Government initiatives have helped in creation of online platforms for learning within and across disciplines across the world. Learning from the experiences of globally recognized universities like Harvard University, UCLA, University of Michigan, Oxford University, American University of Beirut, Stanford University etc., India has already taken initiatives to bring knowledge to the doorsteps of students. The University Grants Commission has notified the initiation of The Hon'ble Minister of Human Resource Development, Shri Ramesh Pokhriyal Nishank campaign "*Bharat Padhe Online*" inviting suggestions and sharing of ideas from the academic fraternity including students and teachers to boost e-learning and intensifying online education in India. The University Grants Commission has also initiated 'Adopt and implement Learning Outcomes Based Curriculum Framework (LOCF) in HEls, by updating curriculum from academic year 2019-20: Adopt Learner Centric Teaching-learning Processes by Suitable Improvement in the Pedagogy' and has developed the LOCF reports in 25 different subjects. '*Aarogya Setu*' App launched by the Ministry of Electronics and IT will help the Government to take necessary timely steps for assessing risk of spread of COVID-19 infection. Ministry of AYUSH has provided Ayurveda's immunity boosting measures for selfcare during COVID 19 crisis enhancing the body's natural defence system (immunity) for maintaining optimum health. '*SWAYAM* (Study Webs of Active-learning for Young Aspiring Minds)' is a programme initiated by Government of India and has proved to be a boon to Indian learners, covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities, engineering, technology, law, medicine, agriculture etc. guided by UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016.The Universities are also moving on the path of digital innovation and creation of knowledge economy by implementation of various Government driven schemes such as '*Swayamprabha*' and 'National Digital Library'. Ministry of HRD, Government of India, has outlined e-contents through NPTEL, Virtual labs, Spoken Tutorial, Virtual Learning Environment, etc. These government-led initiatives can come to the rescue for uninterrupted learning amidst corona crisis.

As per a report by MHRD the access to SWAYAM courses increased three folds during the lockdown in India.

Modes of Online Communication

Besides the portals for online learning facilitated by Indian government, many higher educational institutions are resorting to online instruction modes for conducting virtual classes. Stanford University and many such renowned universities around the world are ensuring timely implementation of academic calendars by using virtual learning instead of in-person classes. One of the easiest ways to keep communication between teachers and students alive is by creating a temporary WhatsApp group. Zoom is an educational app that enables teachers, students and parents to interact online. Using Zoom, educators are sharing lesson plans, giving instructions and communicating directly with the students via chat. Skype, Zoom and Google Hangouts offer free video-conferencing options. Classdojo is a free educational app that enables teachers, students and parents to interact online. Google classroom helps learners and instructors to connect. Teachers can invite parents to the Google Classroom to share summaries of student work and to receive automated email summaries of student work and class announcements. Coursera and edX have increased their presence in India and are partnering with various institutions. There are many other resources that can create virtual classroom experience. These platforms will yield significant benefits as many of them allow face-to-face instruction. This pandemic will influence how schools plan for, manage and fund online education. However, training and support for teachers for dealing with such situations is necessary as most of them were not prepared and lack the necessary skills to operate in tech-based educational environments.

Examination Prospects

Importantly, the lockdown of institutions has not only affected final assessments but all exams for the main public qualifications have been postponed for the entire cohort. Depending on the duration of the lockdown, we will likely observe similar actions around the world. At this stage, it becomes important to safeguard the academic interests of the students.

One potential alternative for the cancelled assessments is to use 'predicted grades' but these are often inaccurate, and that among high achieving students, the predicted grades for those from disadvantaged backgrounds are lower than those from more advantaged backgrounds. Another solution is to replace blind exams with teacher assessments. Evidence from various settings show systematic deviations between unblind and blind examinations, where the direction of the bias typically depends on whether the student belongs to a group that usually performs well. For example, if girls usually perform better in a subject, an unblind evaluation of a boy's performance is likely to be downward biased. Because such assessments are used as a key qualification to enter higher education, the move to unblind subjective assessments can have potential long-term consequences for the equality of opportunity.

In higher education many universities and colleges are replacing traditional exams with online assessment tools. This is a new area for both teachers and students, and assessments will likely have larger measurement error than usual. Research shows that employers use educational credentials such as degree classifications and grade point averages to sort applicants. The increase in the noise of the applicants' signals will therefore potentially reduce the matching efficiency for new graduates on the labour market, who might experience slower earnings growth and higher job separation rates. This is costly both to the individual and also to the society as a whole.

CSJM University: Best Practices Amidst COVID-19

With the directives of the government, Chhatrapati Shahu Ji Maharaj Univerity (CSJMU), Kanpur has adopted online learning for its semester students. The University has remained strongly committed towards creating quality teaching-learning strategies through the use of modern tools and technology to meet the broader range of learner's needs during the aforesaid crisis. Some of the major initiatives taken will help in maintaining the learning rhythm during these difficult times.

- The Vice Chancellor and the Registrar of the University have ensured regular communication with all stakeholders through video and text messages, which has improved the bond between authorities, faculty, staff and students.

- The University is trying to address this extraordinary situation by involving different stakeholders in the system.
- The university has advised faculty members to use on-line group learning platforms like Google meet/ Google class /Microsoft team/Zoom etc to conduct on-line classes as per their schedule in regular time table.
- All the faculty members engaging theory classes are uploading on the University website or any other learning platform like Google class, a detailed unit wise schedule including sub topics of the units in syllabi along with references/ resource materials to be referred/book's chapter/ online lecture/any other pedagogy through their Departmental Home Page.Faculty members are also uploading the topic-wise lecture notes / supplementary study material (PDF class lecture notes/ pdf from books/ppt available on-line / other online recourses) for each unit of syllabi not covered so far.

The University has taken an initiative to track the syllabi completion report from all its departments. Time limit has been given for uploading of study material for the benefit of the students. The faculties are interacting with students using different meeting apps. The study content has been posted on emails and google classroom for class and teacher-student interactions.

Whatsapp and email groups have been created for efficient transfer of knowledge and group discussions. The study material onwhatsapp also helps in registering the attendance of the participating students.

The University is also making students aware about MOOC platforms. *SWAYAM* platform launched by the Government of India hosts many subject-wise online courses, some of the online courses are:

Massive Open Online Course (MOOC) Platforms

- Alison – Online courses from experts, available in English, French, Spanish, Italian and Portuguese
- Canvas Network–Lifelong learning and professional development for educators.
- Coursera – Online courses taught by instructors from well-recognized universities and companies.
- EdX – Online courses from leading educational institutions.
- University of the People - Online university with open access to higher education.

Khan Academy – Free online lessons and practice in math, sciences and humanities, as well as free tools for parents and teachers to track student progress. Available in 40+ languages, and aligned to national curriculum for over 10 countries.

Collaboration Platforms that Support Live Video Communication

- Dingtalk – Communication platform that supports video conferencing, task and calendar management, attendance tracking and instant messaging.
- Hangouts Meet – Video calls integrated with other Google's G-Suite tools.
- Lark – Collaboration suite of interconnected tools, including chat, calendar, creation and cloud storage, in Japanese, Korean, Italian and English.
- Teams – Chat, meet, call and collaboration features integrated with Microsoft Office software.
- Skype – Video and audio calls with talk, chat and collaboration features.
- Zoom – Cloud platform for video and audio conferencing, collaboration, chat and webinars.
- Tools for Teachers to Create Digital Learning Content
- Buncee – Supports the creation and sharing visual representations of learning content, including media-rich lessons, reports, newsletters and presentations.
- EdPuzzle – Video lesson creation software.
- Kaltura – Video management and creation tools with integration options for various learning management systems.
- Nearpod – Software to create lessons with informative and interactive assessment activities.
- Pear Deck – Facilitates the design of engaging instructional content with various integration features.
- Squigl – Content creation platform that transforms speech or text into animated videos.
- Thinglink – Tools to create interactive images, videos and other multimedia resources.

- External Repositories of Distance Learning Solutions
- Brookings – A catalogue of nearly 3,000 learning innovations. Not all of them are distance learning solutions, but many of them offer digital education content.
- Common Sense Education – Tips and tools to support school closures and transitions to online and at-home learning.
- Common weatlh of Learning – List of resources for policymakers, school and college administrators, teachers, parents and learners that will assist with student learning during the closure of educational institutions.
- Education Nation – Nordic countries have opened up their learning solutions for the world for free, supporting teachers and learners during the school closures.
- Global Business Coalition for Education – List of e-learning platforms, information sharing platform and communication platforms.
- Keep Learning Going – Extensive collection free tools, strategies, tips and best practices for teaching online from a coalition of USA-based education organizations. Includes descriptions of over 600+ digital learning solutions.
- UNHCR – An extensive list of over 600 distance learning solutions from the United Nations agency for refugees.
- The important online resource sites being utilised are:
    - Swayam
    - NPTEL
    - Udacity
    - Udemy
    - Skillshare
    - Harvard University
    - Ted
    - Web Development
    - Digital Marketing
    - IOS app development
    - Open Learn
    - Future Learn
    - Tuts Plus
    - Open Culture
- The University has collaboration with IIT, Kanpur and Spoken Tutorial, IIT, Mumbai for access to online content.
- Assignments/ Tutorials/worked-out problems on each units of syllabi are prepared and uploaded on the University website or Departmental Home page or any other learning platforms like Google class.
- Face Time is making it easier to deal with student queries.

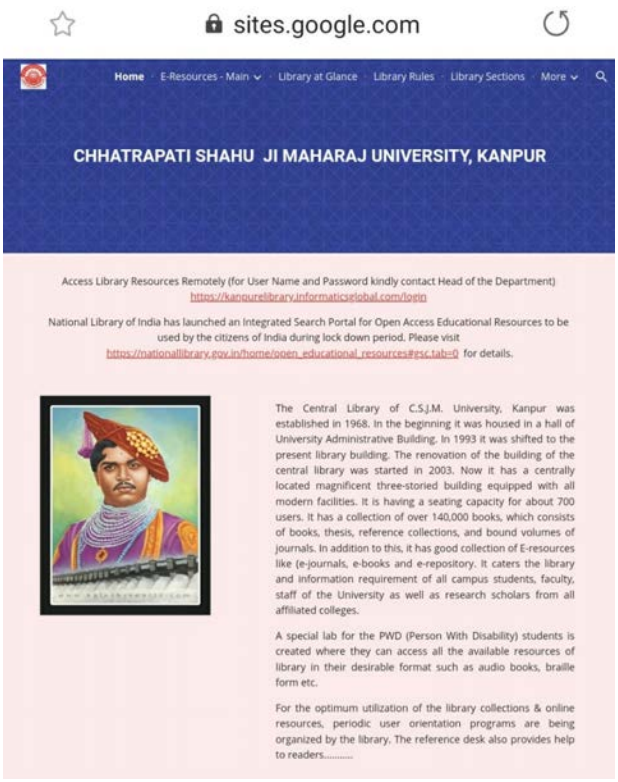
E-learning Library Facilities at CSJM University, Kanpur

- The faculty can access library resources from anywhere with the help of passwords provided to faculty members using remote services.
- Plagiarism services are being provided by emails
- Library website is operational on the university website where links are provided to access e-books, e-journals and other free resources
- Web page has been created to access e-resources from outside the campus, user name and passwords for all Heads have been created and circulated.
- CSJM University can access McGraw Hill e-books remotely, Taylor and Francis resources for free, Wt e-books, Bibliotex e-books, All e-news etc.
- A page has been specially designed for library users on the university website where all links are provided (Fig. 1).

Other Initiatives

- **Vice Chancellors Motivational Series**: At this time of distress, confusion and panic amongst students, the Vice Chancellor of the University is regularly addressing the students through print and electronic media. She is delivering Motivational Lecture Series to boost the morale of students. Her topics include 'Examination Information', 'Time Management', 'Preparation for Examinations', 'About Corona Virus', 'Coping with Corona Virus', 'E-learning Methods', 'Duties for the Society during Covid Pandemic', 'Preparing for the Future' etc.
- **A Counselling and Motivational Cell** is operative to deal with stress, anxieties and other

Fig. 1: Web page for Library Users (ChhatrapatiShahu Ji Maharaj University, Kanpur)



queries of students and staff as psychosocial well-being is a significant antecedent to learning. A four-member committee regularly addresses to stress-related issues/queries of students, parents, women and elderly people who approach the Cell.

- The university has launched an **Entrepreneurship and Incubation Cell** in collaboration with Srijan Sanchar innovation challenge to facilitate crowd sourcing of ideas, solutions for ameliorating the current situation. This is an attempt to contribute to the goal of fighting corona by organizing an innovation challenge for different problem/ opportunity areas of pandemic.

Topics for Ideas include (but are not restricted to):

- Ideas for creating, maintaining, monitoring social distance in closed/open spaces /offices /public buildings especially in densely habituated areas like slums.
- Open source design, manufacturing, third party quality assurance of life support systems like ventilators.
- Ideas for re purposing by modification/addition of existing available equipment, consumer durable to life support equipment / ventilator.
- Monitoring including remote of indicative parameters like temperature etc for detecting probability of corona.
- Add on devices to monitor indicative parameters and obtaining patterns from aggregation on cloud.
- Ideas for creating, maintaining, monitoring social distances especially while the under privileged seek access to disrupted supplies of food, medicine during the lockdown.
- Low cost Logistics for arranging supplies.
- Maintaining health and positivity of care givers, doctors, paramedics and others at front line in fighting corona.
- **Online Yoga Classes**: To keep the mind and body healthy and to improve the immunity, the University has initiated online Yoga classes which is facilitating in removing the stress caused due to Corona pandemic. The classes are very popular and students from other universities have shown their interest to attend the classes.
- **Medical Counselling**: A panel of doctors regularly attends to health issues raised by students, faculty, the sick and the diseased and elderly persons.
- **Lecture Series**: A lecture series on Covid-19 has been arranged in which renowned academicians are delivering lectures on COVID-19 on youtube. The first lecture on 'COVID-19 and Immunity' was delivered by the Vice Chancellor. Other lectures are 'COVID-19 Pandemic', 'Positive Thinking and Mental Health to Fight against COVID-19', 'COVID-19 and Nutrition', 'Care and concern during pregnancy in time of COVID-19 pandemic', 'Genome Organization and Life Cycle', 'Therapeutic Strategies against COVID-19'.
- **International Webinar:** An International Webinar on 'Exploring and understanding the COVID-19 Pandemic' is being hosted by CSJM University, Kanpur on 2nd May, 2020 with Speakers from USA and UK. Registrations are on. Talks on 'COVID-19: Coping with present day challenges', 'Combat Anxiety and stress due to COVID-19', 'The effect of COVID-19 on IT

industry' and 'Sectors for startups post COVID-19 and planning finances' are scheduled during the webinar.

- The various NSS units of the University are regularly updating students about how to remain safe.
- Besides, academic support, the University has offered isolation centres in its hostels and is providing accommodation for doctors in its guest houses to support the government.
- The university and it affiliated colleges have provided financial support to the tune of Rs. 1 crore so far to the Prime Minister's Relief Fund and the Chief Minister's Relief Fund. The collection is still going on.
- The university regularly distributes lunch packets to the poor labour working in the campus.

Summary

The corona pandemic is an eye opener for the educational policy makers around the world as the entire world came to a standstill due to the public health emergency. Even the education system remains vulnerable towards such outbreaks as such epidemics have profound consequences on uninterrupted education for all. It has been a learning experience as COVID-19 takes its toll on human life and global economy. This not only relates to strengthening the health system but also relates to education-based contingency planning and social empowerment of the masses in advance to increase their psychological preparedness for dealing with such epidemic. The education system has managed to reap the benefits of learning with new technologies, although the transformative power of ICT will be known in times to come. But educational planners must remain watchful and flexible even in the future to adapt quickly to any unexpected turn of events to maintain continuity of education. Educationists must embark upon new solutions to encourage 'learning anywhere, anytime'. CSJM University, Kanpur is continuously thriving to cope up with the prevailing situation, adopting the best practices in teaching-learning and nurturing students in such a manner that they develop into competent citizens, confident in handling times of distress and maintaining high academic standards.

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Post-pandemic Transformations in Higher Education in India

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COVID-19 pandemic has stranded one and all in a very strange and challenging situation all over the world. It has impacted all the walks of our life, including the education sector, adversely. However, it has also brought some blessings in disguise for the education sector, as the teachers and students confined to their homes have innovated ways and means to continue the teaching-learning process online. Technological interventions have helped the teachers in connecting with students and teaching them remotely. Now, the post-pandemic scenario and the future course of action will be entirely different for the education system. In this new situation, there will be a variety of challenges in imparting quality teaching at least at higher education level. In view of this a variety of post-pandemic transformations are likely to take place in the higher education sector all over the world. The higher education system in India also need to be reimagined This paper highlights the possible post-COVID-19 issues and challenges in education sector and likely transformations in the higher education in India. It also suggests the possible innovations to meet the post-COVID-19 challenges in higher education in our country.

The world vide lockdown due to COVID-19 pandemic has resulted to total closure of the educational institutions including schools, colleges and universities in about 192 countries across the world. It has compelled about 91.4 per cent of the total number of enrolled students in these countries to be out of schools, colleges and other educational institutes (UNESCO, 2020). According to the figures released by UNESCO as of March 23, 2020 about 1.3 billion learners around the world were not able to attend school or university during the lockdown period. Even in India, around 285 million students including around 37 million at higher education level have been impacted. The students and the teachers have been stranded at their homes with very limited resources available with them. Because of sudden lockdown, nobody was able to procure anything from outside their homes. In spite of that, the teaching-learning at all levels has continued throughout the world. Though, it was a strange and challenging situation for all, it proved to be a blessing in disguise. Teachers and administrators got an opportunity to innovate and find new ways and means to reach out to their students and provide them all possible academic support through technological interventions. In fact, the entire system is being revamped to recalibrate its actions and delivery channels. Government has also opened all its doors to support the education system by way of providing the available teaching-learning resources to the teachers as well as the students. New technological tools have flooded in the virtual world and both the teachers and students have learnt to use them as much as possible on their own, to continue the teaching-learning activities. During the COVID-19 pandemic we have accustomed ourselves to use many of the ICT tools and have experienced the potential of technology in the education sector. It is a fact that coronavirus outbreak has significantly accelerated development of online education all over the world. In this context, the use of internet, big data, Artificial Intelligence, 5G, and cloud-based platforms, among other technologies, has grown very fast in the field of education (Xudong Zhu1 et. al, 2020). Now, it is imperative that in the post-pandemic period, the entire education system has to undergo transformation. Particularly, the higher education system is likely to be thoroughly revamped and re-imagined to meet the changing needs and circumstances of the time. This paper aims at visualizing the post-pandemic issues and challenges and likely transformation in the higher education system in India.

Post-pandemic Issues and Challenges

As per the World Health Organization, the COVID-19 is likely to stay for long. It is a fact that in the present situation, until the vaccine is not developed, we have to maintain social distancing in all walks of our lives. Because of this the parents and the students may continue to have a fear in their minds regarding going to the college or university on regular basis. Even the teachers and administrators would not like to take risk of asking students to

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attend the classes in normal way as was done in pre-COVID-19 period. So, one of the important challenges would be to conduct the classes in the traditional way. In order to meet this challenge, new and innovative initiatives have to be taken up at the institution level as well as at the government level to facilitate the students and teachers.

The second most important challenge would be the inability of the existing infrastructure to address the changing needs in the changing circumstances. The existing physical infrastructure as well as the ICT infrastructure need to be modified and upgraded. Many of the students living in remote parts of the country or belonging to the lower socio-economic background may not have the minimum band width and smart devices to connect with their teachers. According to the Global Education Monitoring Report 2020 of UNESCO though the Governments are increasingly relying on technology, is also pointed out that the digital divide limits the approach because all the students and teachers don't have access to an adequate internet connection, equipment, skills and working conditions to take advantage of available platforms. According to a recent study from Common Sense Media and Boston Consulting Group, even in the developed countries like USA, around 30 per cent of students either don't have internet access or access to a device adequate for online learning. This challenge is very serious, as the digital divide may create another learning divide among our students. It would require drastic changes in the physical and upgradation in technological infrastructure in the higher education institutes.

In this context, it is important to mention that recently, a UNESCO report has pointed out that about 40 per cent of low- and lower-middle-income countries have not supported learners at risk of exclusion during this crisis, such as the poor, linguistic minorities and learners with disabilities. The report says that the COVID-19 pandemic has exacerbated inequalities in education systems across the world (GEM Report, UNESCO, 2020).

Another post-pandemic challenge in the higher education sector would be to empower the teachers with the technological skills to impart online training and develop quality learning resources including audio-video and text-based material. They need to be trained both from pedagogy and technology point of view.

Because of many reasons like health, safety, availability of the infrastructure, technological access, etc. many students may not like to join the conventional classroom education system in the colleges and higher education institutions. It may adversely impact the enrolment in the higher education sector, as a result of which there may be a decline in revenue and hence increase in cost of higher education. It may also lead to low enrolment in self-financing institutions making it difficult for them to survive on their own. Ultimately, the access to higher education may be impacted which in turn may influence the gross enrolment ratio in higher education in the country. This likely challenge needs to be addressed very carefully and innovatively.

Post-pandemic Likely Transformations in Higher Education

In view of the above mentioned likely issues and challenges during the post-pandemic period, a number of changes and innovations have to be carried out in different areas in the field of higher education. Based on the recent developments in the higher education sector during the COVID-19 lockdown period, the likely transformations in the higher education field are discussed here.

ODL will no Longer be Second Rate Education

So far Open and Distance Learning (ODL) System was considered to be the second-rate education system as compared to the conventional regular institutionalized system. Though, the situation has been improving with time, but still the first preference of the students has been the formal classroom system. But, during the lockdown period, students and their parents have felt that quality learning is possible through distance mode of education even without going to a college or university. Now, because of post-pandemic fear and equally good quality of teaching through distance mode, the students may prefer Open and Distance Learning (ODL) over Conventional Education. In order to promote higher education through ODL system, it is very likely that a greater number of Higher Education Institutions will be allowed to offer programmes through ODL mode. As a result, there may be more competition in ODL System, which in turn may help in better quality of education through ODL. So, the greater acceptance of the ODL system will a significant transformation at higher education level. Accordingly, the policy makers and regulatory bodies will have to re-imagine the higher education system in the country.

Another important transformation in the education sector would be the digital transformation of the Higher Education. It is now certain that right from admission to teaching-learning, assessment and various support materials to be provided to the students, technology is likely to dominate the whole arena of the education system. It will not only enhance the accessibility of education, but will also help in imparting quality education and support services to the students across the globe. In view of the increased use of technology in education sector, the digital tools will now be the complements not the substitutes for teaching learning. Besides it, the use of Artificial Intelligence (AI) is likely to be increased both in academics and administration in the education sector. The AI will be highly helpful in personalized teaching-learning. There is a need for a paradigm shift in our thinking about teaching and learning to create an enabling environment for learning with technology (Mishra, 2020). Accordingly, the higher education institutes have to be equipped and strengthened to meet the changing demands.

Shift towards Online Education

We know, that before COVID-19 pandemic very few institutes were offering online courses. But, during the pandemic lockdown period, it has been observed that majority of the higher education institutes have switched over to online and technology-based teaching-learning. It is true that post-pandemic also the online education will be continued. In fact, now onward the online education will be the strategic priority for majority of higher education institutions. Keeping in view the need of the time and changing scenario, recently the University Grants Commission (UGC) has also permitted 100 higher education institutes to develop and offer online programmes. The Indira Gandhi National Open University (IGNOU), New Delhi has already been allowed to offer online programmes at higher education level. Now, it is likely that more and more higher education institutes would like to go for Online Education and accordingly they need to re-design the teaching-learning pedagogy and create proper ICT infrastructure in the colleges and universities.

Blended Learning may Dramatically Increase

One more transformation at higher education may be the blended mode of teaching-learning. The blended learning would be different from the hybrid mode of education. In the blended learning system, a student of a particular institute may be allowed to opt for classes through online mode or through face to face mode in classroom situation whatever is convenient to the student. The formal classes may be conducted in live format and the student may like to join the classes physically or virtually through online mode. Certainly, they have to make sure to attend the class in any one of the modes. With the UGC's focus on integrating ICT in teaching and learning by 2022 as part of its quality mandate, the higher education system in India could take the next leap and consider 'blended learning' as a policy to deliver teaching and learning (Mishra, 2020). Now, in the changing scenario, it is quite possible that the online education may be integrated with the formal classroom teaching as well as the open and distance learning. Because of the pandemic impact, the ODL system has been transformed and is also transforming itself and moving towards technology mediated teaching-learning and support system.

Hybrid Model of Education May be a Reality

It is now a known fact that during the pandemic period, most of the conventional higher education institutes have conducted online classes in almost all subjects. Basic level provisions and infrastructure have been created in different higher education institutes for imparting technology based online education. Now, with the good experience and acceptance of technology-based teaching-learning by the conventional higher education system, it is very likely to offer hybrid mode of teaching-learning. It means that there may be a provision of completing some courses of a particular programme from a conventional higher education institute, some courses in online mode from other institute and other courses from ODL system with a provision of credit transfer from one institute to other. Finally, the degree or diploma may be given by any one of the institutes having maximum credits. In the present situation when the Choice Based Credit System (CBCS) is already in place and the institutions are becoming techno-savvy, it is very much possible to experiment hybrid model of education at higher education level. With this kind of transformation at higher level education, the education may be more flexible and more accessible to the students. The regulatory bodies in the field of higher education may consider it and work out a plan to implement this concept.

Technology Oriented Transformation of Faculty Development Programmes

It is a fact that majority of the teachers are not very comfortable with using technology for teaching-learning. However, the sudden outbreak of COVID-19 pandemic has left the teachers at all levels with no options but to learn the use of technology starting with the knowledge of the basics of it. It is observed that the during this period of pandemic, most of the educators and the students are acquiring new academic, social and emotional skills, and more importantly they are learning to acquire the skills with cutting-edge technology and diverse delivery ways (Wang, 2020). Anyhow, they could run the show during emergency situation and tried their level best to teach their students. This clearly indicates that if they are given proper training about using different technological tools, they can use it more effectively and efficiently. In the post-pandemic period, the online and technology-based teaching-learning is going to continue as an integral part of the education system, it becomes imperative to training the teachers for using various technological tools with ease. Thus, post pandemic, the process of capacity building and faculty development programmes for the teachers would undergo a big transformation. Now, all the FDPs would be technology oriented focusing the use and development of technology applications for effective teaching-learning.

Consortium of Educational Resources

In view of the present pandemic challenges, a variety of educational resources including texts and audios and videos are being created by different organizations and individuals. There is great possibility of repetitions and duplicity of work. It has been observed that even at the Government level, there is lot of duplicity of efforts for similar kind of work. In order to avoid such duplicity of efforts in developing educational resources, it would be necessary to create an Integrated Portal of all educational resources in the country as per the syllabi of different classes. In this way all the resources created by different agencies and experts of the country may be brought at one single platform for the benefit of the students.

Transformation in the Evaluation and Assessment System

In any education system, evaluation and assessment plays a very important role. With the change in teaching-learning strategy, it is very likely that the evaluation and assessment system will also undergo sea changes. It is a fact,that post-COVID-19, the examinations cannot be conducted in the traditional way. Even the formative assessment in the traditional way may not be possible. Therefore, the entire evaluation and assessment system need to be overhauled and thus a complete transformation would be required in the evaluation system. Innovations would be required for safe and more effective examination system keeping in view the condition of social distancing. For that purpose, one of the major shifts may be towards the online examination. But well known is the fact that the online examination has several limitations both from academic and administrative point of view. It may not be possible to test all the learning objectives in different domains through online examination. In that situation the most viable solution may be the On-demand Examination in which the students can appear in the examination at any date and time of his/her choice after completion of the minimum eligibility criteria (Sharma, 2012; Sharma & Bhardwaj, 2011). The On-demand Exam System will not only provide flexibility to the students to appear in exam as per their preparation, but it will help in reducing pressure of conducting exam in one go. In this way the norms of social distancing can be observed very easily, as there will not be very large number of students at a time to appear in the term end exam. In order to make the on-demand exam successful, a centralized digital question bank would be required to be developed in different courses which may be used by different HEIs in the country.

Conclusion

Conclusively, it can be stated that there will be a digital transformation of the higher education and a variety of other infrastructural changes would take place in the post-pandemic period. But the basic question remains: whether we are ready for this kind of digital transformation in a country like India where a variety of challenges are there at every step. The first most important question is the readiness of the teachers, students and also that of the infrastructure to adopt the changing system. We need to address the challenge of providing uninterrupted internet connectivity to the students as well as to the teachers. It is but sure that if the online education or blended learning is to be promoted at higher education level, development of quality learning content for online programs has to be given top priority. Also, the online education may not

be suitable to the learners in the present form, because, in the present online education system, there is very limited scope of engaging the learners in the teaching-learning process. Therefore, lots of innovations would be required towards engaging students in the online learning. At the same time capacity building of the teachers for using technological tools both for developing good quality e-content and to impart online teaching need to be given emphasis. Strengthening institutional capacity and infrastructure to support the likely transformations has to be given priority by the higher education institutes. The current crisis situation requires innovation and renewed attention to more research, study, and reflection, about each sector of education throughout the world (Xudong Zhu, et. al, 2020).In the changing scenario, we have to innovate and customize both the offline and the online teaching-learning system as per the diverse needs of the learners and the available resources.

Moreover, we will have to be careful that the use of technology ensures equitable access to learning, delivery of learning, and administrative efficiency. It should not increase the learning divide between different segments of the learners irrespective of their socio-economic and geographical backgrounds. Amid these possible transformations in the higher education sector, the great challenge would be firstly to make the technology available to the remote areas and secondly to make it affordable to the socio-economically poor strata of the society. In order to ensure smooth transformation of the higher education system, we collectively need to re-imagine our higher education system to be more student centric, flexible and resistant to such global crises ensuring the safety and security of the students, teachers and the administrators.

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Protecting Academic Interests of Students during COVID-19: Way Out

Devendra Pathak*

When we were younger by hardly five months, we lived in a different world where there was freedom to pursue our vocation, mix and move. University Campus used to be filled with echos and vibrations and academic atmosphere was quite absorving for the students as well as for the faculty. Everything has changed how will out break of COVID-19. The whole world is passing through the unprecedented hazards of our lifetime. COVID-19 poses as one the severest threats ever faced in the past 100 years. Entire world has virtually become a prisioner of the Corona virus. The pandemic is challenging the very existence of vast number of people. It's menacing geometrical progression has so far engulfed the whole world. It is testing time for medical researchers, doctors, microbiologists, virologists and bio-technologists who have been struggling to counter this dreaded disease. The jolt and tremor created by COVID-19 have distorted the possibility of peaceful co existence. The career of the students is at stake and while the continuation of education is a common interrogation to all the conscious academicians and authorities all over the world, the concern for loss of their instructional hours poses a very bold challenge.

Impact of COVID-19 on Education

The impact of COVID-19 on the academics is disastrous as all the educational institutions including pre-primary, lower and upper secondary schools, IB, A levels, ICSE, CBSE, College and Universities have been forced to close. As per UNESCO, as on 8th April, 2020 1.716 billion students spread over 188 countries impacting 99.4 per cent of the world's student's population are affected due to closure. Universities from Harvard to IITs including over 36 million students of tertiary education in India are completely under lock down. Testing agencies like GMAT, GRE, SAT, ACT, JEE, NEET, MAT, ATMA etc have postponed their exams.

The entire academic canvas depicts a very gloomy picture with uncertainty looming large on the fate of the millions of students and teachers. Junior Secondary and Upper Secondary schools were closed in December, 2019 itself due to ensuing State Board exams. Exams of some of the State Boards, CBSE, ICSE, etc are incomplete and uncertain due to lock down. All Colleges, institutions of higher learning and Universities suspended their classes and declared closure from 20th March, 2020, Students and Teachers had to leave for their home. Virtually classes could be conducted hardly for 40 working days post winter vacation and coverage of syllabus remained only to the extent of 2 to 2.5 Units. Colleges are shut and students are at home with very limited contact with their teachers and college mates.

Deviations and Observations

- Students are caught in cross wire.
- Fear of losing the studies of the current semester and uncertainty about commencement of next semester-2020-21
- Uncertainty about Placement.
- Payment of Tuition and Hostel Fee.
- Fear of dropping-out due to complete rail/road blockages
- Uncertainty of continuation of jobs of teachers/ Job loss and non payment of salary
- Consequential impact on mental pressure, anxiety stress the students and teachers work life balance.
- Lack of free flowing conversations, debates, and discussions
- Technological difficulties related to weak devices and access
- Getting used to remote learning and being evaluated online
- Studying while living at home, with family and other distractions
- Online teaching takes time and practice
- There is little consensus on how students can be evaluated in a fair manner
- Inability to have a face-to-face connect with students and facilitate free interpersonal relations and mentoring by the teachers
- Inability to reach all students because of technological limitations.

Moving to Digital Learning: Protecting Academic Interest of the Students

There is no milky way in the sight. Experts

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do not foresee any normalcy to be restored soon and the only perceptible solution crystallizes the dilemma to move to teaching online. The Global lock down has forced universities across India and the world to suspend physical classrooms and shift to online classes. However, 60 per cent of the Globe's population in developed countries are on-line and the rest developing countries like India have less than 30 per cent of internet penetration. Switching over to virtual classes in India may cover less number of students. Though smooth transition to online teaching seems to be difficult for most private universities and this applies equally to public universities as well, there in no way out and only plausible course to safeguard the interest of vast number of students is to go for online teaching. There have also been debates on the nature of classes, and the future of examination and evaluation — whether they could be conducted online?

While faculty grapples with new ways of managing this sudden transition to online education, students are left clinging on to their mobile phones and computer screens. If the lock downs were to continue for some time, the higher education is bound to be affected. These are some of the deeper issues that require introspection. Teaching fraternity has come out with various ideas in reaching to their students and many of the Indian Universities have spun off the active learning platform and putting in best effort to teach students on-line, upload notes, ppts, references, sites etc through various digital resources.

Going Digital is the Call of the Hour

Private University, like ours Om Sterling Global University (OSGU) shifted to the online mode by mid-March and remained largely unaffected by the nationwide embargo since 24th March, 2020. Our Faculty members are giving lectures online (on Google Meet, Zoom, etc). So, the academic activities are much less affected.

The IITs also shifted to conducting online classes, and sharing study materials and audio files with students over the internet. Our faculty members are available online during interactive sessions for students to clear their doubts and students are being supplemented through internet access, other sources of learning-management system added with social media and online platforms. Online education can be mainly conducted two ways- first is through the use of recorded classes delivered through various sources through internet over social media, live online classes conducted as webinars, or zoom sessions and the other through Mass Open Online Courses which requires infrastructure and faculty members who are comfortable teaching online. Students also need high-speed internet and computers/mobiles to attend these sessions at their places.

Various platforms created to enable online education in India and the Ministry of Human Resource Development, the National Council of Educational Research and Training and the Department of Technical Education have come forward with some initiatives like e-PG Pathshala (e-content), SWAYAM (online courses for teachers), and NEAT (enhancing employability). Other online platforms aim to increase connectivity with institutions, and accessibility to content. These are utilized for course materials and classes, and running of online modules. They include the National Project on Technology Enhanced Learning, National Knowledge Network etc.

Technology Enabled Teaching

Bharathi Balaji, Head of operations at NPTEL India, says, "COVID-19 has pushed institutions, faculty and students on to online learning like never before. Now, because of COVID-19, there is no option but to adapt and utilize online education." Some of the countries in South East Asia and even in Europe have started utilizing the full power of technology. Technology can enable different teaching methodologies, and also allow teaching a large number of people across the country. In Hong Kong students have started learning via interactive apps. In China students are getting access to learning through television broadcasts. Some Nigerian schools have started on-line classes through Google Classroom. Dr Dinesh Singh, former Vice Chancellor of Delhi University aptly remarks, "In a country like India, we don't have enough teachers or easy access to good institutions — we should, therefore, adopt a focused, systematic program of using the power of technology to enable learning." He further says, "There may be some merit to face-to-face teaching, but it is not necessary given the number of online tools and innovative methods of teaching available to enable learning. Using bare-bone technology can make a huge difference. The less of face-to-face teaching you do, the better — you must have some of it, but it doesn't do much. We need teachers to make students think. They must be mentors and gurus, not

someone standing in a classroom and lecturing as students take notes." (Quote)

However, while technology is enabling, it can also be limiting, especially in India, where basic access is a challenge. Not every student has a computer or fast-streaming internet at home. Bill Gates laments that the worst sufferers will be children from lower income group who can not afford computer and internet. This leads to issues with attendance and participation in online sessions. A survey by IIT Kanpur revealed that 9.3 per cent of its 2,789 students were not able to download material sent by the institute or study online. Only 34.1 per cent of them had internet connection good enough for streaming real-time lectures. National Sample Survey report reveals that rural areas have only 14,9 per cent and urban areas 42 per cent net connectivity and major chunk of students do not have the required hardware — computer, router, and printer — at home to attend online classes.

Nonetheless, Digital learning being the essence of the day, its efficacy, adaptability, assimilation as a channel of outcome based learning has been examined by some experts on the teaching –learning paradigm. Anderson and Nelson examined the major IT crash in Denmark in 2019 which has been using on-line education briskly. The crash forced the school to switch over to direct face to face classes. They mapped the benefits of direct and indirect classes and found that scores in internal assessment increased in the former method. Carlson Lavy (2015) estimated the impact of direct and indirect learning and also found the score dropping down in the latter method

Murphy and Wynes (2020) have suggested that in view of disruption in education 'predicted grade' based on the continuous assessment be adopted. Marwin and Mc Nally have suggested abandoning of normal exam where the Baccaloureat cancelled exam which was endorsed by French government and proposed award of grade based on internal assessment. It is for the Indian academicians to ponder.' Do we need to adopt new of assessment of students'?

Many feel that online education is not as easy as speaking into the microphone at one end, and connecting a laptop or phone and listening in on the other. There are other challenges with this form of education which are faced at both ends of the spectrum — students as well as faculty. An English teacher at DU's St Stephen's College laments 'that there is substantial learning that is lost when education goes online. Education is not just about classes. It is about interactions, broadening of ideas, free-flowing open discussions, debates, and mentoring of each student. While we try to do all of this, a lot gets lost in translation on the online platform." A student of Law highlights the difficulties, especially for a discipline like law, where discussions and debates form the backbone. "We cannot engage online in the same manner as we would in a class. Viva, moots, debates, and classroom discussions on polarizing topics require nuanced perspectives — these lose their flavor when done online." Actually, mentoring, debates, and casual conversations are better in traditional classrooms. "There is just no comparison. I find students asking fewer questions online. The greatest advantage of face-to-face teaching is eye contact. It is easy to gauge if students are following what a Faculty is saying. There is an excitement present in the real classroom. The biggest negative (of shifting courses online) is the absence of face-to-face contact with students and their cutting off from the university library. Students often do not have access to online facilities, especially the underprivileged ones who live in places with poor connectivity." says another teacher.

What does online education mean for the future? Author Mukul Kesavan, who teaches history at Delhi's Jamia Millia Islamia University, highlights the problem of inequity, underlining that only some of his students are able to attend online lectures. "One way to get around is if you can create class emails and reading lists, and send recording of lectures. But this is not an experiment that can be sustained in the long term without excluding everyone coming from towns or villages where there is an obvious problem of technology access." He adds that "the advantage of online education is for universities like Delhi's Indira Gandhi National Open University (Ignou), which offers distant teaching and is able to effectively utilise technology. "If universities can enforce Zoom teaching, if classes are taken to nodal places, and the institution takes the responsibility to connect students there, this can work well. But the downside is that, if done badly, it will be another legitimisation of bad, meaningless online education" (quote)

This is fine but what happens a few months later that is to be awaited. "Will the university be responsible if we don't get the grades, or if our careers are impacted, simply because we are struggling with online classes and figuring out what methods will be used to gauge our knowledge," asks a final-year student of social sciences from a public university in Delhi. Students have complained about lack of clarity going forward and what the plan of action would entail, especially with respect to examinations, results, internships, and placements. While most institutions of higher education are trying their best in this situation, nobody knows what will happen.

Though teachers are assisting students to navigate through difficult times for learning and seamless transmission form college to home learning, many of the experts believe that the rushed transmission of on-line instructions during the Corona Pandemic can be wrought with anxiety, technical glitches, network problems, non-availability of supporting electronic devices with the lower strata of students and in far flung remote areas.

Going Forward Online

A Senior Secondary School in Bangaluru has tackled online education in its own way. Its courses run online on an integrated learning management system, with live webinars, recorded videos, and contact workshops. A ROBOT is engaging the classes with perfect delivery and students maintain calm as the lectures are so absorbing.

With 5G technology becoming more prevalent in the countries such as China, US, Japan , Hong Kong and Singapore, learners and solution providers are embracing the " Learning anywhere anytime" concept of digital education. Public-Private Partnership model is gaining ground. Learning consortiums and coalitions with diverse stakeholders including Govt., educational professionals, technology providers, telcom network operators, various apps and portals are coming together to utilize digital platforms as solution to the crisis.

The Ministry of Education in China has approached a group of diverse constituents to develop a new cloud based on-line learning and broadcasting platforms to upgrade the existing academic delivery mechanism. Educational innovation is receiving attention beyond the traditional delivery system. From Microsoft to Google in the US to Samsung in South Korea to Alibaba in China are awaking to the strategic imperative of an educated populace.

To protect the interest of the students, the Government of India should ramp up Remote Teaching and come forward to

- Waive some stringent rules
- Broaden Internet Access- It could be a part of a broader infrastruture investment moving towards Universla Internet Access.

Much less as we wish, the global lockdown is further going to cause major disruptions in our academic dispensation. To mitigate the negative impact, schools and colleges should rebuild the resources and compensate loss of teaching days and postpone rather than cancel the forthcoming exams. ❑

Reforms in Governance and Leadership: Need of the Hour for Reimagining Indian Universities

B M Naik*

Poor governance and poor leadership is the root cause for all ills in university education [NKC 2006]. The governing bodies, namely MHRD, UGC, AICTE, Board of Governors, executive councils all, it seems, are not well familiar with the global winds of change. Truly, they are behind time. No wonder if Indian universities in spite of brilliant students and brilliant professors do not stand high in world list. Thousands of students every year are leaving shores for foreign. To rectify the ills and to ensure educational quality, India urgently needs to go in for modernising governance systems, make them effective, imaginative and competent. They ought to engage fruitfully with the vice chancellors and activities in universities. In globalization education can best be shaped by adopting role models of world best universities and not Indian. National budget allocation to university education for creating human capital is unfortunately observed to be dwindling. This is a major problem, and a challenge. Conclusions are drawn so as to reform Governance and leadership make more competent to build colleges and universities innovative, creative, and qualitative by world standards. Strong leadership at the institution level is recommended. Nobel Laurate Dr Amartya Sen says there is no better way for economic development of India than to educate people well. If India does not educate and does all other reforms that is not going to matter much. However, role of education in nation building is forgotten given only lip sympathy.

Indian universities after independence in 1947 have made great progress. From just a few the number has shot upto more than 1010. The progress made quantitatively is indeed good. But qualitatively it is not. Universities in India do not stand high in world ranking. Times Higher Education agency of UK has declared world ranking of universities in 2019. It says there is no university from India in first 300. Even premier institutes like IITs, IIMs, senior universities like Bombay, Delhi, Madras etc. by world standard are far too behind. Although brilliant boys and girls take admission their nurturing is poor. The students are not happy with the type of education they receive. They are not happy with the curriculum, teaching system, labs, innovation infrastructure. They aspire to make most of their youthful time on capitalising new knowledge and new technology, but they are disappointed. Service conditions and opportunities for growth of professors as compared to international fraternity are primitive, old and outdated. They are treated as servants and not as partners in institution building. There is an acute need to involve them in governance. Therefore professors are demotivated. Consequently, thousands of students every year are leaving the shores for foreign, a huge brain drain and money drain. They are going to countries like USA, UK, Australia, Singapore etc. They are spending huge sums of money. By one estimate it is equivalent to establishment cost of 5 IITs.

Even small countries like Singapore with a population of around 50 lakhs have world class universities. But a big country India does not yet have even a single one. There is something seriously wrong in governance and leadership with apex authorities like MHRD, UGC, AICTE. Really all these bodies are behind time. They are in reality not managed & maintained by competent professionals. The governance and leadership at central government and state is far too poor. The key people in Governance are not keeping pace with global winds of change. Prime Minister has expressed his desire to bring at least ten universities to top in the world. He has sanctioned the budget demanded, and full autonomy to them but still so far none could come up. The problem is not of money but of age old systems and procedures, visions and missions, policies and practices. The students and professors are brilliant but they have to work under poor governance. Governance and leadership at central and state government levels is responsible for poor standards.

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Leadership in academics both at central and state levels is far too weak. To illustrate importance of leadership, there is a story of two armies. They were fighting a war with each other. One army say -A, had Lion as its captain but the soldiers were sheep. The second army say-B, had Sheep as its captain but the soldiers were lions. Guess, who would win the war? The strategies drawn by sheep captain - B are like a coward sheep. Although there are so many lions in its army it loses the war. The lion captain-A, with sheep as soldiers wins because it draws bold strategies like a brave lion. The story underlines the role played and strategies drawn by leader. It is the leader that matters. Today, students and professors in India are intelligent like lion but the strategies drawn by government leaders, its political masters are behind time, For example too low budget. When the new political party comes to power it uproots all the schemes of the previous government. They have no realization and gravity of the value of education in today's knowledge based economy. They provide so little budget to education. Consequently, leadership in various professions and in politics is not up to the mark. India remains behind in brain race and there is an exodus of brains abroad. Really, education policies should go on and on, regardless of which political party comes to power.

One good thing Finance Minister has announced in recent budget of 2020 is of permitting Foreign Direct Investment [FDI} in education. With FDI coming, it is likely that foreign universities may set up their campuses on Indian soil. It is most wanted. This should have been done long back. But it is better late than never. Now some Indian students may study in them, as per systems and procedures of foreign. So also these universities may admit students from foreign countries like Africa, Bangladesh, Burma etc., international mixing of students is possible, which is found to enhance quality of education. Indian universities public and private will have to face competition with them. Competition is said to be the best fuel for progress. Indian universities may then improve, without which it is less likely. Many committees and commissions in the past from 1966 have prescribed autonomy to universities and colleges but they have not yet been implemented in true spirit. Government has granted autonomy to a few but still the government is pulling strings. Following strategies may help transformation to world class standard.

Good Governance

An important characteristic of good governance is that of probity, that is to say working honestly, earnestly in a transparent manner with integrity for public good. Governing body should have to assert and be accountable to the interests of all stake holders. Board of Governors (BOG) of an institution should be thinking body, sensitive to world dynamics, preparing students for globalized world. A good BOG scientifically evaluates its own performance from time to time. It is a great fund raiser, from alumni, national and international sources, so the institution gets financial strength to implement plans for future.

Successful BOG is that which arranges written feedback from students, faculty, staff, alumni on quality of education, and makes strength, weakness, opportunities and threats [SWOT] analysis from time to time. This is a powerful tool to know where the institute stands today, and where it tends to go. The results of SWOT analysis must be made known to all stake holders.

Role and Responsibilities of Board

Board of Governors to an institution is like navigator to a ship sailing in sea, charting the course by long range planning, and using techniques of strategic planning, while the head of the institution is like a captain facing day to day operational problems. Both the BOG & the principal together are the key players to serve the educational interests of society. If navigation is proper the ship sails smoothly in intended direction. Good BOG ensures quality of education, ensures economic security to India and avoids technological obsolescence.

The Principal/Director is the link between the board and the campus. The principal is expected to provide leadership for all administrative arrangements for developing budget, admissions, examination, etc and overall effectiveness of the institution. Board and Principal both delegate substantial responsibility to the faculty. Vigorous governance by faculty lies at the heart. The faculty, in one sense are the institution. They determine who should be admitted, what should be taught and who should graduate. Faculty governance and responsibility remains at the

core. The three, namely BOG, principal and faculty ought to clarify each other's roles, develop trust & confidence and exercise able leadership. Differences in opinion some times are however, inevitable. Leadership at each level plays a vital role to bridge.

Effective Governance

The responsibility of the board is to govern and not to manage. There needs to be an absolute clarity and the distinction between the governing function of the governing board and executive responsibility of the principal and the executive team led by him or her. Governing function is described by the saying, "Noses in- Fingers out". (Rhodes 2001). This is the tested advice to board members. Whenever and wherever there is foul smell in an institution board is expected to go to its roots, diagnose the cause and evolve solution to stop further rot. It may take help of internal or external agency to evaluate and correct. Good BOG should not tolerate the rot for a long time. Good BOG finds solution for every problem.

The most important single responsibility of the board is the selection, appointment, periodic performance review and continuing support to principal and faculty. The most effective boards are those that have developed a code of conduct and self-assessment practice of their own performance.

The institution is expected to provide salary, professional support, facilities, equipment and protection to academic freedom to professoriate, while the reciprocal obligations of the faculty member are not explicitly spelt out.

Effective governance requires creating collective ambition, shared goals, dreams corresponding to counterpart institutions abroad, and that is the responsibility of the principal. Without strong and dedicated leadership of principal no system of campus governance can be effective. He should have the characteristics. He must bear in mind that tomorrow's leaders, who are movers and shakers of the world, sit today in his classrooms and he should dedicate his efforts in that direction.

Education does not grow where governance is ineffective. Government should orient governing members to world standards. Professors need to be involved in governance.

Universities abroad have installed long back Research Parks, Technology Incubators, innovation centres, start-up centres and Patent & IPR centres etc. These are the units which facilitate engagement of industry with institutes. Education has improved on account of them. Have we done this? It is the role and responsibility of governing bodies to expand horizons from class room teaching to innovation, generation of new knowledge, new theories and new technologies. Knowledge is infinite. Students should learn to discover, innovate and start new technology based firms. universities have invested in buildings, equipment but not in research. It is mainly on account of the lack of research that quality of education is poor. Professors are engaged more in administrative activities, having no time to concentrate on research and teaching. Can installation of quality assurance cells provide an aid? Is it possible to create a culture of self-discipline and self-assessment? Do the institutions care to increase their influence and outreach beyond class room? Governing bodies have to learn how to be effective, from its counterparts elsewhere in the world. What is the use of governing body if it does not ensure educational quality?

Stop Political Interference in Higher Education

Brave New India of tomorrow is really being created today in universities and colleges. In this period of knowledge based economy, creation of brave new India, as is aimed by present government largely depends on how well educated, knowledgeable and globally competent its men and women are. Government, is also ambitious to make India a 5 trillion economy. From experience elsewhere in the world it is observed that education of citizens holds the key to such efforts of national development. Nations where people are well educated, nations which have world class universities, develop faster. Universities produce professional and political leaders for various walks of life, such as engineering, law, medicine, education, agriculture etc. including those for politics and industry. They produce leaders to manage affairs at local as well as international levels. What kind of leaders, how resourceful, and how competent globally they are is the matter.

Higher Education in India, however is in deep Crisis. Although thousands of graduates are available for jobs, very few, only 17 per cent are employable. We must realize that, the solution of virtually all problems with which government is concerned today

like housing, environment, crime, low productivity, problems of defence, security etc. all depend mostly on availability of qualified and competent manpower and hence upon health of Indian universities and colleges. Political intervention in education has spoiled the culture in universities. It should be stopped forthwith and autonomy promoted. This is the experience and recommendation of several committees and commissions,. Education should go on and on uninterrupted regardless of which political party comes to power.

The stakes involved in higher and technical education are now too high. The post of Chancellor of universities cannot be left in the hands of a non-academic, non-professional, and political person, like the Governor. The Governor has to attend MLAs, MPs and other important matters. Howsoever capable and competent he may be, he cannot do justice to the chancellor's post. Observations made indicate that the bottleneck lies always at the top. Most of the times problems of higher education reported in many education commission reports remain inadequately analysed and improperly acted upon.

State Governor being a politician, brings politics to university. He does not hold any credentials what so ever in academics. Yet, he being chancellor of universities is authorized to choose and appoint vice chancellors. This is illogical. Often he selects vice chancellor on political considerations, selecting second grade when first grade is available. Higher education is spoiled by such structural defects. Foreign Experience supports this view. This is in the interest of youths of the country and their future. Stopping interference of politicians in universities is a critical requirement to reform governance in higher education, and to build a brave new India.

Revise service conditions and provide adequate opportunities of growth to professors to enable them to grow to world standards, without which education will never reach to international standards

Professor is said to be the king pin in education**.** His standing in his respective field of specialization largely decides the reputation of the institution he serves**.** Opportunities for faculty growth in India are far too weak. Research funds are not available. Sabbatical leave is not granted. This is one of the important leave which build competency of professors. Indian universities without world class professors can never be world class and they will produce graduates only to become not leaders but followers, or copy cats. A professor ought to be treated as a knowledge leader, a thought provider of world standard to inspire both students and practicing professionals for innovation and creativity. They are an insurance agent against obsolescence of society.

Research professors in universities abroad are allowed to continue research till they wish. Many professors even in advanced age actively do research. They are allowed to guide students for PhD till they wish. In India, as soon as a professor retires from university at the age of 60-65 he has to stop taking students for PhD. This should be changed and brought in line with universities abroad. Secondly, the duties and responsibilities of professors need to be well spelt out and given a mandate by law. In the absence of which many times professors are engaged by management in sundry non-academic jobs. Higher authorities misuse them. A law should be passed in parliament specifically outlining the duties & responsibilities, so that professors can focus their attention on their core jobs. Professors are not government servants. They should be allowed to spend one year in research and teaching in world best university once in 7 years. This is necessary to bring good policies and practices from world's best universities. Education can reach to global standard only if professors are allowed without diversion to do their jobs of research and teaching. This is in national interest. Professors are not granted powers today which international fraternity are given. These powers are usurped, and they have become humble servants.

Governing bodies should make gap analysis with world best to understand weaknesses, and initiate corrective measures teach students to explore, enlarge imagination

What is the difference between our institutes and counterpart institutes abroad? Why to call Indian universities good, and give them five star rank in accreditation if they can't produce employable graduates? Benchmarking with world best certainly provides a stimulus to creative thinking. Where lays the Gap? Can we not make up? In globalization India should benchmark with developed world. The gap lies in knowledge generation, Patenting, IPR, and Start-

ups of New Technology Based Firms, Technology Incubator, Venture Capital Foundation commercial exploitation of technology, knowledge, technology transfer. The above-mentioned innovative and entrepreneurial directions in institutes abroad are found to make education relevant and purposeful. They teach so little, but more relevant. Universities' in foreign countries are found to function like a lighthouse for industry. They show a new way to human civilization. Professor's work hand in hand with students and form a community of learners, discoverers and innovators. It is therefore no wonder if best of brains from anywhere and everywhere in the world go to them. Institutes in foreign provide joy of learning, create impact by doing research & innovation on economy and increase the economic rate of return on investment. The contribution to advancement of human civilization is high. The institutes have come to be known as technology and wealth generating instruments. Nations become strong only if knowledge organizations are strong. Transformation process in India must now focus on producing not just graduates but able leaders, to become pioneers in scientific inquiry, and not mere followers of technologies generated elsewhere in the world.

Getting higher marks in examination is good but not enough. Students must learn to make business plans, finance and start New Technology Based Firms. They must learn discovery of new technology and obtain patents. They must learn to become pioneers of research-based companies like Alon Musk, who started battery operated electric cars, namely TESLA. How innovative students are is of priority, rather than how much knowledge is stored in brain. When foreign students can learn innovation and patenting why Indians can't? Future belongs to those who understand this. Can academicians and institute's BOG take this as Indian Universities Ought To Play Vital Role In Employment Generation.

Universities without the spirit of research and innovation are irrelevant, incomplete and nonviable in modern sense. Institutes must consciously create well springs of new knowledge

Universities ought to be innovative to play vital role in generation of hi-tech employment. Stanford university in USA has so far given birth to more than 3000 hi-tech start-ups, employing millions of educated men and women, each earning high income. Universities in Australia, China. Singapore, New Zealand are not behind. Stanford University gets royalty, millions of dollars each year from these companies which is ploughed back in research to create further more new technology based firms. On the downstream side of these firms many jobs are generated in low tech. Universities in developed countries actively engage themselves in high end research, innovation and entrepreneurship. They obtain patents and huge royalty on commercialised patents. For example in mobiles, the material cost is hardly around Rs 500 and the rest is royalty earned by patent holders for patents used in mobile. Besides, a phenomenon is observed, world over, that hi-tech industries especially research based companies are flocking around advanced research & innovation centres in universities for brand new ideas, providing plentiful hi-tech, hi- pay jobs, which creates many more downstream low end jobs. Do universities in India have a mission to give birth to such hi-tech firms? Do they engage in high end research? Have they installed innovation infrastructure? Why they do not yet have when universities abroad have from many years? Indian universities have high capabilities but unexplored. They lack in global vision, strategic planning, and benchmarking with world best counterparts. This leaves education handicapped which is the main reason for low employability of Indian graduates, {only 17 per cent} and consequently India remains a less developed country, in spite of high potential.

World experience tells us that vast bulk of job growth comes from advances in new knowledge and new technology being generated in universities, rather than resources like land, labour and capital [Robert Solow]. India so as to generate jobs ought to focus now its attention on hi-tech innovation, research and entrepreneurship. So as to increase much desired employability of students it is essential now in universities to emphasise on innovation on the lines of Stanford. Increase in state budget for research and innovation is strongly recommended. Not investing adequately in higher education is like planning for failure which results in slowing down the pace of Indian economy.

It is a high time to realise that the key factor behind unemployment in India is insufficient innovation and insufficient entrepreneurship. Innovation is a strong stimulant. Persons with innovation skills in India are in short supply. This is the major barrier in job generation & economic development. An innovative person has a mission in life, which gives him extra energy and purpose. He consistently strives to improve. He is always dissatisfied with the prevalent. He wants to create new and again new. Innovation is progressing constantly on the efforts of new ideas of such persons. Can our universities produce such innovative graduates more in number? Then graduates will become job generators, and unemployment will go away.

Shall we not adopt strategies in favour of innovation in university education? Can universities afford to ignore this legitimate role? At what cost? Who pays? It is said students who learn innovation in young age practice it lifelong. They become job generators. There is a great influence of universities on innovation capacity of a nation. Nations which lead in innovation take away jobs from those who lag. Innovative students and innovative professors are found to show a lead in start-ups in new technology based firms**.** According to a study as many youths are unemployed in India so many jobs are awaiting able men and women with requisite skills & knowledge. Today opportunities for employment are growing in one direction and our education is growing in another, resulting in mismatch. Consequently, thousands of dissatisfied students are going abroad, by paying huge sums of money, a huge brain drain and money drain. Indian universities in the absence of innovation infrastructure are behind time, which is very costly. Cost paid is very heavy, it is the students who pay in terms of their future life . India should have to put conscious efforts to avoid this.

The challenge before India now is to reimagine and equip universities and colleges in respect of innovation infrastructure to achieve desired target of job generation. Universities in India should make a beginning to play this role effectively. If they assume innovative character, employment will be no problem, otherwise it will remain a dream. Governance and leadership in India needs improvement.

UGC, AICTE, MHRD and universities should be keeping in view winds of change in world. They have so far unfortunately been blind to what their counter parts else where in the world are doing.

The above bodies now being merged in NHERA are empowered by law not only to drive the routine administration, in which they seem to be too engrossed, but also to redesign the engine of higher and technical education from time to time and keeping it competitive and fit by global standards. Have they drawn any circular to promote patenting? Have they set up any committee to set up patent culture? They thought that it was not their business. But they ought now to focus on commercial exploitation of research outcomes. This makes the institutions qualitative and yet financially more viable. This attracts investment from industry. UGC and AICTE in the past have totally neglected these things. Consequently the whole nation is a loser. We have been caught today in the death trap of a too centralized model. The over centralized planning has crippled the innovative thinking of the youthful talent in universities. They don't look to world outside.

Innovative, Creative, Accountable and Effective BOG is the Need of the Hour

Many Indian Universities and colleges have all the resources at hand. They spend money more than necessary, but in return they do not gain quality. Why? Studies show they do not have proper visions, missions & commitment to excel. Indian universities lack systems for quality assurance, quality policy, quality manual, quality planning & monitoring cells, and mechanism for periodic internal & external review. They lack methods and not the resources. They lack force in their action. Professors attention is diverted to non-priority activities Working hard by principal alone is good but not enough.

BOG together with the principal sits in driver's seat. They both jointly with faculty & staff are responsible for educational quality. It is observed that quality of education is as good as the imagination, visions and commitment of the board for the cause of education. If the board is excellent the quality of education is most likely to be excellent. BOG needs however, to envision new goals from time to time to cope with emerging opportunities and challenges in globalized world.

BOG is the chief fund raiser, raising funds with imagination from national and international sources. So far, colleges have neglected alumni as a source of money and ideas. Involvement of alumni to ensure quality education is essential to make institutions world class. Board needs to engage appropriately with the principal, activities in college and alumni. BOGs are increasingly being appointed in more & more colleges private & public, which is good but it is better if board is consisting of visionary, imaginative, and responsible professionals. Nobel Laureates, Bhatnagar award winning scientists, industrialists and Fellows from Indian Academy of engineers [INAE], distinguished professors if appointed on board, they will make a big difference. Great leaders matter. World experience tells us that BOG of an university serves the nation better in inculcating human and ethical values if it is protected by legislation from political and bureaucratic interference. Board chair should be as far as possible an eminent industrialist, educationist, committed to the cause of education. Successful boards have a culture of periodic scientific self-evaluation of college and all authorities including board itself. The paper provides a base for brain storming. It is high time that BOGs are created and activated to become an effective force in enhancing quality of education to world class level.

Landscape of University Education in the World is Changing Fast. How can India Cope With?

Knowledge is becoming the driving force of world economy, obviously so knowledge institutions like colleges & universities are achieving significantly high importance [NKC, 2007]. Providing good governance to them for improving quality and relevance of education has become of paramount importance. Good governance & distributed leadership is important for their own health & the health of Indian economy. It is the prime responsibility of the head of the institution, together with BOG. An institution in spite of all the resources at hand without good board may falter and lead to autocracy and disrepute.

Which government does not want to generate hi-tech employment, high pay international jobs, spur industrial growth, and make education globally competitive? Industries, world over, are seen flocking round the advanced knowledge centres to obtain brand new ideas for global competitiveness. Institutes must have original knowledge springs like well water springs. They must have a mechanism to convert intellectual strength in to usable goods and services. Role of higher education has emerged central to industrial and economic development, in creating India's future. Industry is now research driven. Association with industry, venture capital firms, international agencies who succeeded in this cause is essential. Will governance facilitate to build bridges?

Education does not grow where high end research is absent.

The paper prescribes "dream big think and great. They should aim high at technology generation, technology diffusion, which is achieving high significance in enabling a nation to win. The paper emphasizes adoption of new organizational inventions like Research Park-Technology Park, which when implemented will contribute to India's international competitiveness. The institutions should have now to look beyond the traditional lines of teaching and learning and adapt to corporate development, and help industry to win. They should have to restructure themselves to become fountain heads of new knowledge and new technology. They should deserve the status of "Light House" for industry. Synergy between industry and academics in this cause is vital. Parks play a middleman's role in this. They have enhanced the scholarship of universities/colleges elsewhere in the world. They jointly can give economic and political stability to India. Will industry- institute interaction become a national priority? The paper recommends especially these roles for BOG for reforms in the light of experience elsewhere in the world.

Conclusion

1. Who is responsible and accountable for raising the educational standard? Governance and leadership at state and central levels besides executive council/BOG at university level is the answer. Governing Bodies should take full responsibility and be accountable. Reimagining of universities will take place to world class only if they perform effectively not otherwise even if they spend more without following scientific method.

2. Create culture of self-regulation and self-control. If governing bodies make a commitment to change, change to world class level is undoubtedly possible. Global opportunities are abundant which need to be harnessed, using our existing strengths. We do not have to import them. They are well within us. Only those who work with optimism and "can do" approach are likely to succeed. India to win in global competition requires imaginative Bodies to make institutions world class.

3. Are students learning what they need to thrive in 21st Century? Governing bodies should not remain passive, but become active and become a motivating force, and a mentor to principal, faculty and staff.

4. What is the next big thing for BOG to do? They have to install quality assurance cell.

5. There is a tremendous strength in collective wisdom and collective ambition of faculty and alumni. Colleges should harness alumni strength without delay. No institution can provide all the services needed all alone. It must be backed by ideas, experiences and feedback from alumni. They are learned and experienced ambassadors of college. No university has grown to greater heights without alumni support.

6. Do governing bodies need to update? Without that they tend to become obsolete. Joint meetings, group discussions and conferences should be held for members time and again to focus on current public issues in education, at national and international levels.

7. Create culture of innovation and attract innovators. Award winning scientists, leader in industry if appointed on board will they take the institution ahead of time. Faculty growth to excel in innovation & research must be ensured.

8. What crucial topics should figure on BOG agenda? .

   Expanding horizons of the universities & colleges to install research parks, technology incubators, and patent & IPR centres should now be the first and foremost item on agenda. Budget for these schemes ought to increase.

9. Grip of government on education should be reduced. Governor of state should not be the chancellor of universities.

10. Government should put its full trust and confidence in universities, and empower them to function without government intervention.

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Can India Replicate China in Higher Education?

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The Indian Higher Education space is currently in turmoil. Although there are close to a thousand universities in the country today, the GER figures are dismal. To make matters worse, most of the students graduating from these Universities are unemployable, either in the research and development ecosystem, or in the industry, both areas where there is a dire need of skilled manpower. Successive Governments have tried ways and means to tackle these problems, but in vain. Much is being said of the demographic dividend our country currently has, but unless we do something really fast, this may become a demographic disaster, as has been seen in Japan. This paper compares the Indian higher education system with that of China today, to see what lessons, if any, can be learnt.

At the time of Independence of India, [UGC, 2019] there were only 20 Universities and 500 Colleges in the country, with 2.1 lakhs students in higher education. The numbers now have increased 52.35 times in the case of the Degree-awarding Universities (1047), 83.87 times in the case of Colleges (41935) and the students' enrolment (37399388) has gone up to over 178.09 times in the system of higher education, in comparison to the figures at the time of independence. As on 31.03.2019, the number of Universities listed by the UGC under Section 2(f) of UGC Act, 1956, had gone up to 911 Universities [UGC, 2018-19].

The above figures are mind-boggling, to say the least! Such a massive increase over the last 70 odd years should have ideally seen India on top of the world as far as higher education is concerned. But the real scenario is woefully inadequate! The Indian youth is still struggling with challenges like Low employability of graduates, poor quality of teaching and education, weak governance, insufficient funding and complex regulatory norms, which continue to plague this very important sector.

In this paper we discuss the whys and wherefores of these challenges, using some figures for comparison with China.

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Gross Enrolment Ratio

In 2018-19, India's Gross Enrolment Ratio (GER), which is generally calculated for the 18-23 years of age group, was 26.3 per cent.[AISHE2019] But is stillfar below the Ministry of Human Resource Development's target of achieving 32 per cent GER by 2022 [Brookings 2019], and the global GER of 36.7 per cent. In fact, compared to the previous year, the GER, which was then 25.8 per cent, has increased only by 0.5 per cent! Let us see the corresponding figures for GER for China, our mighty neighbor in the East, as given in Table 1 below.

It can be seen that between 1996 and 2001, both countries had similar GERs. However, in the next five years, China almost doubled its enrolmentrate from 9.76 per cent to 20 per cent while India's enrolment increased by less than 2 per cent. The main reason for this is that China has drastically increased its funding for higher education in the last two decades.

Table 1: GER Per cent in India and China

Year	India	China
1996	6.28	6
2001	9.76	9.76
2006	11.5	20
2011	24	25
2016	26.92	48.4

In fact, the China Government today spends a whopping 4.6 Trillion Yen (US$ 685 Billion) on education, half of which goes to compulsory primary education and half to Higher Education, with a year-on-year increase of 8.39 per cent. This amounts to around 4.11 per cent of its GDP. On the other hand, Indian spending on education is 3 per cent in 2018, in spite of the fact that the Niti Aayog had recommended a target of 6 per cent by 2020. [Brookings, 2019]

Moving further, the GER of China for Elementary School level is 98.9 per cent, which is comparable to that of India, which is around 108 per cent. Note that this Gross enrolment ratio is the total

enrollment in primary education, regardless of age, expressed as a percentage of the population of the official age of primary education. (This figure can exceed 100 per cent due to the inclusion of over-aged and under-aged students, because of early or late school entrance and grade repetition). But when we go higher to Junior High School level, it is 94.1 per cent in China, whereas it gets nearly halved in India to 49.3 per cent. Similarly, at the higher education level, China, as said earlier, has a much higher GER compared to that of India. This means there is a high drop out in our country, among School going children, as they move up to higher levels.

There are many reasons for the above sharp fall in GER or high drop out. These may be financial problems, parents' unwillingness, distance and lack of basic facilities, bad quality of the education, inadequate school environment and buildings, overloaded class rooms, improper languages of teaching, carelessness of teachers and security problem in girls' schools. These problems were seen in China also earlier, but it did a massive ramp up in the beginning of this century, in terms of building world-class Universities.

India's Demographic Dividend

India has now entered a 37-year period of demographic dividend – a duration when its working-age population (people between 15 and 64 years of age) has grown larger than the dependent population — children aged 14 or below as well as people above 65 years of age. This bulge in the working-age population is going to last till 2055, or 37 years from its beginning in 2018.Many Asian economies — Japan, China, South Korea — were able to use this 'demographic dividend', defined by the United Nations Population Fund (UNFPA) as the growth potential that results from shifts in a population's age structure. This transition happens largely because of a decrease in the total fertility rate (TFR, which is the number of births per woman) after the increase in life expectancy gets stabilised. [EC, 2019-1]

China entered this stage in 1994 — 16 years after Deng Xiaoping's economic reforms started in December 1978. Although its growth accelerated immediately after the reforms, the years of demographic dividend helped sustain this rate for a very long period. In the 16 years between 1978 and 1994 (post-reform, pre-dividend) China saw eight years of double-digit growth. In the 18 years since 1994 there have been only two years when China could not cross the 8 per cent growth mark. India has not seen such double-digit growth, except in the first quarter of 2010, when it recorded 11.4 per cent. Rather than increase to double digits, India's economic growth in the January-March quarter of 2018-19 slowed to a five-year low of 5.8 per cent due to the poor performance of agriculture and manufacturing sectors. It has fallen even below 5 per cent in 2019. If India has to place itself into a long-term double-digit growth trajectory, it needs among other measures, to boost farm incomes and reduce income inequality.

The UNFPA points out that countries can only harness the economic potential of the youth bulge, if they are able to provide good health, quality education and decent employment to its entire population. This is the biggest challenge India is facing today and it must work in mission mode on all these fronts, lest the dividend turn into a disaster. Besides providing avenues for a healthy workforce, it must, first and foremost, provide quality skilled education, so as to ensure decent employment to its people.

According to a Niti Aayog official, ''Four percent of GDP has been spent by India on overall education while China is spending around 565 billion dollars, out of which 145 billion dollars is spent on higher education. However, India spent only 12.5 billion dollars in overall education out of which 4.5 billion dollars were spent on higher education. This is the ratio in which we are working vis-a-vis China," [Niti Aayog, 2019]

In this respect, China has taken remarkable strides in recent years. The speed of China's emergence as one of the world's most important countries in international education has been nothing short of phenomenal. Within two decades, from 1998 to 2017, the number of Chinese students enrolled in degree programs abroad jumped by 590 percent to more than 900,000, making China the largest sending country of international students worldwide by far, according to UNESCO [UNESCO, 2019]. There are three times more Chinese students enrolled internationally than students from India, the second-largest sending country.

Quality of Higher Education

Chinese Higher Education Institutions (HEIs)

currently pump out more graduates than the U.S. and India produce combined. Moreover, China's top universities now provide education of increasingly high quality. Long absent from international university rankings, top-tier universities are now increasingly represented among the top 200 in rankings, like those of the Times Higher Education (THE) and Quacquarelli Symonds (QS). Its flagship institutions like Tsinghua University and Peking University are now considered to be among Asia's most reputable institutions and appear in the top 30 in both THE and QS world university rankings. In fact, Chinese universities' quality improvements and other factors have helped turn China itself into an important destination country of international students from Asia, Africa and elsewhere.

India, on the other hand, lags behind dismally in this. None of its HEIs, not even the IITs or the IIMs find a place in the top 200 rankings. The quality of education provided has, over the past years, fallen, not improved, despite enhancing the number of HEIs, like IITs, IIMs, NITs, IISERs, NLUs, etc., and allowing many HEIs to come up in the private sector. The reason for this is not far to see. The UGC, which has a mandate to monitor the quality of education in the Universities, through its National Assessment and Accreditation Council (NAAC), has been able to accredit only 14 per cent of all Universities in the country. Of these, only 29 per cent have a score above 3, which is considered good. But these make up only 4 per cent of all HEIs in the country. [Brookings2019]

Employability

As a result of the low quality of education, the employability of our graduates is very low. If we take the case of Indian engineers, the new Annual Employability Survey 2019 by Aspiring Minds [ECO, 2019-2] has revealed that the general quality of engineering graduates has remained stagnant for the last 10 years and that 80 per cent engineers are not fit for any knowledge economy jobs. As far as coding skills are concerned, it goes on to say that although the percentage of Indian engineers who code well is greater than the number of Chinese engineers, a much higher proportion of Indian engineers (37.7 per cent) cannot write a compilable code compared to Chinese engineers (10.35 per cent). It means that even though some changes have been made in the education system in recent years, they have been adhoc at best. Sadly, no planning has ever been done to improve these figures.

Research and Development

The true worth of any University is known by its research output. The non-inclusion of any of our HEIs in the top world rankings is ample proof that there is something seriously wrong with our doctoral programs. In this respect, China has again shown huge improvement in the last two decades. It is now training more PhD students than the U.S. In 2018, the number of scientific, technical and medical research papers published by Chinese researchers exceeded, for the first time, those produced by U.S. scholars. China now spends more on research and development than the countries that make up the entire European Union combined and it is soon expected to overtake the U.S. in research expenditures also. [CHIUGC, 2018]

According to [MoF, 2017-18] the Indian government funds as much as 60 per cent of R&D, while the corresponding share is only 16 per cent and 11 per cent, respectively in China and USA, where there is a substantial funding by Industry and academia. It makes sense for the industry to come out with their requirements and provide funding through sponsored projects, to research scholars in HEIs.

Regulatory Norms

All the above points clearly demonstrate that China is moving ahead in all aspects of higher education, when compared to India. It is high time that the Indian HEIs woke up and followed the Chinese example. The current regulatory norms for HEIs are complex and severely limiting, especially so for the private, self-financing Universities. The Government had announced the setting up of the Higher Education Council of India (HECI) last year, with the repeal/ merger of the many existing regulators, purportedly to ''maintain academic standards in higher education by specifying learning outcomes for courses,'' and provide greater autonomy to HEIs.Sadly, no action has been taken on this till date.

The draft New Education Policy (NEP) proposes some reforms. For example, it proposes three types of Higher Educational Institutions (HEIs): Research Universities, Teaching Universities and Autonomous degree-granting colleges. It aims to provide that

all higher education institutions, be governed by Independent Boards with complete academic and administrative autonomy and set up an autonomous body called the National Research Foundation (NRF) to be set up through an Act of Parliament. But these reforms are not bold enough. Moreover, the time envisaged to shift from the old to the new regulations is 5-7 years, which is too long. India certainly does not have that much time!

Skill Development

One aspect of higher education that India seems to have got right recently, is 'skills' education. The setting up of the Ministry of Skills Development and Entrepreneurship (MSDE) and the associated Skill Sector Councils (SSC) and agencies like NSDC and NSDA, will certainly boost the skills of our youth and make them more employable. A number of Universities are now running degree programs in Vocational Education.

One such University in the private sector, is the Jaipur based Bhartiya Skill Development University, founded by an NRI, who made it big in Switzerland and wanted to bring the well-established skill-based ''Swiss dual system of education'' to India. The emphasis here is to provide ample hands-on training and practice to students, by dividing their time equally between theoretical training in the University and practical hands-on training in the Industry [BSDU, 2019]. The AICTE has also set up the All India Board for Vocational Education, which will provide the necessary impetus to skill based education in the country.

Conclusion

One of the chief characteristics of Higher education is that it gives its recipients a capacity to adapt to change. If India can get its education system right in the next 5 years, it will continue to be one of the few advantages that Indian parents can give to their children, in this rapidly changing world. China's rapid and spectacular growth in economy after Deng Xiaoping's economic reforms of 1978, has been a result of its massive industrialization process, which transformed a largely agricultural country into an industrial manufacturing powerhouse.

India must try and replicate this through its own higher education system, by moving it from a unified, centralized and closed system to one that allows openness and diversification. Top universities must function as centers of excellence that serve as a model for all other institutes. A helpful model could be the one adopted by China, of involving "twinning" of poorer institutes with model institutes to provide equipment, curricula and faculty development.

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Developing Employability and Entrepreneurship: With Special Reference to Agricultural Education

Ashok Kumar Sarial*

India's higher education system is the third largest in the world, next to the United States and China. The main governing body at the tertiary level is the University Grants Commission, which enforces its standards, advises the government, and helps coordinate between the centre and the state. At present there are around 52000 (exact 51,649) higher education institutes in the country including universities, central universities, state universities, deemed universities, private universities, institutes of national importance, government and private colleges, etc. These institutions have 3.74 crore students on roll with 14.16 lakh teaching staff. Thus, we see that the country has made significant strides in higher education but there is ever increasing number of qualified un-employed graduates and postgraduates. Unemployment rate is highest among youth with education upto graduate (36 per cent) and postgraduate and above (36 per cent).

In view of increasing lack of required employability and entrepreneurial skills in the graduates, a need has been felt to develop employment and entrepreneurship skills in the students in higher educational institutes to make them productive as per the changing needs of the industry and world. Government of India and state governments have launched Skill India programmes where the students and unemployed youth are provided opportunities to enhance their skills in any vocation of their choice to make them self employable and employable in industry.

Employability and Entrepreneurship Skills

The International Labour Organization defines employability skills as the skills, knowledge and competencies that enhance a worker's ability to secure and retain a job, progress at work and cope with change, secure another job if he or she so wishes or has been laid off and enter more easily into the labour market at different periods of the career cycle. Individuals are most employable when they have broad-based education and training, basic and portable high-level skills, including teamwork, problem solving, information and communications technology and communication and language skills. This combination of skills enables them to adapt to changes in the world of work.

Entrepreneurship has been described as the "capacity and willingness to develop, organize and manage a business venture along with any of its risks to make a profit. Thus, it can be said that most existing conceptions of employability view it as a set of skills, both generic (e.g., teamwork, organizational, communication) and discipline specific (e.g., the skills and knowledge relevant to engineering, law or social work), as well as personal attributes (e.g., self-confidence, resilience, discipline) which are relevant to employment and desired by industry.

Importance of Employability Skills and Developing Entrepreneurship

Skills have become increasingly important in the globalized world. Vocational and technical skills are essential, but employers are seeking applicants with multifarious skills. They want employees who can continue to learn and adapt; read, write and compute competently; listen and communicate effectively; think creatively; solve problems independently; manage themselves at work; interact with co-workers; work in teams or groups; handle basic technology, lead effectively as well as follow supervision. These core skills for employability are both important to employers' recruitment and enhance an individual's ability to secure a job, retain employment and move flexibly in the labor market as well as engage in lifelong learning.

Entrepreneurship on small scale is the only solution to the problems of unemployment. Entrepreneurship is the process of designing, launching and running a new business, which is often initially a small business. In India, agricultural entrepreneurship leads to enormous opportunity of youth involvement in economically sustainable livelihood options.

Employability skills are important to enable graduates to function in today's changing world. Graduates need to be flexible and adaptable, to be able to solve problems, communicate effectively, think critically and creatively, and be able to operate as effective team members in the workplace. In order for business to be successful, employees not only need to have technical knowledge and skills but also possess soft skills. The failure to fulfill this requirement has been identified as one of the causes of the skills gap amongst graduates

Ways Forward for Improving Skills

1. Soft skill programmes should be embedded

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in formal education. As soft skills cannot be developed overnight, institutions must make an effort to introduce a curriculum that will enhance the student's soft skills.

2. Institutions should encourage students to acquire knowledge through a continuous learning process. Doing so would enable students to enhance their skills and polish their employability skills.
3. Internship: Internships & Apprenticeships are proven way to build bridges between the worlds of education, training and work. The one-year student internship program in agriculture and the veterinary science offers good opportunity to enhance the employability skills in higher education.
4. Volunteering in community efforts & sports activities also foster the employability skills among the graduates & postgraduates.

Entrepreneurship in Higher Education in Agriculture and Allied Sciences

The rural entrepreneurship is a new approach of creating employability for rural youth which targets deployment of workforce from traditional low paid agriculture to gainful employment in new farm occupations ranging from seed/input supplies, production, marketing and processing of agri-commodities. Presently, higher Agriculture Education has assumed great relevance in the context of capacity building and entrepreneurship development for producing professionals and job providers rather than job seekers and to attract and retain youth in agriculture by making it intellectually stimulating and economically rewarding. This demands restructuring the higher agricultural education curriculum and pedagogic methodologies for enabling most of the farm graduates to become entrepreneurs.

National Sample Survey (NSS) data showed that workers engaged in agriculture are increasing @ 1.5 per cent/ annum but the days of work per worker have declined. As per census 2011, in HP out of 36 lakh workers about 22 lakh (around 61 per cent) were engaged in agriculture alone, creating huge and disguised underemployment and unemployment. The traditional agriculture cannot absorb and sustain such a huge number workers being added every year. Further the public sector has limited job opportunities while the corporate sector is already showing sagging signs of over-employment and is more inclined towards capital-intensive technologies.

There are three dimensions through which agricultural growth can be achieved (i) extensive farming (ii) intensive farming and (iii) scientific knowledge based farming. The first two options are almost exhausted or have limited scope in the present context while scientific knowledge based agri-business approach is the only viable option for ensuring agricultural growth and increasing rural employment. It embodies five critical components having interlinked and intertwined backward and forwarded linkages to agriculture as a whole.

Agricultural sector is the prime area of concentration for economic progress. Agriculture, agro-industry and agri-business are prime sectors to provide high employment to youth. Majority of agricultural students don't wish to involve in Agri entrepreneurship hence, agriculture students must be inspired in this direction. Such students must realize agriculture as a potential profession and get skillful to take agriculture as a potential business opportunity and students should be motivated and encouraged to become job providers rather than job seekers.

Student entrepreneurship, entrepreneurship development programmes and technology business incubation are some of the ways of fostering entrepreneurship in higher Education in agriculture and allied sciences**.** Some of the promising areas of entrepreneurships can be :

Tea Husbandry and Technology

Tea industry is an important source of income and employment and is a good foreign exchange earner. Kangra tea has been rated as one of the best tea in the world due to its aroma and quality. It is registered under Geographical Indicator by GoI. The demand of organic tea is very high and is increasing in the international market. Tea industry has the potential to be a profitable avocation to the youth for self–employment and entrepreneurship. The Department of Tea Husbandry & Technology is competent for providing essential skill development in the areas of tea production and management, processing, value addition and marketing to generate a well-trained and skilled human resources among the graduates of agriculture/young professionals for entrepreneurship

Agronomy

The major problem afflicting the agricultural education scenario in our country is the serious mismatch between the requirement of employers and actual skills of the passing out students. The department can undertake programs in conservation and precision management, eco-friendly and cost effective weed management, development of cropping systems especially for the new emerging areas of organic and natural farming, protected cultivation etc which will

establish an enduring link between skill development, employability and entrepreneurship.

Plant Breeding

The skill development of undergraduate and post graduate students may be undertaken in the field of quality seed production of high yielding varieties/hybrids of major hill crops as there is huge requirement of hybrid varieties especially in maize and rice. The university has developed single cross hybrids in maize and identified suitable inbred lines of Availability of such inbred lines will be great strength to develop hybrid seed production for varied agro-climatic areas. However, department of agriculture has limited resources to undertake hybrid seed production programmes however, young graduate and post graduate may be trained to undertake this initiative thereby generating employment for them. Precision breeding techniques like doubled Haploid production of cereals especially wheat and rice and oilseeds especially Rapeseed-Mustard are very popular for the speed & Precision Breeding. The students trained in this skill shall get honorable employment and will also be able to adopt it a profession and may become a source of pure lines and inbred lines for the seed industry and research institutes. Thus by skill development in these ventures will lead help the students to establish their own entrepreneurs and they will certainly become job creators that the job seekers.

Plant Pathology

One of the major constraints in increasing agricultural production in our country is the poor standard of disease diagnosis and its management. The Department is training the students in identification/ diagnosis of plant diseases and their management through experiential learning programme, practicals and research work at PG levels. With this expertise, the graduate and post graduate students can start Plant Clinics prescribing and recommending quality pesticides and bio - formulations at accurate concentration and appropriate time sprayed in the farmers' fields. The Department is also providing necessary practical training on mushroom production which can be adopted by students to start an agri – enterprise.

Seed Science and Technology

Our state and country is deficit in seed production as the Agricultural Universities and State Department of Agriculture do not have sufficient land and resources to meet the demand. Hence, skill development of the students in quality seed production will help to produce entrepreneurs who may fulfill the gaps of seed production.

Vegetable and Floriculture

There is a huge requirement of skilled professionals in the field of vegetable production for domestic as well as for exports. The Department is having the technical expertise in vegetable seed production, planting material/nursery production, fresh and organic vegetable production, protected cultivation of high value vegetables and post harvest processing and value addition which is being provided to the students. Similarly, students are also being trained in various aspects of floriculture which includes cut flower production, commercial ornamental plants nursery, flower seed production and dried ornamentals, flower perfumery and cultivation of high value flowers under protected cultivation.

Organic and Natural Farming

Organic and Natural Farming is gaining importance globally due to growing demand of chemical free food and there is great scope of up - scaling of organic and natural farming in hilly regions due to the existing low consumption of fertilizers and pesticides. There is an ample scope of developing employment and entrepreneurship in this field. Under organic farming some of the important vocations that can be adopted for entrepreneurship development includes production of organic inputs including vermicompost, bio-fertilizers, bio-inoculants, bio-formulations, liquid manures, botanicals and different fortified and enriched composts. Similarly, under natural farming production students may adopt production of bio-formulations based on desi/indigenous breed cow and botanicals which may be adopted commercially for the generation of employment and as entrepreneurship. Under EL Programme on organic agriculture & natural farming, students are being trained to make all these formulations, composts and inputs along with the basic concepts of organic and natural farming which may help them to take up these ventures as an entrepreneur.

Horticulture and Agroforestry

There is a great scope or enhancing the productivity of horticultural crops which require replanting the old and saline orchards with new high yielding varieties. It is also important to establish the repositories of these elite gene pools. Students should be imparted hands on training on modern nursery production technologies including hydroponics and aquaponic systems to meet the ever growing demands of state and national fruit growers. Similarly skill development in students for

providing consultancy in orchard management and post harvest processing of fruits should be inculcated. Highly trained and competent students in modern nursery production technologies and other fields will enable them not only to be entrepreneurs but also job providers.

Entomology

Insects are of immense economic importance both as harmful and useful creatures. Insects cause more than 30 per cent losses in field and storage. So, trained personals with background of entomology are required to manage these pests implying high scope for employment in this sector. The useful insects viz. honeybees, silkworms and lac insects attract entrepreneurs and emphasis should shift to creation of specialized man power for further refinement in these fields leading to good employment. Similarly several insects that can be useful as parasitoids and predators can be mass produced in cottage type industries for local use implying immense scope for entrepreneurship and employment in this field. Similarly, entomologists have also good scope for employment in zoonotic studies.

Agricultural Biotechnology

There is a huge demand for quality planting material and seeds which implies huge business of the seed sector. Skills in the field of tissue culture and molecular marker technology are going to be important in making students as successful entrepreneurs and job providers. Also entrepreneurship in biotechnology may be established in the field of pharmaceuticals, enzymes, brewing, dyes and other ingredients used in food production. , Production of highly efficient bio control agents, bio-fertilizers and bio-formulations by incorporating useful genes following recent molecular techniques will be highly useful.

Agri-Engineering

Human resource development in precision agriculture through the use of appropriate technology, artificial intelligence, repair and maintenance of farm machinery, custom hiring system to ecomize the use of costly farm and transport machinery. It will also reduce the drudgery especially among the women farmers. The students so trained may become entrepreneurs in these ventures.

In Veterinary and Animal Sciences the following are some of the areas of entrepreneurships:

1. Livestock & Poultry Farming
2. Veterinary Medicines & Healthcare Services
3. Veterinary Policlinic /Pet clinic/Mobile clinic
4. Integrated livestock farming/Organic Animal Husbandry
5. Waste management in animal husbandry
6. Animal breeding & genetics
7. Veterinary Vaccines/Diagnostics/Biotechnology products
8. Animal Feed Industry/Feed Technologies
9. Food Processing (Dairy/Meat/Fish/Poultry)
10. E market/Marketing & supply chain management

In community science, major areas for employability and entrepreneurship are:

Education: Teaching avenues in schools and colleges, researchers for handling wide range of projects, school counselors, marital counselors, educators for children with special needs, instructors in teacher's training institutions, teachers in nursing colleges, fashion designing institutes and ITIs

Health: Dieticians in hospitals, health clubs and sports colleges/clubs, diet counselors, block level adolescent health counsellors under *National Health Mission*

Community Service Sector: **s**ubject matter specialists, *Poshan Aahaar* Programme, child development project officers, supervisors in the department of women and social welfare, project officers in rural development programmes, training officers under entrepreneurship development programmes, district child protection officers

Commercial Service Sectors: **f**ood processing sectors, old age homes, hobby centres, personality development centres, food researchers, researchers and analysts in textile industry

Conclusion

Unless and until the institutes of higher learning hone the skills of their students, they can not be made employable or capable to become independent entrepreneurs to become self reliant and job providers. It is the exact knowledge and potent skill which is cornerstone of higher education in our country. This will also enable the graduates and postgraduates to become economically productive, develop sustainable livelihoods, contribute to peaceful and democratic societies and enhance individual well-being. ❑

Developing Employability as Cornerstone in Higher Education: A Special Reference to Uttarakhand State

U S Rawat* and Mini Srivastava**

Today in this modern era, where there is a revolutionary change in the system of Higher Education, the anxiety regarding employability is increasing day by day. As per the latest Education Policy (2020) the basic aim is to build up world class trained personnel and to reinforce higher education along with its collaboration with different industries so as to develop employability through higher education. For past many years employability has become an area of concern. In order to face the challenges of the environment globally, institutions of higher education are being called upon, to prepare their trainees as per the latest skills required to fill the gap which are required for employability and entrepreneurship skills. Special bridge courses should be designed by Higher Educational institutions for enhancement of skills. Higher Educational institutes should focus on certain apprenticeship programmes associated with employability and entrepreneurship skills. As per the need of an hour, in the present scenario the situation of employability and entrepreneurship can overcome through certain skill development programmes, (Srivastava & Khare, 2012). "Skill development is the key factor for increased employability and productivity, which in turn will lead to economic growth of the nation."

Looking at the current market situation it has become very clear that a man's survival is dependent on certain factors that he must possess the skills which are required to stay employable and on the other hand in order to retain his employability he must have a zeal to acquire better skills. In order to fulfill the requirement of skill development programmes higher education is playing a very important role, to face the current challenges which have been created by the market.

Review of Literature

The literature available on the development of employability as a cornerstone in higher education is not sufficient. However the efforts have been made to review the literature through various research articles published in different research papers, journals and presentations which has been briefly discussed hereunder:

Rawat and Tiwari (2017) in the study titled 'Higher Education in Uttarakhand: Present Scenario and Future Prospects' expressed their opinion that higher education cannot be treated as non priority issue particularly in a youth dominated state like Uttarakhand, henceforth suggested that government should take measures to focus on issues and challenges faced by the state.

S.S Rawat (2017) in his study entitled "Higher Education: extension as the third dimension" highlighted the fact that it is imperative that the higher educational institutions become sensitive to the learning needs of the community and response to the same through relevant learning programmes and tools.

Suman Vij (2009) in her study "College education: - An Investment of a Lifetime" concluded that the average rate of graduated fetch higher income in comparison made to college drop outs.

Humburg, Martin (2013) in the study titled "The employability of higher education graduates: the employers' perspective" concluded through the employers preference for graduates in nine different European countries stated that subject specific knowledge and expert thing is very much needed through his study he also concluded that interpersonal skills have also played an important role for the retention of the employees and certain skill development programmes should always be conducted to make the employability last longer.

Louise Morley (2001) in his research article on "Producing New Workers: Quality, equality and employability in higher education" stated that employability acts as an indicator of higher education, he also stated that employability consists of various factors and among those factors higher education plays a very important role in over all development.

Stuart Miller and Alison Holmes (2000) the article "A case for advanced skills and employability in higher education" highlighted the fact that there is a strong relationship between the ability required

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for employability and the ability required for higher education, there have been different cases which have been discussed and resulted to the fact that there have been different factors which have contributed to employability and one of the factor is higher education.

Rita Almeida, Jere Behrman and David Robalino (2012) in their book Titled "the Right Skills for the Job? Rethinking Training Policies for Workers" declared that creating jobs and increasing productivity are the basic agenda of the policy makers; the basic point of focus is that the more educated people are better employed. And the status of educated people is better and the capital generated by them is also better.

Helyer, R., and Lee, D. (2014) in their research article titled "The Role of Work Experience in the Future Employability of Higher Education Graduates" stated that Higher Educational institutions are examining different methods to enhance the employability of the students. This article concluded by stating the fact that Higher Educational institutes should focus on practical training programmes where they can help the students to enrich their experience through internship programmes which would further help them in employability.

Knight, P., and Yorke, M. (2004) in the book titled "Learning, Curriculum and Employability in Higher Education" examined the challenges relating to employability and the factors which can contribute learning and develop employability. All these factors have discussed with different skill plus factors. Through this book the author has tried to focus on various designs of curriculum which can generate employment.

Gracia, L. (2009). through her research article "Employability and higher education: Contextualizing female students' workplace experiences to enhance understanding of employability development" stated that employability stands as a responsibility of higher education. The research article also expressed that there women in the society face issues regarding gender inequality and about this issue higher education stands silent.

Research Gap

The Review of Literature suggests that there have been various studies which have been conducted in many parts of the state about the role on higher education in employability and Entrepreneurship, but there were very limited studies about Uttarakhand region. Henceforth this study was conducted to fill the research gap.

Research Methodology

Research Methodology adopted is descriptive up to certain extent and exploratory to certain degree. Secondary sources data has been used. All relevant information for the collection of the data has been gathered from Research papers, Journals, Magazines and different sources available online. Data published by AISHE and Employment Exchange Statistics department has been used to fulfill the objectives of the present paper.

Limitations of the Study

The study has been comprehensive in nature, and is delimited to employment exchange statistical report and AISHE report 2017. Future researchers may take into consideration private agencies to have a different outcome.

Objective

1. To analyse the current market scenario regarding Higher Education.
2. To study the contribution of Employment Exchanges in deploying employability

Findings and Analysis

Gross Enrolment Ratio (GER) in higher education in India for the age category of 18-23 years as per the survery conducted by AISHE (an all India survey for Higher Education) report 2018-19 Gross Enrolment Ratio (GER) in Higher education in India is 26.3 per cent, which is calculated for 18-23 years of age group. GER for male population is 26.3 per cent and for

Table-1 Gross Enrolment Ratio (GER) In Higher Education (18-23 years)

S.No	State	All Categories			SC			ST		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Uttarakhand	39.2	39.1	39.1	29.3	30.7	30.0	47.4	48.3	47.8
2	All India	26.3	26.4	26.3	22.7	23.3	23.0	17.9	16.5	17.2

(Source-AISHE Report 2018-19)

Table-2: Enrolment In Higher Education

S.NO	State	Ph.D	M.Phil	Post Graduate	Under Graduate	PG Diploma	Diploma	Total
1	Uttarakhand	4662	27	71926	351904	2279	32157	462955
2	All India	169170	30692	4042522	29829075	224711	2699395	36995565

Source- AISHE (2018-2019)

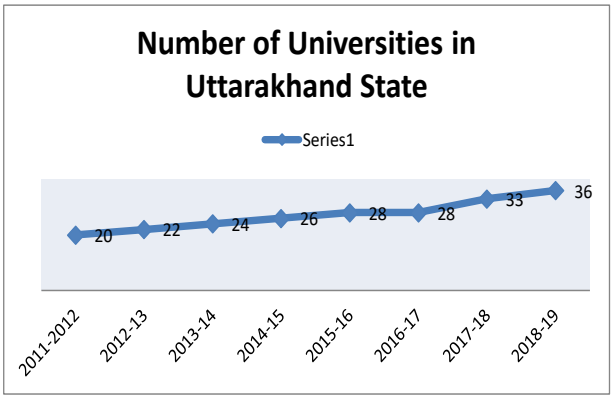
females, it is 26.4 per cent. For Scheduled Castes, it is 23 per cent and for Scheduled Tribes, it is 17.2 per cent as compared to the national GER of 26.3 per cent. and GER shows a significant improvement from 19.4 per cent in 2010-11, 24.5 per cent in 2015-16 to 26.3 per cent in 2018-19 an increase of 7.3 per cent in GER in India same there an increase in GER in Uttarakhand state from 33.3 per cent in 2015-16 to 39.1 per cent in 2018-19 an increase of 17.41 per cent in GER (Table-1).

Uttarakhand has been one of the major contributors in higher education as the above table clearly indicates that out of total number of Enrolments 3,69,95,565 in India, Uttarakhand Enrolments have been 4,62,955 as per the survery conducted by AISHE report 2018-19 (Table-2).

As per the data given by AISHE report 2018-19 it clearly indicates that there is a continuous growth in the number of Universities in Uttarakhand state since 2011 to 2019. The number of universities have increased by 80 per cent since 2011 to 2019 (Graph-1).

The data reveals that Uttarakhand is one of the major contributor in over all Enrolment of students in higher education. As per the comperative analysis it is noted that number of colleges have been increasing

Graph-1 Number of Universities During Last 8 Years



Source:- AISHE (2018-2019)

significantly and contributing to over all growth of economy through higher education (Table-3).

Table-3: Number of College Per Lakh Population (18-23 Years) Average Enrolment Per College

S. No	State	No. of College	College per lakh population	Average Enrolment per college
1	Uttarakhand	438	37	641
2	All India	39931	28	693

Source:- AISHE (2018-19)

Table-3 clearly indicates that there has been a continuous growth in the number of enrolments in each course since 2014 till date. This shows that the role of higher education is increasing day by day resulting in better employability and skills related to entrepreneurship.

Employment

- After independence, India has witnessed a sea change in the level of higher education, the level of higher education has not been limited to learning but has bridged the gap between the requirement of industry. There have been so many different vocational programmes which have been introduced by Higher Educational institutions, thus leading to better employability skills.
- As per the reports generated by Employment Exchange Statistics 2017, the number of vacancies notified were maximum in Gujarat (4.09 lakh) which was followed by Uttar Pradesh (3.32 Lakh), Maharashtra (2.75 lakh) and then by Uttarakhand (2.0 Lakhs) and in the remaining states the notification varied between 01 and 37 lakh.
- As per the statistical data delivered by Employment Exchange Statistical report 2017 the number of job seekers have been between the age category of 20-30 years of age.

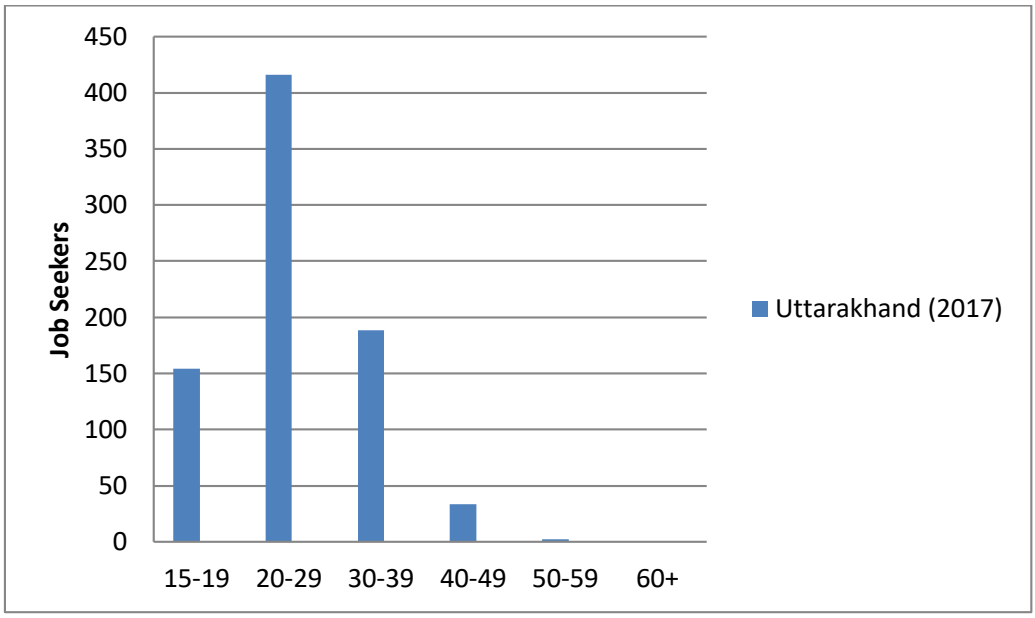
Table-4 shows the trend analysis of student enrolment from 2015 to 2019. As per the reports generated by Employment Exchange statistics, the

Table-4: Student Enrolment In Last 5 Years In Uttarakhand

year	Ph.D	M.Phil	Post Graduate	Under Graduate	PG Diploma	Diploma
2018-19	4662	27	71926	351904	2279	32157
2017-18	3908	16	71142	319874	2205	35378
2016-17	3175	11	62660	297359	3607	33460
2015-16	3359	21	59040	301433	3121	34649
2014-15	2991	16	59446	317425	1348	30982

Source:- AISHE (2018-19)

Graph-2 Total Number of Job Seekers on the Live Register of Employment Exchanges in the Country Classified by Age-Group



Source:- Employment Exchange Statistics 2017

percentages of placements have fluctuated in nature but the maximum number of placements have been more in 2017 (Graph-2, Table-5).

Problems and Challenges before Higher Education in Developing Employability in the State

- Due to lack of skill based and employment oriented courses, there is an issue of low employability.
- There should be an effective coordination between Higher Educational institutions and industry experts, to bridge the gap between the two.
- Higher Educational institutes can be more meaningful by considering the extent to which it can best respond to the industry demand and genetic skills.
- In order to meet the demand of employability, Higher Educational institutions need to radically reshape the methodology adopted for teaching, for better future of the country.
- To adopt technology enabled teaching and learning methods for quality in higher education.

Conclusion

The Higher education in Uttarakhand is experiencing exceptional revolution in relation with reforms at different levels of Higher Education. These reforms seem to be marginally effective to make employability as the key factor of Higher Educational Institutions. With the help of proper skill enhancement courses coordinated by these institutions, the gap which has been created can be fulfilled.

Regrettably, the gap between teaching and employability is huge, due to factors like quality, poor physical facilities; infrastructure etc. due to these

Table-5 : Employment Exchange Statistics- all Categories

State	Employment exchanges	Registration	Vacancies notified	Submissions	Placement	live register	per cent of live register to total live	per cent of placement to submission
Uttarakhand (2017)	24	181.3	200.7	2.3	0.3	927.8	2.1	13.5
Uttarakhand (2016)	24	191.8	0.11	35.85	0.22	794.5	1.8	0.6
Uttarakhand (2015)	24	180.9	0.1	5.6	0.6	861.1	1.8	10.4

*Source: - Employment Exchange Statistics 2017 (*Total may not tally due to rounding off) base year is the previous year.*

factors there is a huge gap between employability and education in a state like Uttarakhand.

The Government of Uttarakhand should take initiatives in promoting skill development programmes through various Higher Educational Institutions in order to be a part of transformation.

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Evolving Consciousness for Best Teaching and Learning

Bhuvnesh Sharma*

While reimagining Indian Universities obviously teaching and learning process is the most important aspect to be considered. India certainly can lead the whole World not only using its great vedic technologies to evolve consciousness for university students and faculties but can also simultaneously create a better World having peaceful and harmonious coexistence. Generally when we talk of global practices the attention mostly goes to farther places or nations being known as so called developed nations due to the objective glamor of partial success with modern science and technology. We say partial success because on one hand these technologies are making life easy, comfortable and providing faster means of communication and transport but on other hand creating more stress and unhealthy environment due to pollution and electronic radiation etc. While looking away somehow we in India forget and neglect our own Vedic (Holistic) technologies in all spheres of life and specially even in the field of teaching and learning as well.

Indian or the Vedic way of teaching is first of all evolving the consciousness of the learner because basically it is the consciousness which receives and applies the knowledge. If the consciousness is not pure, free from stresses and awake the knowledge imparted will not be received in its totality. As per the saying "Knowledge is structured in Consciousness". What the text books or scripture will be of use to him whose Consciousness and intellect is not awake.

"यस्य नास्ति स्वयं प्रज्ञा शास्त्रं तस्य करोति किम्।
लोचनाभ्यां विहीनस्य दर्पण: किं करिष्यति।।
"ज्ञान"-ज्ञानम् चेतनायां निहिनम्

Through Vedic technologies not only the consciousness of the learner is evolved but also even the intellect, ego, senses and sensory perception and the whole physiology is perfected and integrated (Fig-1).

Transcendental Meditation (TM) benefits all aspects of life holistically like watering the root nourishes the whole tree. TM and TM Siddhi program increases brain integration (Fig-2 & 3).

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Fig.1: Increased Brain Integration for Success

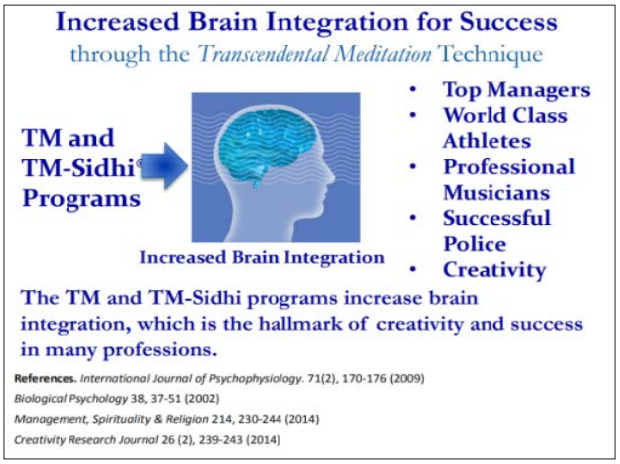
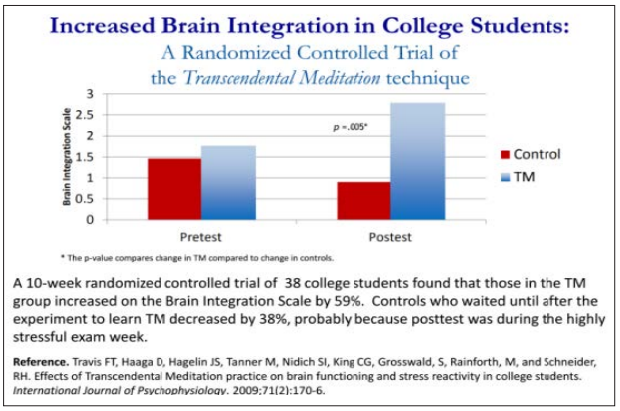


Fig.2: Increased Brain Integration in College Students



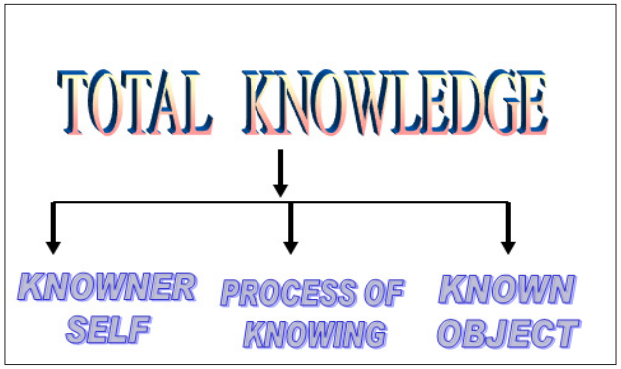
At present all the effort is being done to use most advance methods of teaching but all of them are through objective means providing all the information or knowledge from outside without doing anything to evolve the consciousness, alertness, and receptivity of the learner. There is a lot of emphasis on the right to education but without providing the Knowledge of the knower himself, which is most essential for gaining knowledge or rather is the birth right of every human being.

Knowledge has three aspects Knower, Process of Knowing and the Known, to gain Knowledge in its Totality all the three have to be taken care off.

But at present knowledge being provided only from outside without evolving the knower the whole aim of educating the learner is not achieved and even the so called educated people make big mistakes in their

Fig.3: Holistic Development Through Transcendental Meditation

Fig.4: Aspects Knowledge



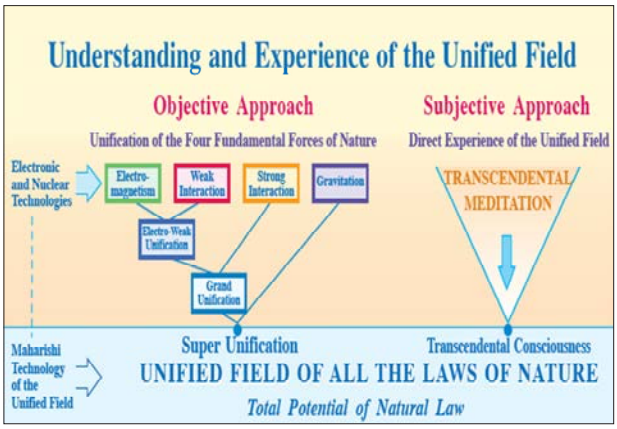
lives. These three aspects of Knowledge (Fig-4) are also known as *Aadhyatmic* (Concerning to evolution of Self), *Aadhidaivic* (concerning with perfection of senses and their projections) and *Aadhibhautic* (concerning the objective part) and giving maximum importance to knowledge of Self it is stated in *Srimad Bhagvad Geeta:*

"अधयात्मविद्याविद्यानां" *Aadhyatm Vidya Vidyanaam*) out of all aspects of knowledge the knowledge of Self is supreme. Transcendental Meditation and TM Siddhi program helps to evolve the Consciousness and realize the infinite potential of one's own Self.

We do talk of our great seers, sages and saints like Maharishi Patanjali, Swami Vivekanand, Dalai Lama ji, Maharishi Mahesh Yogi ji, Sadgurji and many others in the great tradition of Vedic masters but forget to realize that only through awakened consciousness they were able to cognize and apply the holistic knowledge for the benefit of the whole humanity. As per the saying **"***Rishio Mantra drashtaarh***"** seers cognize the impulses of nature, laws of nature, live their own life according to these holistic laws and provide the same to others. As is shown in Fig-5 taking the awareness farther and farther away the sages Seers or observer) realizes that the whole creation is nothing else but the reverberation of one's own Self.

Fig. 5: Laws of Nature

Fig.6: Understanding and Experience of the Unified Field

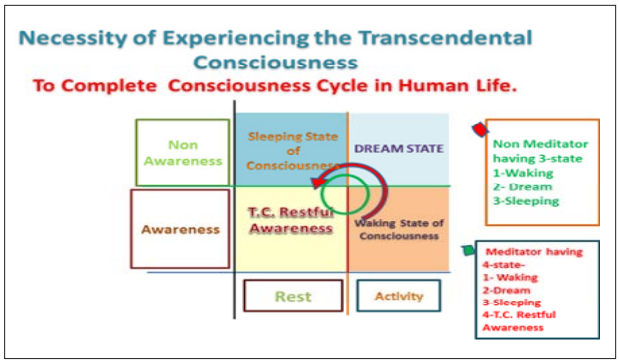


The same is being realized now by most advanced theories of Physics indicating the Unified Field as the reservoir of all the Laws of Nature (Fig-6). This Unified Field of all the laws of nature can not be accessed by any other physical means except by the Human Nervous system which is the unique machinery provided by the nature to experience and enliven the reservoir of all the laws of nature, the silent level of human consciousness.

This silent level of human consciousness, pure consciousness is also known as Total Knowledge or Veda for which the vedic text says "वेदोखखिलो धर्ममूलम्" (*Vedo Akhilo Dharma Moolam*) that is this pure consciousness is the reservoir of all the laws of nature. This consciousness is also known as the fourth state of consciousness, Transcendental Consciousness which has been verified by Vedic texts, human experience and scientific validation and is distinct from the other

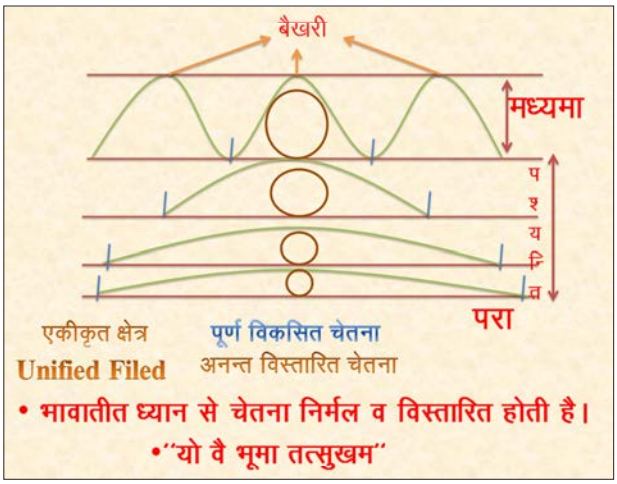
commonly known and experienced three states of consciousness waking dreaming and sleeping states of consciousness. For which the Vedic text says "शिवं शान्तम् अद्वैतंचतुर्थमन्यन्ते स आत्मा स विज्ञेयः" (*Shivam Shaantam Advaitam Chaturtham Manyantay Sa AatmasaVigyaye*) that is this state of Shiva, The Silence, is peaceful, having no duality is known to be the fourth state of consciousness and that must be specially known and experienced (Fig-7).

Fig.7: Necessity of Experiencing the Transcendental Consciousness



Transcendental Meditation develops full mental potential providing experience of subtler levels of thought and ultimately transcending the thought, releasing stress and strains from the nervous system. Consciousness expands becoming broader, holistic, realizing full infinite potential and helping attain most mature consciousness. The awareness experiencing finer levels of thought "पश्यन्ति" (Paschyanti) naturally and effortlessly transcends to experience "परा" (Para) the Transcendental Consciousness.

Fig. 8: Yog Union with the Self or Transcendental



This is the state of *Yog* Union of individual awareness with the Self or Transcendental field for which *Srimad Bhagvad Geeta* states "योस्थः कुरु कर्माणि" (*Yogasths Kuru Karmani*) (Fig-8). Human nervous system has the ability to think and act from the settled, broadened level of Consciousness so that the thinking and action is always right, always in accordance with laws of nature. This ability to perform action while maintain the Yogic Consciousness gives skill and success in action as stated in *Srimad Bhagvad Geeta* "योगः कर्मसुः कौशलम्" (*Yogah Karmasu Kaushalam*), Yoga bring skill in action. This knowledge and experience of the Unified Field is the only way to fulfill the ideal purpose of Universities enlivening Unity (In the settled level of Individual's own awareness) to the diversified disciplines of Knowledge. Study of different disciples in the light of the Unity of the Self will maintain the connectedness of Individual with Cosmos. Listening to the discourses will not pacify the thirst of knowledge without the experience of one's own Infinite potential. Lots of education on values will not help that much to imbibe those values as experiencing the Universal self within.

Unfortunately because of being misunderstood, this great Philosophy of action is left unused and is not being included in Education taking it just some theoretical, unpractical Philosophy. Even some so called great Institutes of technologies not even want to know, explore and use this supreme Indian Vedic Technology misunderstanding it just as some abstract spirituality. The benefits of this technology of consciousness "Transcendental Meditation" has been scientifically validated in more than 700 researches in 250 research institutes and Universities in 30 countries. All aspects of life of the individual, society and the whole environment gets benefitted through the individual and group practice of Transcendental Meditation and TM Siddhi program. Benefits being vast have been classified in four basic areas as follows: 1. Development of Mental Potential; 2. Better Health; 3. Better Behavior and Greater Moral Maturity; 4. Creating World Peace.

Benefits for Development of Mental Potential

1. Improved memory.
2. Increased creativity.
3. Improved Postgraduate Academic Performance.
4. Improved College Grades.
5. Development of Intelligence-Increased IQ in University Students.
6. Increased Self-Development.

7. Increased EEG coherence during T.M. Consciousness.
8. Increased use of hidden brain reserves.
9. Increased self Actualization.

Benefits for for Better Health

1. Physiological indicators of deep rest.
2. Reduction of high blood pressure.
3. Reduction of high cholesterol.
4. Decreased Insomnia.
5. Decreased depression.
6. Decreased outpatient visits indicating healthier ageing.
7. Reduced illness and medical expenditures.
8. Decreased cigarette smoking.
9. Decreased anxiety.

3. Better Behavior and Greater Moral Maturity

Fig. 9: Decreased Terrorism

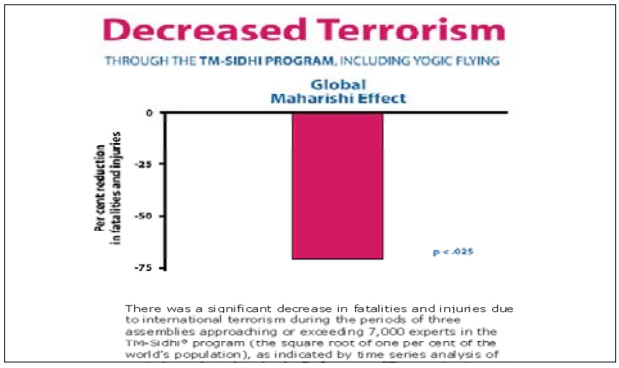
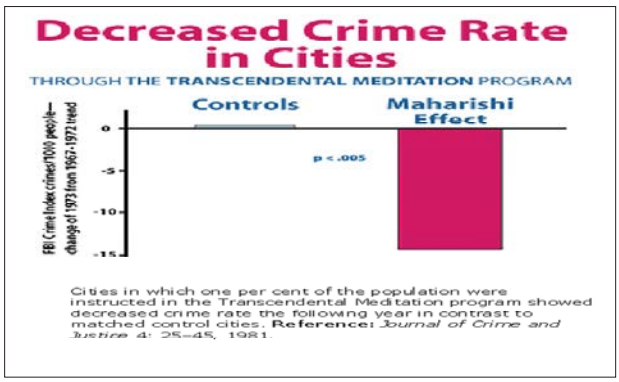


Fig. 10: Decreased Crime Rate in Cities



4. Creating World Peace.

These technologies of Consciousness that are being used as Consciousness Based Education in hundreds of Schools and some Universities around the world are not only increasing learning ability, academic performance, better health and ideal human values in their students but also contributing harmony and peace in the collective consciousness of the whole world. India with it vast number of students by training them to programming their mind, the Cosmic Computer not only to increase their learning ability and lead a happier successful life but also to lead the whole world through that to live in peace, harmony and prosperity.

There are four components of Consciousness Based Education, 1. Courses on Consciousness-Practice of Transcendental Meditation and TM siddhi program twice daily. 2. Study of the standard disciplines in the light of Consciousness- All the disciplines emerging from the Unified Field, learner's own settled level of Consciousness. 3. Consciousness based curriculum, principles and teaching techniques that make learning effective and fulfilling. 4. Stress free routine and healthy atmosphere.

Now the time has come for Indian Universities to use the Supreme Indian Technologies of Consciousness and there is no other way out to fulfill the aim of Ideal education, either they start implementing it now or else time is soon going to come when educators using these technologies around the world will come and teach us our own knowledge in India. I wish that this annual conference of great academicians taking notice of this fact will come forward and implement Consciousness based education and to begin with get their dear students trained in the practice of Transcendental Meditation including the same in their induction programs as TM could be easily learned in only 5 consecutive days, giving one and a half hour every day leading India to fulfill the ancient ideals stated in Vedic texts for the World family.

"सर्वेभवन्तुसुखिनः सर्वेसन्तुनिरामयाः।
सर्वेभद्राणि पश्यन्तुमाकश्चिदद्दुःख भाग्भवेत्।।"

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Reimagining Indian Education During 21st Century AD

H N Dutta*

The education system of Indian during the 21st Century AD, should represent, what India stood geographically and culturally, by which India was known to the outside world, what had India achieved educationally and culturally and in the various other fields of historical science and technology medicine, research in mathematics, astrology, physics, agriculture, nature and natural life, language, literature, art and architecture since ancient times. India happens to be one country, which has magnificent contribution to the growth of human values and universal cultural development for the mankind. The multi disciplinary indigenous studies, which India glorified globally, need to form the core curriculum of the modern education system in India. Such native drawn indigenous system of education should govern the public administration and also reflect in the foreign policy of India.

This content of the education system should have disciplines of modern science and technology, space research, researches on defensive mechanism system, medical researches and advancements, by which the cultural individuality of India, could be figured out globally as an ancient country. The native indigenous resources of knowledge for the prosperity of the mankind ought to have its access globally. There is a need of an educational system, by which, the ancient culture of India could be revived and modern pedagogies be developed on these traditional wisdom as human resources for economic sustainability of India and also as a global leader of learning.

The medium of expression should be Sanskrit and Sanskrit should be also the core subject with others subjects as optional since Sanskrit not only was most popular, but also rich treasure of science, ethics and moral values and innumerable resources of secret science of ancient India. Sanskrit conceives the basic elements of the Indian culture and with its advancement in knowledge, literally can place India as a global leader of learning. Innovation in giving more emphasize in Sanskrit grammar could be recast and books of other disciplines in Sanskrit could be framed as syllabus.

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Ancient Indian education has a long milieu of history which contributed to the development of its indigenous practices in the field of science and technology, covering different fields of material culture, by which the country was known far and wide. People from different countries came to India to earn knowledge. Education in ancient India, was to acquire knowledge, in the field of one's interest and to be sustainable in life, to carry out professions to his satisfaction, throughout the different stages of his life one attained, for fulfilment of all urge in his life and vocation. Such an beliefs and practices had developed one's knowledge, enrich his education potential and enabled a person to contribute to his society in full measure throughout his life.

One singular aspect of ancient Indian educational objectives was that it was always oriented towards the well bin of the mankind and was global in all respects. India in ancient times known as *Bharatbarsa* which covers the geographical outline of the peninsular India but being surrounded by its tall Himalayan country in the north and oceanic feature in the south contributed to the growth of a philosophical understanding of an individuality of one India with the existence of more than one world i.e *trilok* in the cosmos and had flourished consideration of welfare of all men and animal of the world. Such ideological terms as '*Viswarupa*' suggest the existence of global understanding and thinking for its welfare. The concept of internationalism in the process, has been rooted in the mindset of the people of India since ancient times and so was the curriculum of ancient education system, which need to be restored. Besides, India is a country full of diversity, in terms of its natural geography. Within this natural framework, the image of the peninsular India, fortified by the Himalayas in the north and surrounded by oceanic feature in the south, has taught the Indians with indigenous spirit of oneness and one country. All human migration of different racial elements, language and rituals has given the shape of India as a land of unity in diversity. Although India was invaded by many races e.g the Greeks, *Sakas*, *Hunas*, the Afghans, *Mughals*, since ancient times, merged with the main stream of Indian culture. This underlying strength of unity in diversity has been contributing to the growth of Indian culture as unique development in the world.

Since ancient times, Indian cultural moorings learned to live with nature. All forms of nature, trees and forests, water or river or seas, mountains and hillocks, all forms of lives such as birds, aquatic animals, have been accepted as common lives of nature. Since ancient times the seers and sages had evolved a holistic approach of interdependence among all these segments of biotic world including human lives as one depending upon the other. Air, water, space, earth and fire were considered as the five gross elements of creation and sustainability of human life on earth. Nature based theological practices and moral code conducive to the existence of human life amidst nature were propagated as educational lessons. Staying in the forest was part of education for earning knowledge. The sages had their hermitages amidst forests near to rivers. Students came to the hermitages to learn and staying in the hermitages under the *gurus* for 10 to 12 years earned their knowledge. On the final day of the completion of learning, the *guru* would take the *sisyas* to the river wharf where the *sisyas* had to take ritual bath i.e. *snana* (bath of learning) in the river. After the bath (*snana*) the *sisyas* would approach the *guru,* and would touch the feet of the *guru* seeking his blessings. The blessings of the *sisyas* would turn the *sisyas* to be *snatakas* i.e. graduates who took the ritual bath of learning. This course of learning is still called *snataka* or graduates in India. All wisdom and knowledge of lives were taught amidst nature and approach to nature .

Thus what the world is now confronting with the issues like the loss of balance of Ecology and Environment, Conservation of Nature, World environment issues, Climatic Changes, Global Warming, Pandemic issues were all controlled in ancient India through the holistic education and conduct in day to day life. Such knowledge disciplines as the five gross elements of creation and sustainability and the natural elements prescribed for the sustainability of lives e.g. earth, water, fire, space and air; the ancient education system in India practiced such ethics in day to day life, which bear tremendous significance in world education today. It is wonder that such scientific knowledge gained ground in ancient India and was transmitted from one generation to the other, through the *guru-kula* system, which has far reaching significance in the life of the mankind even in the 21st century AD. Such was the educational potential of ancient India dedicated to the welfare of the mankind (*sarbajana hitaya sarbajana sukhaya*) of the world which had epitomized the cultural individuality of India before the world. Pupils from different parts of the world came to study in such world famous ancient Indian universities as existed at Taxila and Nalanda, which had converted India in to leader of world education.

If we look back to the ancient Indian education curriculum, it is found the all disciplines of study of nature, medicines, mathematics, astro-physics, naturopathy, *ayurveda,* art, architecture, painting religion, ethics, *yoga* (meditation) all flourished together from the same place centering vedic *ashramas* or hermitages, under the sages and the students staying at hermitages learnt these multi-disciplinary educational disciplines, which guided the *sisyas* to become human. The people in ancient India must have kept in view for the daily pursuits of lives the ideal of healthy mind in a healthy body. Wisdom thus inculcated was compiled into scriptures and these were taught to the students. At a time a number of multidisciplinary educational centers flourished in India, and students from abroad came to study there. Nalanda, If we take an example, tell us some epitomical universities India had developed in her golden days. At Nalanda the *gurus* and the *sisyas* were properly looked after by the State. The University of Nalanda, has its own administration, which governed some 200 villages free from taxation and met the requirements of the teachers and the taught liberally. What wonder then that the *acharyas* like the Santirakshita were then born in India, whose fame spread far and wide, making foreign kings invite them for the diffusion of the light of the holy religion in distant lands beyond the borders of this vast country India during ancient times[1].

Nalanda was a prosperous locality in the time of *Mahavira*, the 24th Jina and of Gautam Buddha [2]. Significantly, the Simhalese work *Nikaya-Samgraha*, of D*harmaskriti* records Nalanda as an important place during the time of the Mauryan Emperor Ashoka (BC 297—272) who first founded the Nalanda Vihara, and had sent missionaries to Cylon, Japan, China, Tibet, But Nalanda became popular since CE400[3] The first founder of Nalanda Vihara was Emperor Ashoka, the developers of the place of learning were 500 Acharyas, Mudgaragomin and his brother, the next enlarger was Rahulabhadra and the greatest expander was Nagarjuna[4]. The discovery of the Nalanda Clay Seal of the Kamarupa King *Bhaskasvaravarmana*[5] (CE 600-648) together with Inscriptions of *Yasovarmadeva,* and then of the *Maukharis* Seals of *Harshavardhana,* besides several other kings trace the flourishing period of Nalanda monastery from CE600

to 900. During the time of Harsha, when Nalanda could sent 1000 monks to receive the Emperor Harsha at Kanauj seem to have been its glorious days[6] Its glory must have continued as a seat of Buddhist lore and of general Sanskritik culture it grew in to a epitome of international reputation during the time of *Devapaladeva*, when it attracted the attention of the rulers of the far off Java and Sumatra, in southeast Asia[6] Chinese scholars Fahien, Hieuen-tsang, I-Tsiang visited Nalanda, stayed and studied here for years together and Chinese scholar I- Tsing wanted to establish such a one monastery in China[7]

In Nalanda the method of instruction were the *Suttras* of Panini i.e. *Astadhyayi*, had to be learnt by heart, for grammar was considered as foundation of other studies and as Sanskrit learning was deep and a through grounding was in *Vyakarana* was the basic principle. Followed by five Vidyas (i) *Sabdavidya* (Grammar and lexicography) (ii) *Silpasthanavidya* (Arts) (iii) *Chikitsa-vidya* (Medicine) *Hetu-vidya* (Logic) and Adhyatma-vidya (science of the Universal soul or Philosophy) The Sabdavidya was of five kinds. The first was the *Siddha*-which might have been *Rupavali* – that gave paradigms, declensions etc. which the children learnt when they were about 6 to 8 years old and finish it within 6 months. The second is *Suttra* – the foundations of all grammatical sciences, which contains a thousand *slokas* and a work of Panini , which the children learnt when they attained 8 years old and can repeat in 8months time. The third is the book on *Dhatu* i.e. *Dhatu-patha* The fourth was the book on three *Khilas* (or pieces of waste land") i.e. *Astadhatu*,*Maunda* and *Unadi* , which the boys began to learn when they are ten years old and understand thoroughly after three years. The fifth is *Vritta-suttra*, which is a commentary on the *Suttra* which the boys of 15 began to study and understand after 5 years. The study of *Vyakarana* was preliminary to the study of higher subjects to begin with[8] The curriculum seen as above of Nalanda university was for the youths till 15 years of age. But higher studies prevailed beyond this level.

As seen, the academic and administrative system of the Nalanda University of ancient India could be compared to any modern institutions with multi disciplinary educational disciplines in India today. But both have vital differences in between in terms of value of education. The present education system do not guide a child to become a person ethical, a human, a self reliant and self determined civilian seeking welfare of the mankind. It donot explore his inner skill and creativity. The overall attitude of an average educated Indian do not seem represent a true Indian culturally, as the curriculum followed in the universities of today, are not exactly rooted in Indian cultural behavior. Instead the present education system develop within the child, a new person, who is devoted to become a career opportunist for self, even to become greedy, which suppress his own inner feeling as one social being in the community life and society , thereby suppresses the universal progress of the mankind in society. Many of such students, as found today, run away to serve in other developed foreign countries, seeking their fortune and ultimately become citizens there, instead of developing their own country, own home, where they are born. In such a situation, all efforts of educating a person bears no value for the country, rather losses its own human resources, who on the other hand become valuable resource persons for someone's motherland.

In contrast to this, the traditional education system prevailed in ancient India was highly significant for attainment of wisdom, knowledge and in the same time in eradication of poverty from society and in attainment of self reliance in India. Here, we need to observe the remarks of Lord Macauley, on ancient education system of India, which he commented on 2.2.1835 in the British Parliament. Macauley said, " I have travelled across the length and breadth of India and I have not seen one person who is a beggar, who is a thief, such wealth I have seen in this country, such high moral values, people of such caliber, that I do not think we would ever conquer this country, unless we break the very backbone of this nation, which is her spiritual and cultural heritage and therefore, I propose that we replace her old and ancient education system, her culture, for if the Indians think that all that is foreign and English is good and greater than their own, they will lose their self esteem, their native culture and they will become what we want them, a truly dominated nation[9]

This clarifies that the traditional education system of ancient India was such a holistic and multidisciplinary learning curriculum, taught in the universities at Takshashila and Nalanda, Vikramsila and at other localities were following, which generated self reliance and self determination in the cultural identity of India as a nation. It was a skill based professional educational curriculum with research programs at higher levels. We may recall the *Shusruta Samhita* (on medicine) by Sushruta, Aryabhatta who discovered the *sunya*

or zero, as a place holder in mathematical science [10], Bharatamuni who wrote the *Natyasastra*, a treatise on elephants, by Palakapyamuni,[11] the four Vedas eg. the *Rigveda, Yadurveda, Samveda* and the *Atharva veda*, the *Ayurveda* on medicine, the *Hastayurveda,* besides, many more other scriptures like the *Meghadutam* of Kavi Kalidasa[12], the *Geeta Govinda* of Mahakavi Jayadeva[13] which had been composed in ancient India and guaranteed the cultural individuality of India, because these books were written by scholars, born to the Indian soil and natural environment and studies on these generated Indian ethics and esthetics in mind and fulfilled the parameters of all needs in the Indian society. Merits of all lives of nature and biotic life were taken in to account in terms of educational curriculum development to provide self reliance.

In India during the 21st Century AD, while earning knowledge and wisdom, students need to understand the soul and the soil of India. The nature and geography and what emanates from the bounty of nature and culture ought to shape the ethical and moral life of the students for glorifying the cultural personality and traditional richness of the country. The education curriculum need to work out attainment of self reliance universally, fulfilling all human urge and satisfaction. For attainment of this achievement, India needs to revive the ancient Indian education system, which was born to the Indian soil. By doing so, the curriculum need to be framed considering the required innovation, wherever necessary to frame the revived Indian educational curriculum, exactly with the kind of education, that will be required for India, for this advanced age of science and technology in global perspective and to be adopted after a meticulous care of research and studies. It needs to be implemented throughout the country, in such a manner that the indigenous science and technology, traditional life and culture, language, literature, art ethnic dialect, tradition, dress and garments, agriculture, animal husbandry, diary farming, traditional industries of metal, wood, bamboo, hand loom and textiles, compilation and copying of manuscripts should get momentum.

Besides the ancient building technology existed in terms of stone temple architectures, caves, archaeological monuments of brick medium, historical tanks structures, sculptures, paintings need to be revived and scientifically framed. The monumental heritage and the genre of the ancient Indian architectures in India need to be brought under the Indian Institutes of Technologies, in India, for their future protection and preservation by introducing a developed curriculum on historical science and technology as flourished in ancient India. Monuments were constructed following architectural principles in ancient India by the architects known as *silpasastras* .which were cannons of art and architecture. This calls forth a progressive plan to implement programs on the restoration and revival of the ancient architectural science to be applied in the conservation of the archaeological monuments in India, for their preservation and conservation, apart from mitigating the disaster risks of the these genre of Indian cultural monumental heritage, that may come from earthquakes and other natural hazards. As archaeological monuments calls forth a special category of works for the sustainability of the texture of these monuments, the Archaeological Survey of India and the State Directorates of Archaeology have been entrusted with this job of archaeological conservation. The Indian Institutes of Technology's could be also integrated systematically with the Archaeological Survey of India to begin with for initial years of conservation of Indian monumental heritage in the country.

Because to train up professionals for archaeological conservation in India, there is only one Institute of Archaeology, under the Archaeological Survey of India, at New Delhi. The number of skilled professionals produced by this institute is not sufficient as per requirement in the country. Some monuments have not yet been brought under conservation till today for dearth of technical persons and infrastructure. The numbers of such Indian Archaeological Institutes be increased and need to be established in the country regionally collaborating with the Indian Institutes of Technology, wherever necessary under the Archaeological Survey of India.

For the intangible heritage, i.e. the language literature, Sangeet i.e. dance, music and vocal, traditional lores, Indian languages the Sangeet Natak Academi, New Delhi need to be expanded to be able to discover and document the aesthetics of the native cultural tradition of performing arts and to document and support these traditional forms of performing arts by developing National Archives and Regional Archives for the posterity and practices of these indigenous art forms. As for examples, the nine basic emotions (*navarasa*) such as *shringaara* (love) *haasya* (laughter) *karuna* (compassion,) *roudra* (anger) *vira* (courage) fear (*bhayanaka*) disgust (*bibhatsya*) surprise, wonder (*adbhuta*) (tranquility) *santa* which are integral parts of Indian Classical Dance and are recorded in

the *sangeeta sastras* or manuscripts of ancient India. Such manuscriots need to be considered as valuable record of history and the elements of sangeeta need to explored with a visionary zeal for promoting travel and tourism in India.

The National Manuscript Mission, under the Indira Gandhi Center for the Fine Arts, New Delhi, had surveyed and documented manuscripts located in different parts of India. There exist also other canonical texts in old Sanskrit or in regional language on principles of temple architecture, sculpture, city planning, and these need to form textual curriculum and principles of city planning may be helpful in laying new towns and cities in the future. These manuscripts need to be accounted and made available for their studies in universities, Indian Institute of Technologies and colleges. Besides, the British Government took many of the valuable manuscripts and antiquities of India during the colonial rule. Digital impressions of these literary records, manuscripts of India need to be brought for their studies in India today and copies of these made available for studies in colleges and universities through advanced platform of digital technology.

In the process, the skill based and professional education on conservation archaeological sites and monuments, antiquities, manuscripts, old books, documents and historical items should be oriented in such advanced fields of education as science, architecture, monumental buildings archaeology, chemistry, sites and monuments, vernacular structures, knowledge of arts and paleography, epigraphy, coinage, metallurgical crafts, manuscriptology, paintings, cloth making preventive healthcare and community medicine, healthcare education be made more vocational and more professional in form of heritage industry. Such other programs, as naturopathy and *yoga*, Indology, history and cultural relevant to modern India, inviting the interest of students of other countries in different fields of cultural sciences, social sciences etc could be innovated and introduced. While planning for such indological studies, as above, technical education such as degree and diploma programmes, as for example, engineering, technology, management, architecture, town planning, pharmacy, fashion technology, hotel management and catering technology ought to be covered under multi disciplinary educational curriculum for overall development of India.

The creative impulse of ancient Indian culture in reflected in her *sangeet* i.e. dance (*nrtya*) instrumental (*vadya*) and vocal (*gayana)* music. India has a long milieu of such creativity and has a list of legendary figures working in the field art and creativity. The Government of India has been honoring these luminaries by awarding the highest civilian award like the Bharat Ratna, Padmashree, Padma Bibhushan e.g. Bharat Ratna M.S Subblakshmi , Bharat Ratna Ravi Shankar Bismillah Khan, Bharat Ratna Lata Mangeskar, Bharat Ratna Dr Bhupen Hazarika and many such other armature artists who have earned international reputation through their native artistic creativities based on ancient Indian *sangeeta sastras.* Scholars from abroad working on indological research studies and creativities such as Padmashree Alice Bonner and Padmashree Eberhard Fisher from Switzerland, some musical maestro e.g. Ravi Shankar from India and London based American Violinist Yehudi Menuhin, who composed musical themes West Meets East, to mention a few, may be listed and digital archives of their creations in audio-video portal, with museums of their creativities, books with their photographs, could be established in universities, facilitating learning opportunities to the students of Indian music and culture.

Planning for the global perspectives for students from abroad in Indiia , qualitative on-campus environment, support of residential facilities will be of additional requirements, to retain the expectation of the international students, while taking care of their health and hygiene during their stay. In Germany, Sanskrit has become a popular subject and top 14 German Universities teach India's ancient Sanskrit - classical and modern indology in Germany. So far, 254 students from 34 countries across the globe have participated in this course in Germany. In England 4 top universities are teaching Sanskrit[14] Such other students may be interested to come to India to learn Sanskrit in the country of its origin. Such students could be also interested in diverse fields of Indian education like Languages, Literature, Music, Philosophy, Indology, Art, Dance, Theatre, Education, Mathematics, Statistics, Pure and Applied Sciences, Sociology, Economics, Sports, Translation and Interpretation, communication and so on. Thus during 21st century AD India should stand again as a global leader in education and students from different countries should be able to select India as educational hub of the this century .All opportunities of international standard in every area of life and living and educational support will have to be arranged to draw the attention such students from abroad.

One fundamental factor of progress and development of India during the 21st century AD, is the balanced educational development in the country by providing educational access to all regions and sections of people. The North Eastern Region of India is known for its geographically disadvantageous interior regions, where the light of life is yet to reach. Therefore, the Government of India specially needs to make a special provision for the promotion of education in the entire north eastern region of India, and may form a Act East Educational Policy, the way the Government of India, has been developing the region though the Act East Policy. Through this Act East Educational Policy the Government of India may take up strategy to promote human resources of this region, by supporting the Private university or Public universities, located in this region. These educational institutions need to be assisted to develop their educational infrastructure and equipments, so that out migration of students from this region to other cities of India, could be controlled and the indigenous culture and tradition of this region could be protected and promoted, to serve the principal aim and objective of education.

Another vital issue for concerning education in India during the 21st century AD, is the necessity of adopting an educational policy for the growth, protection, promotion, preservation and conservation of natural forests resources in India, since the culture of India is based on nature and natural understanding. The change of seasons in India is controlled by nature and the each seasons of nature changes the mind and psyche of the community people, which is reflected in their creativity, songs, dance, playing of instruments, arts and learning of music. Lack of forests and dwindling of nature will bring monotony to the creative minds of Indian artists and writers. The change of natural seasons eg. the summer (*grishma*,) monsoon (*varsa*), autumn (*sarat*,) pre-winter(*hemanta*) (winter) *seet* and spring (*basanta*) which provide profound impressions in artistic creativity in India all depend upon the sustainability of nature and natural environment. On priority basis educational and conservational curriculum on land, water, forests, animals, environment need to be brought universally on priority basis during the 21st century AD

The last but not the least is the curriculum of agriculture in India, which needs to be transformed in to an universal curriculum for all students from high school, colleges and technical institutes under the skill based education. The present system of producing agricultural officers in the Agricultural Universities, ought to be substantiated with young educated section of agricultural farmers and cultivators who would do agricultural farming and animal and husbandry whom need to be trained for application of science and technology in the field of agricultural produce for attaining food surplus in India and for technically capturing the global food market

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Chase the Technology to Beat the Pace

Shashi Shanker, Chairman, Oil and Nature Gas Corporation (ONGC) delivered the Convocation Address at the 40th Convocation of Indian Institute of Technology (Indian School of Mines) Dhanbad on 21st December, 2019. He said, "Friends, Future is not tense. Future is demanding. And to reconcile yourself with the expectations of future, self-curation is needed. Commitment with conviction, courage with confidence and clarity of mind that you need to strongly navigate into the future. The journey may not seem a cakewalk, it may turn out a tight-rope walk as you progress in the professional world. You may fail, but you should certainly not fall back on patience, you will succeed but should certainly not succumb to the greed." Excerpts

Director, IIT(ISM) Dhanbad, Prof. Rajiv Shekhar, Hon'ble Members of Board of Governors, Degree Recipients, Faculty and Staff of IIT (ISM) Dhanbad, Members of the media, Dear students, and Ladies and Gentlemen: I feel proud and privileged to be invited here today to address this august gathering on the 40th Convocation Day. Indeed, it is a rare privilege. Yes, a very rare one to speak on this momentous occasion of the 40th Convocation of IIT (ISM) Dhanbad which is one of the finest institutes and incidentally also my Alma Mater.

First, I congratulate all the graduating students for the successful completion of a wonderful academic journey. I am sure, you have thoroughly enjoyed your time in the classrooms, canteens, corridors and each other's company. You must have imbibed the aroma of the ethos and ethics, culture and class, humanity and humility, courage and companionship that this Institute has been propagating and inculcating for nearly a century now to ignite and incubate young minds.

I take this opportunity to convey my heartiest congratulations to all the parents who have made years of untiring efforts and, perhaps, many personal sacrifices to pride themselves with a winning smile for the academic success of their children. It is you who have dreamt and raised your children to live the dreams. And we have got a pool of brilliant torch-bearers who will chart out the future roadmap in India. My sincere thanks to all of you.

Teachers are the priest of knowledge. They not only create the path but also handhold the students to accomplish a mission. It is their knowledge coupled with determined spirit and experience that shape up the raw talent. This Institute is blessed with such great teachers, who are carving out, in silence, a niche for the students for decades. Today, I am simply at a loss of words to express my gratitude and respect to all the teachers.

This day is an unforgettable milestone in everybody's life. It is the day when a graduate embarks on a journey as a professional. When one sets out to reinvent and redefine life and society.

Being here on this day, in this place, is extra special for me. I feel not only nostalgic but also proud. Old hostel, Admin building, Ramdhani tea stall, Scolomin Saturnalia (now Srijan), Penmann Auditorium where I spent my student life; everything is so fresh in my mind.

Right from inception, this institute has been the sole gateway for anyone who aspires to join the energy sector, for the one who dreams to fuel the engine of growth.

We often jokingly say – there is nothing certain in the oil and gas business, but what is certain is that on any given day you will certainly run into someone from ISM Dhanbad. Truly, the contributions that this institute has made to chase and capture the most elusive and permeable element of the earth are beyond any expression. This institute has drawn and shaped the country's energy map.

The Learning and every single experience that you have received here will have a huge strength for you to face the professional challenges ahead. This institute has made you future ready. Now it is time to shape the future.

Friends, Future is not tense. Future is demanding. And to reconcile yourself with the expectations of future, self–curation is needed. Commitment with conviction, courage with confidence and clarity of mind that you need to strongly navigate into the future.

The journey may not seem a cakewalk, it may turn out a tight-rope walk as you progress in the professional world. You may fail, but you should certainly not fall back on patience, you will succeed but should certainly not succumb to the greed.

Failures shouldn't spawn frustration in you because when you experiment, you tend to taste failures. And if you don't experiment, you fall back on excuses. On this day, let us enter into a promise that, we will embrace the strength of an ethical mind and pure love for whatever we try and whatever we do. When you have a passion, you create your own path for success.

Dear Students, we are standing on a watershed in the history. You are entering a new and exciting India. An India that is growing rapidly towards progress to emerge as a global economic power house.

It took 60 years for India's GDP to grow to $1 trillion, but took only eight years to reach the next $1 trillion. Now we are going forward towards a $5 trillion economy by 2024, and double that in the 5 years to reach the $10 trillion mark. The Hon'ble Prime Minister has already given a clarion call to gear up for accomplishing the $ 5 trillion dream and it is the responsibility of each one of us to work on it.

This is not merely number, but a pledge to build a more inclusive, sustainable and equitable society, to set an example to the rest of the world. Remember it's the trillion dream for a billion smile.

The path to becoming a leading global superpower will not be without challenges and constraints. But it will also throw up many opportunities. As the old adage goes, when the going gets tough, the toughs get going. I am quite sure that you will be able to surmount all challenges to build tomorrow's NEW INDIA.

One of our primary challenges is to create jobs. We are home to the world's largest population of youth. By 2020, the average Indian age will be 29 years and nearly 10 to 12 million people will be eligible to enter the workforce every year over the next 10 years.

The focus on Youth as the pivot of our future development is also reflected in our Hon'ble PM's initiatives – be it Skill India, Digital India or Start-up India.

The millennials are also thinking differently. They dream big. They are risk-takers and innovators. For something like Start-up India is a fantastic initiative in this regard. It is a platform that is geared towards technology-adoption and problem solving. And who better than the likes of you here – all keen, competent and young engineering and science graduates – to be a part of something like this.

Friends, the IITs of our country are among the most visible brands globally and today, you've become a part of that rich legacy. You must wear the badge of being an 'IITian' with pride as well as great responsibility, because when you walk out of here you do not just represent Brand IIT but also Brand India.

I tried to do this in my own humble way. I have been fortunate enough to be a part of the story that today ONGC is the country's largest energy explorer and a diversified energy conglomerate with global stature. Last year, ONGC clocked the highest ever Revenue and the largest ever profit.

There is also a lot of opportunities in emerging areas in our country itself in Big data analytics, Nano technology, Internet of Things, Artificial intelligence, Machine Learning etc. All these technologies are still at their infancy and have huge potential to grow at a faster pace. Chase the technology. Beat the pace.

Oil and gas, especially upstream sector, is always on the lookout for new technologies and ideas. Because oil is found in the mind first and then in the earth. It is a business of knowledge for more than a century, we have mined in the remotest places and in the most difficult terrains for resources that fuel our modern existence.

In India, this upstream oil and gas sector has been anchored by ONGC, the company which I joined 37 years ago as Graduate Trainee and had the opportunity to lead as CMD for the last 2 years.

ONGC today is not only a 65 billion dollar conglomerate but also one of the top Exploration & Production companies of the world, contributing more than 70 percent of India's domestic oil and gas production.

While it is true that the world is waking up to and readily accepting new forms of energy, our country, at least in the foreseeable future, will still require significant amounts of oil and gas to power its economy and improve the living conditions of millions of its people. For instance, crude oil requirement is

set to grow more than double from current levels of 4 million barrels per day to around 10 million barrels per day in 2040. Our natural gas consumption is also set to more than treble. At the same time we need to be more climate responsible, and for that climate–efficient technology must have to be evolved.

So, the energy sector as a whole will be quite active in foreseeable future and companies in oil and gas sector will throw lot of opportunities going forward. In view of the growing focus on sustainable and responsible energy, we are also adapting our long-term strategies to respond to these changes. Today, I look at ONGC as not just an upstream oil or gas player, but rather as an energy company with interests across the energy ecosystem – from oil and gas to greener energy solutions.

We at ONGC are constantly looking out for people who will be a part of this evolution. Just like this institute, when you join us, you do not just represent a company, but a widely respected national and global energy brand. Our employee benefits are among the best in the industry – be it compensation or welfare measures.

You will also be happy to know that, to harness fresh ideas from young Generation like you, we launched Rs 100 crore Start-Up Fund and there has been some wonderful ideas from youngsters which we are supporting for further development.

You are beginning a new journey. You will have your doubts, but always remember to stand on your ground despite setbacks and one day surely you will reach your cherished destination. Robert Frost's lines spring to my mind –

Two roads diverged in a wood, And

I took the one less traveled by And

that has made all the difference

Devote ample time to your health and to your family. Develop interests outside of your professional work, and make relationships.

And finally, always remember: Give back to the society which has given you everything that you need.

All the best, and thank you!

CAMPUS NEWS

National Webinar on National Education Policy, 2020

A two-day National Webinar on 'National Education Policy- 2020' was organised by Central University of Haryana (CUH) Mahendragarh, Haryana in collaboration with Students for Holistic Development of Humanity (SHoDH) and Centre for Educational and Social Studies (CESS) on August 08-09, 2020. Over 15 eminent speakers and 6000 participants representing different groups of stakeholders including students, researchers, academic administrators, freelancers and community representatives became the active partners in the organization of the Webinar. Prof. R C Kuhad, Vice Chancellor, CUH initiated to host the ambitious academic venture with the mission of sensitizing the key stakeholders of education about the vision, mission, objectives and targets of National Education Policy-2020.

In the Inaugural programme, Prof. R C Kuhad shared the detailed account of how NEP- 2020 was conceptualized and drafted. He called for implementing it in true spirit and also promised that a task force would be formed at CUH to deliberate on the modalities of implementing NEP- 2020 in CUH.

In the Inaugural Address, Prof. M. K. Sridhar, one of the Members of Drafting Committee of NEP-2020 highlighted the philosophy and vision of the Policy, and role of the individual stakeholders in its implementation.

Prof. S C Sharma, Director, NAAC and Chief Guest of the Webinar unfolded the trajectory of Indian Education System since colonial times. Keynote speakers, Prof. Kshiti Bhushan Das, Pro-Vice Chancellor, *Indira Gandhi National Open University* (IGNOU) and Prof. G. Gopal Reddy, Former Member, University Grants Commission delivered their talks on the 'Salient Features of the NEP-2020'. Their talks set the ball rolling for the subsequent Plenary Sessions. Various Plenary Speakers and the Panelists of the Webinar made it easier for the participants to understand and internalize the National Education Policy in right perspective.

In the first Plenary Session, Prof. B.K. Tripathi, Director, Inter University Centre for Teacher Education (IUCTE), Banaras Hindu University, Varanasi, Uttar Pradesh. Prof. S.K. Sharma, Allahabad University, Dr. Payal Mago, Joint Dean, Colleges, Academic Affairs and Projects, University of Delhi, Prof. Sarika Sharma, Central University of Haryana, and Dr. Manu Kataria, University of Delhi delivered their talks on 'National Education Policy as a Medium to Bring Bharat Together', 'Focus on Mother Tongue in NEP-2020', 'Multidisciplinary Holistic Education and Universities', 'NEP-2020: A Review on Mental and Physical Health and Well-being', and 'National Education Policy and Futuristic Approach', respectively.

The Second Day of the webinar started with the Plenary Talk by Prof. Pallab Banerji, IIT, Kharagpur on 'NEP-2020: Special Focus on Research and Development' followed by the extensive discussions on diverse themes including 'Use of Technology in Educational Planning and Management', 'Future of Higher Education vis-à-vis International Standards' and 'Gap between Curriculum and Employability' by Shri Atul Chandrakant Kulkarni, Member, Board of Governors, IIM Shillong, Dr. Anand Paliwal, Dean, Mohan Lal Sukhadia University, Udaipur, and Prof. Joykumar M. Laishram, Central Agricultural University, Imphal. The excitement of the participants was further sustained by Dr. Manasa Nagabhushanam, Director, Academics and Research, ISBR Business School, Bengaluru and Dr. Anand Sharma, Dean, School of Business and Management Studies, CUH who attempted to contextualize the NEP- 2020 as a document that stresses Life Skills for *Atma Nirbhar Bharat.*

During the Valedictory Session, Prof. Nagesh Thakur, Member, University Grants Commission; Prof. Milind Marathe, Advisor, SHoDH and Former National President, ABVP; and the Vice Chancellor, Prof. R.C. Kuhad shared the holistic understanding of NEP- 2020. Of course, the presence of Dr. Manasa Nagabhushanam, Director, Centre for Educational and Social Studies (CESS), Bengaluru also enhanced the impact of the Valedictory Session.

Prof. Sanjiv Kumar, Dean Academic and Director IQAC, thanked SHoDH, CESS, speakers, guests, media, participants and organsing team for their active support and contribution in organizing the event successfully.

National Webinar on COVID-19 and Justice Delivery System

One-day National Webinar on 'COVID-19 and Justice Delivery System in India: Issues and Challenges' was organised by School of Legal Studies, Central University of Kashmir (CUK) in collaboration with National Law University, Delhi, recently.

Welcoming the participants, Prof. Mehraj Uddin Mir, Vice Chancellor, Central University of Kashmir stressed upon the role of lawyers and presiding officers in providing justice to the masses during the ongoing pandemic.

Prof. Ranbir Singh, Vice Chancellor, National Law University, Delhi who was Guest of Honour during the event highlighted the issues of labourers and daily wagers during the COVID-19 while establishing a connection between law and justice through e-courts.

Prof. (Dr.) Balram K. Gupta, Senior Advocate and Director (Academics), Chandigarh Judicial Academy, in his inaugural address stressed upon the fact that there is a need for extraordinary solutions during the extraordinary circumstances. He suggested that courts should uphold the rule of law during the situations the world is going through. He referred that justice is the promise of the Constitution, and that is the real challenge during the COVID-19 for which governments must show compassion and be firm but without being cruel. Ms. Gulafroz Jan, Coordinator, Department of Law proposed the vote of thanks for the inaugural session.

The plenary session was conducted by Mr. Bilal Ahmad Ganai, Assistant Professor and was chaired by Mr. Manmohan Lal Sarin, Senior Advocate, Supreme Court of India. Speakers, Prof. Ali Muhammad Matta, Principal, Vitasta Law College, Srinagar raised questions of what and why about the COVID-19 from an international perspective while as Prof. Rattan Singh from University Institute of Legal Studies, Punjab University, Chandigarh spoke about the role of subordinate courts in the administration of justice during COVID-19. The another speaker, Prof. Sudarshan Verma, Dean, Faculty of Law, Babasaheb Bhimrao Ambedkar University, Lucknow spoke on justice to the COVID-19 Patients v. Injustice to the Non-COVID Patients. The session chairperson, Mr. Manmohan Lal Sarin, remarked that the present situation of COVID-19 is a god-sent opportunity to restructure the justice system with the help of Information and Communication Technology which is going to be extremely important in providing justice. The next plenary session was conducted by Dr. Rehana Shawl, Assistant Professor and chaired by Prof. Muhammad Afzal Wani, University School of Law and Legal Studies, GGS Indraprastha University, Delhi. Speaker, Prof. B.T. Kaul, former Chairperson of Delhi Judicial Academy referred that COVID-19 has played havoc with the rights of the workers and the government has a responsibility to provide justice to the people. Second speaker, Prof. S. Surya Prakash, Vice Chancellor, Damodaram Sanjivayya National Law University, Visakhapatnam talked about Migrant Labour during the COVID-19. Chairperson, Prof. Muhammad Afzal Wani, in his remarks took a jurisprudential stance to the estimation of the present scenario of COVID-19. He suggested we have to seek justice indeed as a value, even if the situation is not conducive. He referred to the soul, to the feelings concerning the implementation of justice. He recommended that the quotes of the lords and jurists must make sense in the present life of the people during the pandemic situation. Dr. Anil Kumar and Dr. Mudasir Bhat, Assistant Professors were conveners of the Webinar.

E-Conference on Education and Development

One-day E-Conference on 'Education and Development: Post COVID-19 is being organised by Lovely Professional University, Phagwara, Punjab on August 22, 2020. The vision of the e-conference is to provide a discussion forum for the academicians, researchers and policy makers across different disciplines and levels for deliberation and dissemination of contemporary research on a wide range of issues associated with Education and Development: Post COVID-19. The e-conference will provide a platform for constructive dialogue and reinvigorate the 'Education and Development: Post COVID-19'. The management and policy makers would be benefitted in framing and implementing strategies to achieve the goals of Education during and after COVID-19. E-conference will provide the possibility of publishing the papers in UGC Care journal/ Scopus indexed journal/ book with ISBN. The Subthemes of the event are:

- Governmental Interventions Associated with Teaching and Learning: Need and Challenges.
- Psychological Well-being of Students and Teachers.
- Technical and Vocational Education: Issues and Opportunities.

- Digital Education: Opportunities and Threats.
- Research in the Era of Social Distancing: Ways and Means.
- Role of Various Stakeholders in Education Post COVID-19.
- Educational Entrepreneurship: Opportunities and Challenges.

For further details, contact Organising Secretary, Dr. Vijay Kumar Chechi, Professor, Head, Education, Lovely Professional University, Jalandhar-Delhi, G.T. Road, Phagwara, Punjab- 144411, Mobile : + 91 9888300138, E-mail: edpc@lpu.co.in. For updates, log on to: www.lpu.in

AIU NEWS

Roundtable on Eligibility Enrolment Ratio

Since last three decades the Indian Higher Education has witnessed enormous expansion. The expansion has taken place in terms of rapid increase in the number of institutions, student enrolment and disciplines taught. With 993 Universities, 39931 Colleges and 10725 Stand Alone Institutions today, India harbours the third largest higher education system in the world. The Gross Enrolment Ratio is 26.3 per cent which is calculated for 18-23 years of age group. The Gross Enrolment Ratio has been universally considered and used as the single most criteria for measuring the student enrolment in higher education. This has been practiced by all countries irrespective of the size and diversities of higher education across the globe. As a matter of fact, Gross Enrolment ratio has been defined as the total enrolment in tertiary education programmes regardless of age expressed as percentage of total population in the five-year age group following the secondary education level. Of late, it has been realized that perhaps the GER is not appropriate and sufficient enough to measure the access to higher education. Instead, Eligible Enrolment Ratio (EER) should be used as the parameter for depicting the real status of student enrolment.

Based upon the above background, Association of Indian Universities took an initiative of devising a mechanism for using EER as the parameter replacing GER. A concept paper describing the rationale for EER was prepared and the same was submitted to the Governing Council of AIU. The Governing Council, while appreciating the idea, passed a resolution that a roundtable of Vice Chancellors be organised to hold a threadbare discussion on the proposal so that some tangible inputs can be drawn to bring the concept into general practice.

In view of the above, Roundtable of Vice Chancellors and Heads of Apex Bodies in Higher Education was organised on July 27, 2020 through virtual mode in which the Prof Bhushan Patwardhan, Vice Chairman, University Grants Commission, New Delhi, Prof K K Aggrawal, Chairman, National Board of Accreditation (NBA), Dr (Mrs) Pankaj Mittal, Secretary General, AIU, three former Presidents of AIU, Prof. Sandeep Sancheti, Vice Chancellor, SRM Institute of Science and Technology, Chennai, Prof. P.B. Sharma, Vice Chancellor, Amity University, Gurugram, Prof. M.M. Salunkhe, Vice Chancellor, Bharatiya Vidyapeeth, Pune, and other Vice Chancellors of AIU Member Universities like Prof. N.V. Varghese, Vice Chancellor, National Institute of Educational Planning and Administration (NIEPA), New Delhi, Prof. Annapuna Nautiyal, Vice Chancellor, HNB Garhwal Central University, Uttarakhand, Prof N C Gautam, Vice Chancellor, Mahatma Gandhi Chitrakoot Gramoday Vishwavidyalya, Dr. Ami Upadhyay, Vice Chancellor, Dr Babasaheb Ambedkar Open University, Vadodra, Gujarat, and Dr Vijay Kumar, Deputy Secretary, National Council for Teacher Education, (NCTE), Delhi attended the Roundtable. Dr Amarendra Pani, Joint Director and Head of Research Division was the Convener of the event.

The Roundtable commenced with a formal welcome by Dr Amarendra Pani. While extending a warm welcome to the dignitaries, Dr Pani provided a brief background of the Roundtable and put forth the purpose and importance of the deliberation on EER. He appraised briefly about the AIU initiative of EER with special reference to GER and its current scenario in the country. Dr Pani correlated the concept of EER with access, quality and relevance of higher education as emphasized in the XI Five Year Plan document. He observed that the present practice of GER in higher education does not project the real picture as some of the students enrolled in skill intensive courses/programmes are not covered and counted in GER. Therefore, a need has been felt to introduce the concept of EER which will provide

the real scenario of student access to higher education covering the eligible ratio of the population of the relevant age group.

Dr (Mrs) Pankaj Mittal, Secretary General, AIU presented the key ideas and sole purpose behind the novel concept of EER in the country. Dr Mittal began with a precise background of AIU in terms of its genesis, objectives, different activities which was followed by an extensive power point presentation on the report on EER prepared by AIU. In the presentation, she shared that the Completion Rate at school level in China is 67 per cent, UK is 95 per cent, but in India it is only 42 per cent. She observed that when only 42 per cent in the age group of 18-23 complete schooling, the calculation of GER which is based upon the entire population of the 18-23-year age group appears to be inappropriate. She argued that the calculation should be made out of the 42 per cent passed out from school education which is eligible for entering into the portal higher education. So far as the Gross Enrolment Ratio (GER) is concerned, it considers the total enrolment in Higher Education from the entire population in the age group of 18-23 years. This is the general and universal definition of Gross Enrolment Ratio (GER). She emphasized that problem of higher education sector cannot be adequately addressed unless we improve the quality of school education. She added that today in a competitive environment the importance of GER comes to the forefront in any discussion on Higher Education. It is often rued that India is lagging behind in GER as compared to our counterparts. By this time, we should have been achieved the target of 50 per cent. The questions arise, how to increase the GER. While the eligible population itself is 42 per cent, how can we reach the targeted GER of 50 per cent. Therefore, we have to be pragmatic and must take adequate measures to improve the school education.

She observed that the scenario of enrolment in India is really good if we consider the Eligible Enrolment Ratio (EER). As the data is not available for the number of students passing class 12th from various countries it was decided to use an alternative parameter that is the completion rate. As per UNESCO Handbook the completion rate is the number of people completing that level of education out of the relevant age group. So, we can use the completion rate of the senior secondary level for calculating EER which can be used as a parameter to measure the access. If the GER is divided by completion rate we will get EER. Based on this formula, we calculated GER and EER for 10 countries and the difference between GER and EER for these countries was computed. It was seen that the GER of USA 88.2 per cent whereas it's EER was 93.5 per cent and difference was only 5.3 per cent, Germany was having a difference of 21.1 per cent but the difference in India was 37.5 per cent, difference in Pakistan was 33.9 per cent. In most of the developing countries difference between GER and EER was high and in most of the developed countries the difference was less than 10. Out of all the developing countries, the difference in India was the highest at 37.5. This project that the developed nations have a good schooling system, resulting in having only marginal difference in GER and EER but for developing nations, with a low completion rate at school level, the difference is huge. One can predict that GER does not measure access based on a level playing field and is disadvantageous for the developing nations where the school system is not very robust. Therefore, EER seems to be a more just parameter to measure access.

The second aspect of the analysis revealed that GER considers entire enrolment including International students. For example, in USA which has a large number of international students, the enrolment includes both the home students and international students as well. But the denominator consists of only the population of relevant age group of their country therefore the GER further increases on account of International students. There is large chunk of Indian Students and students from other countries studying in USA. These students from developing countries are contributing to the increase in GER of developed nations at the cost of reducing their own GER which is a major disadvantage. This can be refined if EER is used and the number of International students is deducted from the calculation, as they are not counted in the population in relevant age group in the denominator. There are approximately 10 lakh international students in USA, whereas India has only 46703 international students. Therefore, developed countries are better portrayed in terms of GER at the cost of developing countries.

On the basis of above analysis, it was proposed that the EER should be refined in two ways one, based on eligible population and second, based on International students. Therefore, a conclusion was arrived at that the EER based on eligible population in the relevant age group is relatively fair and just parameter for measuring access as it creates a level playing field for developed and developing countries. It can be further refined by deducting International

students from the enrolment as they are not enrolled out of their population. She concluded the presentation by mentioning that if a consensus can be developed for use of EER, we will further explore the possibility of refining report and some structured recommendations can be given to the government for taking steps in this direction.

Dr Bhushan Patwardhan, Vice Chairman, University Grants Commission (UGC) highlighted that though the idea of EER was proposed a long back in 2004, it was missing in higher education discourses. Even all the policy documents on education has been referring to GER without going into reality. He said that when we started giving a serious thought to the concept, it was realised that these assumptions, and targets which we have in mind may not be actually doable, because we don't have that kind of eligible candidates in the country. With the initiative taken by AIU, the concept of EER can be given a momentum. Prof Patwardhan lauded the efforts of the AIU and a few other academics of different institutions contributing to enrich the idea. He concluded that concept of GER is very old, and for some unknown reasons, nobody revisited it in several years. With the analysis of the data presented and in view of the report prepared by AIU the concept needs a relook. The following points were raised by Dr Patwardhan for discussion:

1. While the concept of lifelong learning is gaining ground, it is not advisable to link age with the GER which takes into account a short age band i.e. 18-23 years only whereas the lifelong learning brings to its portals, the learners from all age groups.
2. Is it relevant to include people of age group beyond 23 years, in GER as US data of GER included this but it is not typically fitting in the UNESCO definition of GER?
3. We should raise the concern related to GER not only in Indian context but at International level.
4. This Roundtable is important not only to discuss the EER but also, how to move ahead with this kind of data which shows a new picture in context of Eligible Enrolment ratio.
5. How do we climb up the value chain in terms of the quality of our education and make it more employable and more meaningful in the context of 21st Century's demand and supply?
6. What should be seriously done in the sector of higher education for proper and true improvement that we expect in near future to increase eligibility ratio?

Dr Patwardhan observed that there could be a lot many opportunities which need to be deep dived in these subjects, by bringing more countries for comparisons and interpretations. It's high time to show the world that our EER is comparable to other countries. There is huge scope that's why we thought that this kind of intense discussion would be useful. Dr Patwardhan appreciated AIU team for organizing such a wonderful Roundtable table on exploring the issue of eligibility ratio with outstanding minds in this country, who are not just leading but also contributing for the cause of higher education.

Following the remarks and questions of Dr Patwardhan an open house discussion was held in which Prof N.V. Varghese, Vice Chancellor, National Institute of Educational Planning and Administration (NIEPA), New Delhi expressed his views related to Eligibility Enrolment Ratio.

Prof. Varghese observed that the issue of eligibility ratio should be seen from a broader angle while presenting the access to higher education in the country in a realistic way. He highlighted following important points related to GER.

1. More than 8 lakhs of foreign students are enrolled in the higher education system of the USA but this is not the reason for the high GER of this country as this is contributing only 4 per cent. Actual reason is that the USA is also counting mature students who are beyond the age group of 18-23 years in their GER. This is also one of the main reasons which has seemingly influenced GER in the developed countries.
2. The stage transition ratio in India i.e. the students who are passing out 12th grade and entering into graduation is around 90 percent so there is no scope of expansion in this scenario. However, it is not possible to achieve 50 per cent GER unless we include mature students in the GER and unless our least developed states like Uttar Pradesh, Bihar, Odisha, Rajasthan, Madhya Pradesh, etc. increase their secondary school graduates.
3. The one difficulty with GER that the denominator in GER is the entire population in age group 18-23 years who may or may not have entered in 12th grade. If we have actual data of students who entered in 12th grade then the realistic pictures will

come out but this data is not available for all the countries in actual sense.

In his concluding remarks, Prof Varghese highlighted that debate on this crucial issue is very important which we have initiated and we are ready to contribute whichever minimum way we can do towards clarifying this issue and come out with the realistic estimations.

Prof. P B Sharma, Vice Chancellor, Amity University, Gurugram and Former President, AIU appreciated AIU for bringing this issue in the forefront of discussion and mentioned that since a long time he has been saying that the GER is a misnomer. We are opening engineering and medical colleges at every nook and corner of the country without focussing on quality and relevance. In today's context the term PCM is no longer physics, chemistry and mathematics it became People's Capability and Maturity. Prof. Sharma pointed out following issues related to GER and EER:

i. The relevance of higher education in the country needs to be beaten as a drum in the college corridors which has happened never before. In the context of EER India is not as bad as projected in GER.

ii. Rather than focusing on expansion of the higher education system, we must focus on relevance and capabilities which are created in the country. Apart from capability, value matters, because we are going through a great crisis called value crisis.

iii. In context of Germany differences of GER and EER is quite high due to fact that 12th grade students are entering in skilled and technology certificate courses rather than entering into general higher education. So, to increase the level of GER or EER we must include the students enrolled in ITI or diploma courses in calculation of GER or EER.

iv. We must create Skill Park or Tower in the country so that more and more students are attracted towards the education system due to high chances of getting lucrative jobs or career after the skilled courses. This practice definitely takes the GER or EER of the country to the next level that we are expecting in the near future.

v. We should raise the term GER to EER in terms of relevance, quality and capability.

Dr Ami Upadhyay, Vice Chancellor of Dr Babasaheb Ambedkar Open University, Vadodara, Gujarat expressed her views on GER and EER mainly focusing on open and distance learning systems in the country. She highlighted that an open school learning system may play an important role in increasing the EER as the open and distance universities are running Bachelor Preparatory Programs for those students who have not completed their 12th grade due to some or other reasons. These programmes may act as a bridge course and will increase eligibility ratio in the country, if we count these students in GER. But in actual scenario these students are not counted due to age factor. Dr Upadhyay congratulated Dr Mittal and Dr Patwardhan for such a nice discussion on eligibility ratio in the country.

Prof. Anupama Nautiyal, Vice Chancellor, Hemwati Nandan Bahuguna Garhwal University remarked that we are only talking about access and want to educate everyone in the country. That's how *Sarva Shiksha Abhiyan* was started a few years back. We are educating everyone without knowing capability, quality and skills, which is a big mistake. Some of the major points put forth by her are as follows.

i. There is a need to increase the age range from 18-23 to18 to 35 years because the condition in our country is totally different from other western countries. So, we cannot compare India with the western countries although we can talk about it.

ii. The main focus should be on skill-based education but everyone has different capabilities. So, it is not possible by imposing this on students.

iii. The concept of EER is very practical and valid and must carry forward not only at this forum but also at the National forum. When this debate will go to every institution then the institution may try to change.

iv. In NIRF ranking the GER is quoted but format need to be corrected and the performance indicators should not to be fixed only to how many IAS, PCS and Judiciary persons are created by the universities but also a good engineer, doctor, Professors and teachers because these are also a main contributor to the national development.

Prof. Sandeep Sancheti, Vice Chancellor, SRM University of Science and Technology, Chennai, Tamil Nadu and former President of AIU expressed that the concept of EER is quite good as EER is a much-needed correction in the concept of GER. We are ruthlessly increasing the number of universities in the country. Prof Sancheti expressed the following viewpoints:

1. It is better to express eligibility ratio sequentially in the form of Primary Eligibility Ratio, Secondary Eligibility Ratio and Higher Secondary Eligibility ratio so that a graded picture of eligibility ratio will come into existence, it will also give an exact number of dropouts and addition in the system.
2. Most of Institutions are working on increasing enrolment rather than concentrating on planning which should be rectified. EER should be related to the planning part and 64 per cent EER calculations is quite good in Indian scenario.
3. In Germany education is highly subsidized and skilling is given a lot of importance. The same concept may also help in Indian context.
4. The distance and open learning and diploma education must be included in GER or EER of the country.

Prof. Manikrao M. Salunkhe, Immediate past President, AIU and Vice Chancellor, Bharati Vidyapith (Deemed to be University), Pune while appreciating the initiative of introducing new parameters on the eligibility ratio of the country emhasized that the concept of EER should be developed with GER without surpassing the GER as this concept is worldwide accepted. Further, he added that distance and opening learning students in GER and computer and vocational certificate courses may also be included in the EER which may present a complete picture of eligibility ratio in the country.

Dr Pankaj Mittal clarified that we are not replacing GER with EER but we are introducing the concept of EER so that the government and policy makers understand which is better and what are the differences and what are implications that could be useful for planning and policy making.

Prof K K Agarwal, Chairman, National Board of Accreditation while referring to the discussion on EER informed that the concern for increasing the GER, related issues involved, and the need for introducing the concept of EER as a valid measure for assessing the student enrolment in higher education was also raised by Dr Mittal in one of the conferences on higher education organised by MHRD in Mussoorie a couple of years back. However, the issue could not gain a momentum because of the oversight of the academia and other concerned authorities. He observed that with the initiative of AIU, the issue needs to be given a fresh look and importance it deserves. Prof Aggarwal highlighted the following points:

1. We want to achieve a GER of 50 per cent. But our policy documents say that our school pass outs are only 42 per cent. How we intend to achieve the GER of 50 per cent.
2. Challenging GER is the necessity of this country. We are only close to 40 per cent. In this scenario, EER makes better sense then GER. So, this is actually a correction that we needed.
3. In a situation where so less students are not passing out from school level, why do we need so many universities. It needs to be given a serious thought.
4. If we don't know how many engineers and doctors are actually required in the country then how we make plans for higher education.
5. I think EER is a good step but we can also consider the progression of students from primary to secondary and higher secondary, if we can measure this progressive percentage that will make a better sense and will guide us much better.

Prof N C Gautam, Vice Chancellor, Mahatma Gandhi Chitrakoot Gramoday Vishwavidyalaya, Chitrakoot mainly focused on how rural education system may increase EER of the country. He said that in rural areas dropout of students are more in number. So, the time has come to strengthen our rural education system and make them more lucrative for students. Prof Gautam advocated adding certificate and vocational courses students in EER calculation so that actual number may come into picture.

While concluding the discussions, Dr Pankaj Mittal observed that AIU will try to project this concept of EER not only for India but for all the countries. She also informed that the concept of EER will also be taken up with International Association of Universities (IAU) and Association of Common Wealth Universities, so that it may go forward effectively.

The Roundtable ended with a Vote of Thanks presented by Dr Amarendra Pani, who remarked that the cartographical contour of higher education is changing very fast. The education system needs to gear up to face the challenges. Access, equity and excellence are of cardinal importance. In such a situation introducing the concept of EER may be a right measure in the direction of projecting the correct picture of access to higher education and may also provide impetus to the efforts of skill development and creating employability. ❑

THESES OF THE MONTH

SOCIAL SCIENCES

A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of June - July, 2020)

Business Administration

1. Panda, Anjali. **Consumer goods retailing: A study of in store behaviour of the shoppers and retailers in selected houses of the Orissa**. (Dr. Basanta Kumar and Dr. P C Tripathy), Department of Business Administration, Utkal University of Culture, Bhubaneswar.

Commerce

1. Bhutia, Sonam Topgay. **Financial inclusion in Sikkim: Initiatives and outreach**. (Dr. A N Shankar), Department of Commerce, Sikkim University, Ganktok.

2. Dave, Meeta Bipinchandra. **A comparative study of employees training in private life insurance sector and public life insurance sector**. (Dr. C L Usadadiya), Department of Commerce, Saurashtra University, Rajkot.

3. Fulwala, Priyanka Jitendrakumar. **A study of selected commercial banks in India: An analysis through camels rating**. (Dr. Aaishwarya Kulkarni), Department of Commerce, Veer Narmad South Gujarat University, Surat.

4. Mistry, Jaykumar Dilipbhai. **Human resource accounting disclosures in selected Indian companies**. (Dr. P R Patel), Department of Commerce, Gujarat University, Ahmedabad.

5. Parmar, Nehalben Vijaykumar. **An analytical study on financial performance of selected automobile companies in India**. (Dr. Y M Dalwadi), P G Department of Business Studies, Sardar Patel University, Anand.

6. Shah, Mehulkumar Bharatbhai. **Financial performance analysis: A comparative study of selected companies of fertilizer industry of India**. (Dr. K N Chavda), Department of Commerce, Veer Narmad South Gujarat University, Surat.

7. Thaker, Darshana Prafulbhai. **A study on measurement and analysis of shareholder's value creation in public & private banks of India**. (Dr. Jyotindra M Jani), Department of Commerce, Saurashtra University, Rajkot.

Economics

1. Bardoliwala, Henal Nareshkumar. **A study of an empirical relationship between selected macro economic factors and Indian stock market with reference to BSE-sensex**. (Dr. Sanjay A Pandya), Department of Economics, Saurashtra University, Rajkot.

2. Lyngdoh, Lasara M. **Rural health care infrastructure and the determinants of access to health care in North-East India**. (Dr. D Nongkynrih), Department of Economics, North Eastern Hill University, Shillong.

3. Mishra, Amritkant. **Food inflation volatility and its interlinkages with crude oil, foreign exchange and money supply: An evidence of India**. Department of Humanities & Social Sciences, Jaypee Institute of Information Technology, Noida.

4. Saikh, Rehanabegam Mahmadmunna. **Credit related operational procedures of district central co-operative banks: With special reference to Jamnagar and Rajkot District**. (Dr. Dilip R Vajani), Department of Economics, Saurashtra University, Rajkot.

Education

1. Anil Kumari. **An early entering tribal and non tribal school children adjustment problems in school society**. (Dr. Mahendra Kumar Upadhyay), Department of Education, Bhagwant University, Ajmer.

2. Dubey, Rashmi. **Role models and psychological types in female interest in their choice of science careers**. (Dr. Mahendra Kumar Upadhyay), Department of Education, Bhagwant University, Ajmer.

3. Gangadia, Dhara Chandrakant. **The study of current values in different stream of graduate learners**. (Dr. Nidat Barot), Department of Education, Saurashtra University, Rajkot.

4. Garg, Neeta. **A comparative study of BTC students of government versus non-government institutions regarding academic stress, adjustment and achievement**. (Prof. Rashmi Mehrotra), Department of Education, Teerthanker Mahaveer University, Moradabad.

5. Kotecha, Priti Tribhovandas. **An experimental study on the effectiveness of meditation on mental health and self-esteem of primary school students**. (Dr. Kanchan S Dubey), Department of Education, Saurashtra University, Rajkot.

6. Patel, Nileshbhai Ramanbhai. **Effectiveness of programmed learning for the teaching of unit alankar and Chhand in Gujarati grammar STD X**. (Dr. J D Dave), Department of Education, Saurashtra University, Rajkot.

7. Saini, Medhavi. **Effect of Continuous and Comprehensive evaluation on academic performance of students of primary schools**. (Dr. Mamta Arora), Department of Education, Dev Sanskriti Vishwavidyalaya, Hardwar.

8. Singh, Sushil Kumar. **Stress adjustment and achievement in science of secondary school students of disadvantaged group**. (Prof. Preeti Sinha), School of Educational Training & Research, Aryabhatta Knowledge University, Patna.

9. Suman, Sapna. **Scientific attitude interest process skills and achievement in science of secondary school students**. (Prof. Preeti Sinha), School of Educational Training & Research, Aryabhatta Knowledge University, Patna.

10. Vaghela, Kaushik Hirabhai. **Effectiveness of the technique of Computer Aided Instruction (CAI) and the roal play for teaching of units of textbook of social science in secondary school**. (Dr. Nidat Barot), Department of Education, Saurashtra University, Rajkot.

Journalism & Mass Communication

1. Negi, Neema. **Critical analysis of changing trends in Hindi cinema**. (Dr. Smita Vashishtha), Department of Journalism & Mass Communication, Dev Sanskriti Vishwavidyalaya, Hardwar.

2. Shukla, Amit. **Innovations in Hindi dailies with reference to technology and content**. (Dr. Smita Vashishtha), Department of Journalism & Mass Communication, Dev Sanskriti Vishwavidyalaya, Hardwar.

Law

1. Korrapati, Raghu Babu. **A study of Intellectual Property Rights (IPR) issues in Master Service Agreement (MSA) and Statement of Work (SOW) with reference to software companies**. (Prof. Y P Rama Subbaiah), Department of Law, Acharya Nagarjuna University, Nagarjuna Nagar.

2. Mehat, Jeevrathnam Daniel. **Legal regime of pharmaceutical patents: A comparative study with reference to India and US**. (Prof.A Lakshminath), Department of Law, Chanakya National Law University, Patna.

3. Swain, Satyaprakash. **A study on the reservation for other backward classes under the protective umbrella of the Indian constitution**. (Prof. Sukanta Kumar Nanda), Department of Law, Utkal University of Culture, Bhubaneswar.

Library & Information Science

1. Patel, Deep Kaushikbhai. **Information seeking behaviour of users of law institute libraries in Gujarat**. (Dr. Sanjeevkumar Sharma and Dr. Shishirkumar H Mandalia), Department of Library and Information Science, Veer Narmad South Gujarat University, Surat.

Management

1. Anita. **Impact of crowd funding on investment in India**. (Prof. Sanket Viz), Department of Management Studies, Bhagat Phool Singh Mahila Vishwavidyalaya, Khanpur Kalan.

2. Bhaskar, P Phani. **A study on factors affecting consumer loyality towards e-commerce in Andhra Pradesh**. (Dr. D Prasanna Kumar), Department of Management, Koneru Lakshmaiah Education Foundation, Guntur.

3. Chhabra, Binny. **A study of market potential for health insurance in the selected Districts of Haryana**. (Dr. Meenu Gupta), Department of Management, Maharishi Markandeshwar University, Ambala.

4. Das, Surajit. **Supply chain management strategy: Towards enhancing customer satisfaction in conjunction with brand loyalty for marketers in food and beverage industry**. (Dr. Malini Majumdar and Dr. Ritika Moolchandani), Department of Management, Bhagwant University, Ajmer.

5. Ghela, Kumargaurav Kanjeebhai. **Leadership practices in NGO'S: A case study of BAPS organization**. (Dr. B D Vala), Department of Management, Saurashtra University, Rajkot.

6. Kalagadda, Prasanthi. **Impact of innovation on organizational performance in select MSMEs: With special reference to Vijayawada Region**. (Dr. D Sundari), Department of Management, Koneru Lakshmaiah Education Foundation, Guntur.

7. Mishra, Abhishek. **A study of interventions from Shreemad Bhagwad Geeta for leveraging performance with special reference to human capital and material resources**. (Prof.Kushendra Mishra), Department of Rural Management, Babasaheb Bhim Rao Ambedkar University, Lucknow.

8. Mydhili, Virigineni. **A study on behavioral rationality of residential property buyers: With special reference to Guntur and Vijayawada Cities**. (Dr. Sundari Dadhabai), Department of Management, Koneru Lakshmaiah Education Foundation, Guntur.

9. Prabhakara, T. **A study on financial performance of cement industry in India: With special reference to capital structure and profitability**. (Dr. B Bakkappa), Department of Studies in Management, Davangere University,Davangere.

10. Punwatkar, Sushil. **A study on the impact of core competencies on sales person's job performance in retail industry**. (Dr. Manoj Verghese), Faculty of Humanities and Management, Chhattisgarh Swami Vivekanand Technical University, Bhilai.

11. Rathore, Diveta. **A study of joint ventures in Indian oil sector**. (Dr. Margie Parikh), Department of Management, Gujarat University, Ahmedabad.

12. Roy, Geeta Shree. **Talent management strategies of pharmaceutical industry in Sikkim**. (Dr. Krishna Murari), Department of Management, Sikkim University, Ganktok.

13. Sethi, Nitin. **An analytical study of impact of currency future on investors behavior with a special reference to metal market**. (Prof. Vipin Jain and Dr Surabhi Goyal), Department of Management, Teerthanker Mahaveer University, Moradabad.

14. Shailesh, Arpit. **Capital structure and socio-financial performance: A study of select Indian microfinance institutions**. (Dr. Taruna), Department of Rural Management, Babasaheb Bhim Rao Ambedkar University, Lucknow.

15. Shende, Shashank Digamber. **Socio-economic impact of special economic zones in Gujarat**. (Dr. Mehal

Pandya), Department of Management, Gujarat University, Ahmedabad.

16. Singh, Arun Kumar. **Importance of brand awareness in purchase decision of FMCG products for consumers: A comparison between urban, semi-urban and rural market**. (Dr. Malini Majumdar and Dr. Ritika Moolchandani), Department of Management, Bhagwant University, Ajmer.

17. Singh, Neha. **Impact of work life balance on turnover of employees**. (Dr. Mamta Brahmbhatt), Department of Management, Gujarat University, Ahmedabad.

18. Thakkar, Vidhya Darshan. **Career motivation and career choice of students during transitionary phases of education**. (Dr. Kiran Pandya), Department of Human Resource Development, Veer Narmad South Gujarat University, Surat.

19. Tijoriwala, Roshni Kamalbhai. **A comparative study on effectiveness of the product placement strategies in movies and television reality shows**. (Dr. Prateek Kanchan), Department of Management, Gujarat University, Ahmedabad.

Physical Education & Sports

1. Aggrawal, Krishna. **Pandit Shriram Sharma Acharya dwara pratipadit mano-adhyatamik abhyasoan ka ciber pryoktaoan (Ciber users) ke chinta evam avsad istar par padne vale prabhav ka adhyayan**. (Dr. Hemadri Sao), Department of Yogic Science, Dev Sanskriti Vishwavidyalaya, Hardwar.

2. Gurupreet Singh. **A comparative study on selected anthropometrical, psychological variables among kabaddi and gatka players**. (Dr. Kawaljit Singh), Department of Physical Education & Sports Technology, Sri Guru Granth Sahib World University, Fatehgarh Sahib.

3. Kachadiya, Rekhaben Hanshrajbhai. **A study of the effect of yoga and aerobics training on vital capacity, pulse rate, cardio vascular endurance, flexibility and speed on the students**. (Dr. Magan Tala), Department of Physical Education, Saurashtra University, Rajkot.

4. Park, Dayoeng. **Comparative study of Patanjali's yoga system and Raman Maharishi's self enquiry on meditation**. (Dr. Suresh Lal Barnwal), Department of Yogic Science, Dev Sanskriti Vishwavidyalaya, Hardwar.

5. Parminder Singh. **Construction of physical fitness test battery and skill norms as predictor of selection of volleyball players**. (Dr. Kawaljit Singh), Department of Physical Education & Sports Technology, Sri Guru Granth Sahib World University, Fatehgarh Sahib.

6. Tanushree. **Thought power & yoga: A critical study (In special reference to Acharya Sriram Sharma's Vangmaya & Bhagwad Gita)**. (Dr. Indrani Trivedi), Department of Yogic Science, Dev Sanskriti Vishwavidyalaya, Hardwar.

Political Science

1. Buhril, David. **New social movements in Northeast India: Contextualizing environmentalism in contemporary collective action**. (Prof. K V Reddy), Department of Political Science, Mizoram University, Aizawl.

2. Tamang, Sapan. **Public health policy and the coexistence of formal and informal healing system in India: A study of two states**. (Prof. S De), Department of Political Science, University of North Bengal, Darjeeling.

3. Tenzing, Prem Choden. **Monarchy to democracy: Understanding political development in Sikkim 1970-1994**. (Dr. Salvin Paul), Department of Peace and Conflict Studies and Management, Sikkim University, Ganktok.

Psychology

1. Awasthi, Shuchita. **Perceived parenting style and personality as correlates of achievement**. (Dr. Santosh Vishvakarma), Department of Clinical Psychology, Dev Sanskriti Vishwavidyalaya, Hardwar.

2. Bhaliya, Shital Bharatbhai. **Teaching aptitude and psychological well being among school teachers**. (Dr. M P Maheta), Department of Psychology, Saurashtra University, Rajkot.

3. Dubey, Abhishek Kumar. **Multimedia learning tathaparamarsh ka ucch prathmik vidyalaya ke vidyarthiyoan ke shekshik nishpadan evam vidyalaya samayojan star par padne wale prabhav ka adhyayan**. (Dr. Deepak Singh), Department of Psychology, Dev Sanskriti Vishwavidyalaya, Hardwar.

4. Joseph, Reena K. **Facilitative potential of Rational Self-Analysis (RSA) in enhancing self-esteem and coping among adolescents**. (Dr. MC Abraham), Department of Psychology and Counselling, Assam Don Bosco University, Guwahati, Assam.

5. Naorem, Rebika Devi. **Impact of paternal alcoholism on psycho-social functions of young adults in Manipur**. (Prof. Zokaitluangi Dr. Rinpari Ralte), Department of Psychology, Mizoram University, Aizawl.

6. Sharma, Gunjan. **Dairy lekhan, swadhyay tatha paramarsh ka kishoriyoan ke mansik swastha savengatmak budhhimatta tatha swaprabhavikta par padne wale prabhav ka adhyayan**. (Dr. Deepak Singh), Department of Clinical Psychology, Dev Sanskriti Vishwavidyalaya, Hardwar.

7. Tiwari, Pranav. **Chyenit manovaigyanik charoan par mano-yogik antkshep ka pryogatamak adhyayan**. (Prof Chinmay Pandya), Department of Clinical Psychology, Dev Sanskriti Vishwavidyalaya, Hardwar.

8. Tripathi, Manoranjan. **Effect of psychosocial factors on behavioral problems in adolescent and their management through pscho yogic modules**. (Dr. Prama Sharma), Department of Clinical Psychology, Dev Sanskriti Vishwavidyalaya, Hardwar.

Public Administration

1. Lalchhuanawma, H C. **Good governance in urban India: A case study of Aizawl**. (Prof. Lalneihzovi), Department of Public Administration, Mizoram University, Aizawl.

2. Pachuau, Mal Swami. **State, civil society and disaster management in Mizoram**. (Prof. Lalrintluanga), Department of Public Administration, Mizoram University, Aizawl.

Social Work

1. Ralte, Zothankimi. **Understanding of sex and sexuality among college students in Mizoram**. (Dr. Henry Zodinliana Pachuau), Department of Social Work, Mizoram University, Aizawl.

Sociology

1. Chadsaniya, Yogeshkumar Karshanbhai. **Society development and reservation policy**. (Dr. J B Zala), Department of Sociology, Saurashtra University, Rajkot.

2. Garala, Khushbubala Chandrakantbhai. **A comparative study of limitations and its remidies in parenting according to the opinions of parents and primary teachers**. (Dr. B B Vasava), Department of Sociology, Saurashtra University, Rajkot.

3. Hibo, Viraho. **Change and continuity of Taboos among Southern Angami Nagas**. (Dr. Christina K), Department of Northeast India Studies, Assam Don Bosco University, Guwahati, Assam.

4. Hossain, Ali Juma Haji. **Building sustainable peace: Challenges and opportunities in Afghanistan**. (Dr. P A Abbasi), Department of Sociology, Veer Narmad South Gujarat University, Surat.

Tourism & Hospitality Services

1. Bhatt, Pradeep. **Impact of work environment on the employees performance: A study of selected five star hotels in Delhi**. (Dr. Arunesh Parashar), Department of Tourism, Dev Sanskriti Vishwavidyalaya, Hardwar.

❑

TAMIL NADU NATIONAL LAW UNIVERSITY

(A University established by Tamil Nadu Act No.9 of 2012)
Navalurkuttappattu, Dindigul Main Road, Tiruchirappalli – 620 027, Tamil Nadu, India
Phone Off: 0431-2692101; E-mail : **vicechancellor@tnnlu.ac.in** ; Website: **www.tnnlu.ac.in**

Tamil Nadu National Law University (TNNLU) was set up in 2012 with the aim to disseminate learning and knowledge of law, legal processes, advocacy and skill in judicial administration keeping pace with the changing global scenario. Today, the 25-acre TNNLU campus consists of two separate academic blocks for undergraduate and postgraduate students, library, auditorium, administrative building, multi-purpose hall, separate hostels for men and women with self-contained gyms, guest house, amenities block (with a gym, bank, ATM, medical clinic, post-office and canteen), and staff quarters. In addition, there is also an indoor badminton court, a basketball court, a sprawling football ground, jogging track and nature park inside the campus.

TNNLU currently offers undergraduate B.A. LL.B (Hons) and B.Com. LL.B (Hons) programmes and since 2018 has started a LL.M. programme with specialization in Corporate and Securities Laws, Intellectual Property Laws and Natural Resources Law. In addition to the day to day academic lectures, TNNLU also have dedicated research centres that assist in holistic development of the research skills of the students. The Centre for Research & Writing, for example, works on a one-to-one basis with the students, providing critical inputs that can help them improve their research and writing skills. The Centre for Labour and Development and the Centre for Competition Law have similarly assisted in research projects for the Competition Commission, the International Labour Organisation, and the Centre for Women's Development Studies. The TNNLU Library is undoubtedly the backbone of all research activities on campus, currently equipped with around 13,500 books and journals with more on the way.

Throughout the semester, TNNLU takes pride in welcoming visiting professors from Harvard University, Oxford University, SOAS London, Kent University, York University, Tel-Aviv University, Melbourne University and George Washington University, amongst others, to conduct short credit courses and workshops and provide the young legal minds an international perspective of legal development. TNNLU also has dedicated co-curricular clubs for music, dance, sports, films, theatre, photography and more. The year 2020 will witness the third LL.B. batch and second LL.M. batch graduating from this University.

ALAGAPPA UNIVERSITY

(A State University Awarded Category-I by MHRD – UGC and A+ Grade (CGPA:3.64) by NAAC

2019: QS ASIA Rank – 216, QS BRICS Rank – 104, QS India Rank – 20)

KARAIKUDI

Academic and Research Quality Enhancement Measures

The only State University in Tamil Nadu awarded Category –I by MHRD – UGC and A+ Grade with CGPA of 3.64 by NAAC in the Third Cycle. Under NIRF 2019 Ranking, Alagappa University placed 28th position and under QS 2020 Ranking, it placed 24th position in QS India Ranking. Alagappa University is an ISO 9001:2015 certified university in the field of Higher Education and Research Activities. Under the UGC Regulations 2017, Alagappa University has been categorized as Category-I University as it has been accredited by NAAC with a score of 3.64. With a student count of 1.15 lakhs from the four streams, viz. 44 University Departments, 3 Constituent Colleges, 49 Affiliated Colleges, Directorate of Distance and Collaborative Education. Alagappa University is truly a revered powerhouse of Education in the country.

Alagappa University ranked 2nd out of top 10 State Universities by MHRD and received Rs. 100 Cr. under RUSA phase 2.0 scheme for Quality enhancement of Teaching and Research. Centre for Excellence for Skill Development has been established to serve as an Entrepreneurship, Innovation and Career Hub at a cost of Rs.15 Cr. under RUSA Phase 2.0 scheme towards youth empowerment through Innovation, Incubation support and Placement and Career guidance. This has been digitally launched by Hon'ble Prime Minister Shri Narendra Modi on 3rd February 2019. 46 Professors from 19 world top ranking Foreign Universities in USA, Australia, Japan, Korea, Italy, Singapore and Malaysia participated in Broad based Board of Studies and upgraded the curriculum of all the University Departments on par with global standard. Adjunct faculty from top ranked Foreign Universities are invited for handling classes, undertake collaborative research and organize conferences. Signed / steps initiated for MoU with top ranking US universities, viz. Cornell University, Drexel University, North Eastern University, Stanford University, University of Michigan, Purdue University, Yale and California University for undertaking research and exchange of faculty and students.

Alagappa University has University Science Instrumentation Centre (USIC) with state-of-the art instruments serving as Central Scientific Instrumentation facility to the University, Affiliated Colleges and other HEIs in the State. Initiatives are already been taken for the establishment of Centre of Excellence in Proteomics, Tamil Antiquity, culture and Tradition and Advanced Research Centres in Bio-plastics, Energy Conservation, Food and Water quality assessment and ceramic and Art Design. As part of e-Governance initiatives, Centre of Management Information System (MIS) established under RUSA scheme to achieve complete and end-to-end e-Governance. Examination wing has been fully automated including Digital Evaluation.

e-Governance initiatives are extended for Students' admission, establishment, accounting and financial transaction. Under the aegis of Ministry of External Affairs (MEA), Directorate for Online programme established to offer on-line academic programmes. Besides, Directorate of Distance Education in Alagappa University is offering UGC-DEB approved 66 programmes through 160 learning centres.

ANAND AGRICULTURAL UNIVERSITY

Anand – 388 110, Gujarat, India.

Website : www.aau.in - Ph. +91-02692-261273

Envisioning Challenges & Opportunities – Strategically Empowering Agriculture for Nation Building

- Anand Agricultural University was carved out of the erstwhile Gujarat Agricultural University (GAU) from 1st May, 2004. At present, its jurisdiction includes 9 districts of Central Gujarat. The university has rich heritage as the root was sawn in the form of the then Institute of Agriculture in 1938 established through the efforts of Sardar Vallabhbhai Patel and Dr. K. M. Munshi.
- Education, Research and Extension Education activities in Agriculture, Horticulture, Veterinary Science & Animal Husbandry, Dairy Science, Food Processing Technology and Bio-Enegry, Agricultural Engineering, Agricultural Information Technology and International Agri Business Management faculties (for UG & PG programmes, *viz.*, B.Sc., B.V.Sc., B.Tech., M.Sc., M.V.Sc., M.Tech. M.B.A., Ph.D.) are functioning.
- There are 10 colleges, 5 Polytechnics, 1 P.G. Institute and 25 On campus & 23 Off campus research centres.
- At national level, AAU maintained its place in top 100 universities of India and also maintained its 1st position for three consecutive years in the ranking of all the universities of the entire State of Gujarat.
- So far, 1244 technologies have been recommended for farmers / scientists / entrepreneurs and 75 crop varieties released.
- AAU is involved in multi-facet extension education activities like; on campus and off campus training programmes for farmers, farm women and rural youth.
- The University is selected as a Nodal Institutes for implementation of the Student Start-up & Innovation Policy (SSIP) of GoG for Agri & Food Incubation programme to help in creation of future entrepreneurs in the field of agriculture and allied sectors.

VISION – MISSION

- Agriculturally Prosperous Gujarat and India
- Search for new frontiers of Agricultural Sciences
- Undertake basic research to breakthrough newer areas of knowledge
- Development of excellent human resources and innovative technological services to farming community

International collaboration

- Lund University, Sweden
- University of Copenhagen, Denmark
- Florida Agricultural and Mechanical University, USA
- University of Alberta, Canada

INFRASTRUCTURAL FACILITIES AVAILABLE

- **Lush Green Sprawling Campus with e-library cum** Cybrary – Hostels – Information Technology Centre – Crop Museum – NABL Accredited Laboratories (1. Food Quality Testing & 2. Pesticide Residue) – Students' Welfare Services – Guest House – Auditorium – Well Equipped Gymkhana – 24 x 7 Internet Connectivity – Canteen – Anubhav Dairy – Sports Facilities – Health Centres – Shopping Centre – Post Office – Bank ATM Centres

COCHIN UNIVERSITY OF SCIENCE & TECHNOLOGY
SOUTH KALAMASSERY, CUSAT P. O, KOCHI-6820222
PH: 0484-2575396, website: www.cusat.ac.in

Cochin University of Science and Technology was established in February 1986 reorganizing the erstwhile University of Cochin (Estd. on 10th July, 1971) by the Government of Kerala based on the Scientific Policy Resolution adopted by the Central Government on 4th March 1958, with the specific purpose of "development of higher education with particular emphasis on post-graduate studies and research in applied science, technology, industry and commerce".

The basic philosophy and goals of the University find eloquent expression in its coat of arms emblazoning the motto Tejaswinavadhitamastu which in essence means 'may the wisdom accrued deify us both-the teacher and the taught-and percolate to the universe in its totality'. The University has strengthened its contacts and collaborative tie-ups with several other Universities and Institutions within India and abroad and is in the path of growth as a centre for the generation of new knowledge in frontier areas of learning. Unit of 'International Relations', an exclusive Directorate has been established to co-ordinate the collaborative activities with an experienced senior Professor with wide international exposure as its Director. The University has been re-accredited with NAAC 'A Grade'.

The academic structure comprises ten faculties viz. Architecture, Engineering, Environmental Studies, Humanities, Law, Marine Sciences, Medical Sciences and Technology, Science, Social Sciences and Technology. There are 27 Departments including two engineering colleges and a marine engineering college under the University conducting various undergraduate and post graduate courses in addition to a number of centres. Admission to the academic programmes are based on Common Admission Test/Departmental Admission Test conducted by the University. Most of the Departments are supported by UGC-SAP or DST-FIST. Another major achievement is the massive financial assistance through PURSE and RUSA.A new Public Limited Company, 'CUSATECH Foundation' with two constituents namely Technology Business Incubator(CUSAT-TBI) and Employability and Innovation Hub(CUSAT-EI Hub)has been registered under section 8 of Company Act 1913 to facilitate fund flow under RUSA(Phase III).

In collaboration with the Government of Kerala, a Sophisticated Test and Instrumentation Centre (STIC) was established in 1996. The Government of Kerala has established three inter-university centres in CUSAT in the areas of Nano Technology, Intellectual Property Rights and Marine Biotechnology with funding from DST and MHRD, Government of India. The Union Ministry of HRD has declared the School of Legal Studies under CUSAT as a depository of IPR. An IPR chair has also been instituted. The University has recognized Southern Naval Command of Indian Navy and other premier research institutions, for academic collaboration. With the objective of propagating the ancient wisdom among the masses, the Government of Kerala has established Inter University Centre for Studies on Kerala Legacy, Astronomy and Mathematics (IUCKLAM) in CUSAT.

The Advanced Centre for Atmospheric Radar Research (ACARR), sponsored by DST with a funding of 25 crores is fully operational and was dedicated to the nation on July 11, 2017 by Dr. Harsh Vardhan, Hon'ble Union Minister for Science and Technology and is presently funded by MoES. Sasthrayan, an outreach programme for the local bodies, designed and initiated by CUSAT as per the directions from the State Government, was launched with an exhibition in the campus for showcasing the research activities before the public. CUSAT has been included in the multi-institutional neutrino project under the leadership of Fermi lab, USA. Government of Kerala has approved the University's proposal to set up a State-of-the-Art Research Laboratory, besides other infrastructure development plans, at an estimated cost of 240.90 crores utilizing the funds mobilized through Kerala Infrastructure Investment Fund Board (KIIFB). CUSAT bagged 'Chancellor's Award' for the best University in the State for the year 2016-17 carrying a prize money of Rs. 5crores, a citation and a rolling trophy. The prestigious Centre for Science in Society of the University has already attracted the presence of more than 2 Lakhs School children. The University has implemented the Erudite program of Government of Kerala in which scholars including Nobel Laureates interact with academic community frequently.

A Chancellor's Chair has been instituted in the University utilising a major portion of the prize money received as part of the Chancellor's Award, to engage eminent scientists/academicians from foreign universities which are having rank preferably within 200 in the world university ranking, as Chancellor's Chair Professor.

An active Technology Business Incubator named Centre for Innovation, Technology Transfer & Industrial Collaboration(CITTIC) having incubated 60 start-up ventures till date, Collaborative tie-ups with 12 foreign universities in countries like USA, Japan, European nations, etc in addition to a pro-active Placement Cell which co-ordinates campus recruitment and facilitates securing job opportunities to majority of the students have made CUSAT a much sought after higher education destination in South India especially for students from eastern and northern states of the country. CUSAT's tie-up and interaction with major industrial units in Kerala like BPCL-Cochin Refineries Limited, Cochin Shipyard Limited, Petronet LNG Ltd, Fertilizers And Chemicals Travancore Ltd, Hindustan Insecticides Limited, etc. together with the training at CITTIC and many other industrial organizations ensure the skill development of each outgoing student enhancing the employability of CUSAT products. Former students of CUSAT occupying leading positions in innumerable educational, research, business and industrial organisations world over and their achievements in their respective positions is a matter of great pride to the University community.

The University has three campuses viz, Main campus at Thrikkakara, Lakeside campus at Ernakulam and Engineering College campus at Pulincunnoo, Alappuzha.

DPU Dr. D. Y. PATIL VIDYAPEETH, PUNE
(Deemed to be University)

The Mission *of the Vidyapeeth is "To contribute to the socio-economic & ethical development of the nation, by providing high quality education through institutions that have dedicated faculty & state-of-the-art infrastructure, and are capable of developing competent professionals & liberal-minded citizens".*

The Vision *of the Dr. D. Y. Patil Vidyapeeth (DPU) is "To help build an enlightened, culturally and economically vibrant India developed through education in diverse disciplines".*

DPU is endeavouring to groom competent professionals in diverse fields. With a focus on experiential learning, our institutes enable students to apply & practice skills in real life situations, making them better employable in the current global scenario.

Dr. D. Y. Patil Vidyapeeth (DPU), Pune managed by Dr. D. Y. Patil Vidyapeeth Society, Pune, was declared as "Deemed-to-be-University", under Section 3 of UGC Act 1956 in 2003. From a humble beginning with one constituent college i.e. Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pune, DPU over the last 14 years has grown manifold with addition of eight more professional institutions under its ambit. Today, with all the 9 institutions, Dr. D. Y. Patil Vidyapeeth, Pune has distinguished itself and created the brand name "DPU" in the professional education in Medicine, Dentistry, Nursing, Physiotherapy, Optometry, Biotechnology, Management, Ayurveda and Homeopathy.

Achievements- DPU has been accredited twice with "A" grade at CGPA of 3.62 (IInd cycle of NAAC) followed by "Category-I Deemed to be University" status by University Grants Commission (UGC). The Vidyapeeth has also been ranked at 46th in University Category, 70th position in the Overall Category, and 20th in the Medical Category in the National Institutional Ranking Framework 2019, by MHRD, Government of India.

Over the years the Vidyapeeth has achieved significant academic growth and development in the field of professional education especially in health sciences. It offers more than 100 academic programmes covering Medicine, Dentistry, Ayurveda, Homoeopathy, Management, Biotechnology and allied health sciences like Physiotherapy, Nursing, and Optometry. All the programs offered in these Institutes are duly recognized by respective Regulatory Councils such as MCI / DCI / INC / CCIM / CCH / AICTE / UGC. Academic flexibility in the form of CBCS/ Elective options is offered at Biotechnology, Physiotherapy, Nursing and Optometry programmes. A dedicated team of more than 600 faculty is involved in providing quality education to more than 4800 students.

Major Activities - Research has always been an important thrust area for the Vidyapeeth. With the aim of generation of new knowledge as well as finding solution to problems for improving health of society, DPU has established **Central Research Laboratory** including **Molecular Diagnostic and Regenerative Medicine Laboratories** with latest equipment for undertaking inter-disciplinary research. DPU has developed an Innovation Ecosystem with **"DPU Incubation Centre"** and **"Start-up and Innovation Cells"** at the constituent colleges to encourage and provide research mentorship and imbibe the spirit of entrepreneurship in the staff and students.

Publications and Patents - In last 5 years a total of 20 patents with 2 technology transfers have been achieved due to these sustained efforts. DPU has provided **seed money** to staff and students with output of 3 patents, 36 publications and three major (ICMR and BIG) extramural grants. Further, total of 1877 Research papers have been published in Scopus Database with h-index of 44. One Faculty and two students from Biotechnology Institute received the prestigious **Gandhian Young Technological Innovation Award.**

Department of Scientific and Industrial Research (DSIR) has extended **'Scientific and Industrial Research Organization' (SIRO)** recognition to DPU for a period of 3 years from 2017 to 2020. Biotechnology Institute of the Vidyapeeth has received the prestigious 'DST-FIST' funding for the development of infrastructure and equipment for teaching and research. Recently DPU has received BIG-Biotechnology Ignition Grant of Rs. 1 Cr. for two projects namely for making bioartificial gingiva and physiotherapy device for oral submucous fibrosis.

The Vidyapeeth also regularly carries out meaningful extension and outreach activities to realize its institutional social responsibility with active participation by staff and students. Several villages have been adopted under Unnat Bharat Abhiyan and NSS activities.

Development Plans

1. Encouragement for inter-disciplinary research activities.
2. Increase in the number of patents.
3. Focus on quality publications.
4. Strengthening of activities of Incubation Center and Innovations Councils.

Sant Tukaram Nagar, Pimpri, Pune - 411018, Maharashtra, India. Tel.: (020) 27805000, 27805001 • www.dpu.edu.in • E-mail : info@dpu.edu.in

डॉ० राममनोहर लोहिया अवध विश्वविद्यालय, अयोध्या (उ०प०)

विश्वविद्यालय की उपलब्धियां

डॉ0 राममनोहर लोहिया अवध विश्वविद्यालय की स्थापना 04 मार्च, 1975 में अवध विश्वविद्यालय के रूप में की गई। इस शैक्षिक यात्रा में विश्वविद्यालय ने कई उपलब्धियां अर्जित की है। शैक्षिक विकास के क्रम में विश्वविद्यालय ने राष्ट्रीय एवं अन्तरराष्ट्रीय स्तर पर अपना बहुमूल्य योगदान दिया है। वर्तमान कुलपति प्रो मनोज दीक्षित विश्वविद्यालय के 19वें कुलपति है। प्रो0 दीक्षित के कुशल नेतृत्व एवं मार्गदर्शन में विश्वविद्यालय ने नये शिक्षण क्षितिज का निर्माण किया है।

- आवासीय परिसर में कुल 55 पाठ्यक्रमों का संचालन।
- उत्तर प्रदेश के पॉच जिलों के संबद्ध महाविद्यालयों की संबद्धता।
- विश्वविद्यालय से संबद्ध महाविद्यालयों की संख्या 650 से अधिक।
- 30 से अधिक विषयों में पीएचडी की सुविधा।
- विश्वविद्यालय के दो बड़े परिसर राष्ट्रीय राजमार्ग एनएच 28 पर स्थित।
- सांस्कृतिक नगरी अयोध्या की ऐतिहासिक विरासत को संजोने के लिए पॉच शोध पीठों का संचालन।
- विश्वस्तरीय शैक्षिक गुणवत्ता के उन्नयन के लिए परिसर में स्थापित बहुदेशीय विज्ञान प्रयोगशाला की स्थापना।
- नवीन परिसर में अंटार्कटिका रिसर्च सेंटर स्थापित।
- अत्याधुनिक सुविधाओं से परिपूर्ण ईडीपी सेल।
- परिसर में स्थित दो बालिका छात्रावास सौर ऊर्जा से आच्छादित।
- उच्चीकृत केंद्रीय पुस्तकालय।
- जनसंचार एवं पत्रकारिता विभाग अपग्रेडेड मीडिया लैब से युक्त।
- परिसर में पर्यावरणीय हितों को दृष्टिगत रखते हुए व्यापक पौधरोपण अभियान में 26000 से अधिक पौधरोपण।
- विश्वविद्यालय से संबद्ध महाविद्यालयों की वार्षिक परीक्षाओं में परीक्षा केंद्रों पर नकल विहीन परीक्षा के लिए ऑनलाइन मॉनिटरिंग एवं ऑडियो वीडियो रिकॉर्डिंग एवं परीक्षार्थियों के डाटा संग्रहण की सुविधा।
- ग्रीन कैम्पस पूर्णतया पॉलिथीन मुक्त परिसर।
- सम्पूर्ण परीक्षा प्रणाली का डिजिटलाइजेशन।
- आवासीय परिसर के विभागों में स्मार्ट क्लास की सुविधा।
- विश्वविद्यालय का 2 दर्जन से अधिक शैक्षिक एवं औद्योगिक संस्थानों के साथ एमओयू।
- शोध ग्रंथों का शोधगंगा की साइट पर अपलोड किए जाने की व्यवस्था।
- छात्र हितों के दृष्टिगत् शैक्षिक सुविधा हेतु रक्षक एप की स्थापना।
- अयोध्या दिव्य दीपोत्सव में विश्वविद्यालय द्वारा की गई सहभागिता से पुनः गिनीज बुक ऑफ वर्ल्ड रिकॉर्ड में दर्ज होना।
- अयोध्या दीपोत्सव पर डाक टिकट जारी किया जाना।
- परिसर में प्लेसमेंट सेल संचालित किया जाना।
- सिंगल विंडो द्वारा छात्र समस्या का निराकरण।
- निशुल्क विधिक सहायता।
- छात्रों के अंक पत्र एवं उपाधियों को डाक द्वारा प्रेशण।
- परिसर में दो दर्जन से अधिक राष्ट्रीय एवं अन्तर राष्ट्रीय सेमिनार का आयोजन।

Mathura

GLA UNIVERSITY

Home to over 10,500 students, the university provides education at the diploma, undergraduate, postgraduate and Doctoral levels in various disciplines of engineering, management, computer applications, pharmaceutical sciences, education, legal studies, agriculture, humanities, commerce and biotechnology. The university also boasts of a strong alumni network of approx 23,000.

More than 500 well-qualified and experienced faculty members and 1000 staff members work full-time for the university, along with renowned experts from academe and corporate India towards creating the perfect learning environment. From 17 faculty in 1998, to over 500 faculty members and close to 50 courses; GLA promises a broad spectrum of professional & all-round development for you.

An epitome of professional excellence and social commitment, the University is a well-known center of academic pursuit in Northern India and has set quite a few benchmarks in its journey towards fulfilling its commitments towards all of its stakeholders.

UGC RECOGNISED COURSES

UNDERGRADUATE: B Tech, B Pharm, B Ed, B Tech & B Pharm (Lateral Entry), BBA, BBA (Family Business), BBA (H), B Com (H), B Com (H) (Global Accounting), BA (H) (Economics), BCA, BA LLB (H), B Com LLB (H), B Sc (H) (Biotech), B Sc (H) (Chemistry), B Sc (H) (Physics), B Sc (H) (Agriculture) Diploma in Engg., Diploma in Pharmacy, One year Diploma.

POST GRADUATE: MBA, MBA (Financial Markets & Banking), MBA (Logistics & Supply Chain Management), MBA in Construction Management, MBA Integrated 5 Yrs., MCA, MA (English), M Pharm (Pharmacology), M Pharm (Pharmaceutics), M Sc (Biotech), M Sc (Microbiology & Immunology), M Sc (Chemistry), M Sc (Mathematics), M Sc (Physics), M Tech
PG Diploma in Yoga,
PG Diploma in Fitness Management

DOCTORAL: Ph D

CENTRAL LIBRARY: The Central Library has more than one lakh fifty thousand books, journals, magazines, newspapers, encyclopedias and thousands of CDs focusing on the diverse areas of knowledge that befit a university. In addition to this, each department has its own well-stocked library apart from the Central Library.

GLA UNIVERSITY MATHURA
Recognised by UGC Under Section 2(f)

Accredited with A Grade by NAAC

GLA UNIVERSITY

17 Km Stone, NH-2,
Mathura-Delhi Road,
PO: Chaumuhan,
Mathura - 281 406 (U.P.)

Ph.:
+91-5662-250900, 909

E-mail :
glauniversity@gla.ac.in
admissions@gla.ac.in

Website :
www.gla.ac.in

VICE CHANCELLOR:
Prof. A. M. Agrawal

REGISTRAR:
Mr. Ashok Kumar Singh

The University has access to more than two crores bibliographic records, 40 thousand-plus periodicals, a number of CDs and e-books thanks to its membership of DELNET.

RESIDENTIAL FACILITIES:

- The residential areas or more popularly known as 'hostel wings' have been specifically built separately for boys and girls. 6000 students resides in the campus.
- Full-time resident doctors, along with part-time specialists.
- Counselors attend to the student's psychological needs.
- A full fledged bank branch of the Indian Overseas Bank along with 2 ATM within the University Campus.
- Round-the-clock uninterrupted internet, electricity and water supply are provided.
- CCTV cameras and security guards keep a close watch and monitor the activities in the campus round-the-clock.

SALIENT FEATURES:

- India's first **'Mission 10X Technology Learning Center'** was established here, and 'Centre of Embedded Systems' for students is run by WIPRO at GLA.
- 'Campus Connect' program of Infosys is successfully run at the University.
- The University has been bestowed with the 'Centre of Excellence' partnership status by IBM.
- Industry 4.0 programs
- India's 14th Institution that has New Generation Innovation & Entrepreneur Development Cell.
- Students are encouraged for start-ups. In 2018-19 students started their own 9 companies in the incubation centre of University.
- Courses like: Cloud Computing, Data Analytics, Cyber Security, Artificial Intelligence and Machine Learning in collaboration with IBM.
- Collaboration with DCS for Engineering Courses on Smart Manufacturing and Industrial IoT.

PLACEMENT HIGHLIGHTS:

- 1700+ Placement offers in 150+ MNCs and still counting, Batch 2020.
- 32 Lakh PA is the highest placement package offered
- MNCs like Amazon, Microsoft, TCS, Capgemini, Wipro, Accenture, Infosys and many more visit GLA for Campus placements.
- 74% Placement average over the past decade.
- 5000+ Alumni working abroad.

Gondwana University, Gadchiroli

MIDC Road, Complex, Gadchiroli-442605 Maharashtra, India
Phone/Fax-07132-223104
E-Mail : gug.registrar@gmail.com

Establishment: Gondwana University, Gadchiroli is established on 27th September, 2011 by the Government of Maharashtra with a foresighted view to cater the aspirations of the economically so also educationally underprivileged districts of Gadchiroli and Chandrapur. The university was constituted by issuing notification under sub-section (2) of section 3 of the *Maharashtra Universities Act, 1994.*

Vision : The University will fulfill its mission by addressing the needs of qualified students for differing interest, plans, expectations, and ages. Our mission is to empower the youth of rural and semi-urban area with the best of traditional education and the all-important professional and career oriented skills which are vital in the contemporary global scenario. In short it is to provide a value based quality education at an affordable cost.

Mission : The University will fulfill its mission by addressing the needs of qualified students for differing interest, plans, expectations, and ages. Our mission is to empower the youth of rural and semi-urban area with the best of traditional education and the all-important professional and career oriented skills which are vital in the contemporary global scenario. In short it is to provide a value based quality education at an affordable cost.

Unique features: the university jurisdiction comprises with Gadchiroli and Chandrapur districts endows with rich forests, medicinal plants, traditional tribal art and cultural ecosystem. **Gondwana**, named after the Gondi tribal masses Thus, offers unique opportunities for research, explorations and development in unexplored areas.

Coverage: There are a total of 210 colleges affiliated to the University. The University initially began with 5 grant-in-aid teaching departments. In the course of transformation, Government of Maharashtra has approved 7 new grant-in-aid teaching departments in the year 2019.

Development Plan: The University Development Plan sets out with guiding principles to provide teaching, research and extension (TRE) with interdisciplinary approach having thrust on regionally and nationally relevant issues.

New proposed land: in order to create a cutting-edge physical infrastructure the university is under process to acquire 52 acre land for the proposed University set up. The University has already initiated new state of art exam building which will enable to create more precision and competence in the university exams.

Major activities: It is a matter of great pride for the Gondwana University for successfully organizing two major state level events: Research (***Avishkar***) and Cultural (***Indradhanushya***) initiated by the office of the Hon'ble Chancellor of the Universities in the state of Maharashtra. The University has also organised recently (***All India Inter-University Korfball Tournament***) during 5-10 February, 2020. Considering future development of the University the UGC expert committee for 12 B status has positively recommended 12 B status to UGC with some Compliances.

(Dr. Ishwar S. Mohurley)
Registrar
Gondwana University Gadchiroli (M.S)

JADAVPUR UNIVERSITY

Kolkata, India

http://www.jaduniv.edu.in

- **The National Assessment and Accreditation Council (NAAC) reaccredited Jadavpur University for the third cycle with grade A and CGPA 3.68 on a scale of 4.**
- **Jadavpur University is the first Indian university recognized by the Nippon Foundation, Japan, as a SYLFF (Sasakawa Young Leader Fellowship Fund) Institute to promote research by young leaders in the social sciences and humanities.**
- **Jadavpur University has completed UGC-UPE (Phase-II) and DST- PURSE (Phase-II)**
- **Jadavpur University has received grants under TEQIP Phase-III, funded by the Central Sector Scheme (CSS) of the MHRD, Government of India.**
- **Jadavpur University placed in the 801-1000 band in the Times World Universities Rankings 2020.**
- **Jadavpur University ranked in the band 601-800 among Engineering & Technology institutions in the Times World Universities Rankings 2020.**
- **Jadavpur University ranked 144th in the Times (Asia) 2019 rankings.**
- **The NIRF 2019 rankings of Jadavpur University among all Indian Universities and Institutions, initiated by MHRD, Government of India, are as follows:**
  - **Overall: 13th**
  - **Universities: 06th**
  - **Engineering: 14th**
- **Jadavpur University is among 10 State universities granted funding of Rs. 100 Crores under RUSA 2.0.**
- **Jadavpur University has been shortlisted by the Empowered Expert Committee of the UGC for award of the status of Institution of Eminence by MHRD, Government of India.**
- **Jadavpur University is the highest ranked State University in the country according to the QS World University Rankings Asia 2020, with an Asian rank of 136.**

Jawaharlal Nehru Technological University Anantapur
Ananthapuramu- 515 002, Andhra Pradesh, India.

JNTUA University

JNTUA CEA

JNTUA CEP

JNTUA CEK

JNTUA OTPRI

SALIENT FEATURES

- Established in 2008 by Government of Andhra Pradesh through Act. No. 30
- Recognized under 2(f) & 12(B) status of the UGC
- Jurisdiction includes Five Districts of Andhra Pradesh, viz., Ananthapuramu, YSR Kadapa, Kurnool, Chittoor, & SPSR Nellore
- Having 5 Constituent Colleges & Units
  - JNTUA College of Engineering Ananthapuramu (1946)
  - JNTUA Oil Technological and Pharmaceutical Research Institute, Ananthapuramu (1949)
  - JNTUA College of Engineering Pulivendula, (2006)
  - JNTUA College of Engineering Kalikiri (2013)
  - JNTUA School of Management Studies (2019)
- Having 159 Affiliated Colleges including 76 Engineering Colleges, 33 Pharmacy Colleges, 04 Integrated Colleges, 28 Standalone and 18 Autonomous Colleges
- Total number of Ph. D programmes 14
- Total number of PG programmes, viz., M.Tech, M.Pharmacy, Pharma.D (PB), MBA, MCA, and M. Sc: 69
- Total number of UG programmes 15
- Supernumerary quota of 15% under PIO/NRI/ FN students in all UG & PG courses offering at JNTUA Constituent Colleges & Units
- Offering UG programmes in collaboration with Blekinge Institute of Technology, Sweden
- Offering few PG programmes in collaboration with Industries

KARNATAKA STATE RURAL DEVELOPMENT AND PANCHAYAT RAJ UNIVERSITY, GADAG

Raitha Bhavan, General Cariappa Circle, Gadag-582101, Karnataka
Ph: 08372 230338 / 297343, Website: www.ksrdpru.in, E-mail: ksrdpru@gmail.com
(Recognized by UGC under Section of 2(f) of UGC Act, 1956)

Centre of Excellence for Learning, Training, Skill and Entrepreneurship

Karnataka State Rural Development and Panchayat Raj University, Gadag has been established by the Government of Karnataka at Gadag, a northern part of Karnataka. It is an unitary University, a first of its kind in the country for teaching, training and research on sustainable development through the mechanism of Panchayat Raj Institutions. The **Vision** is to act as a centre of excellence to transform rural society by the creation of dedicated and committed human resource to participate in the rural development process to ensure sustainable rural development for improving the quality of life of rural population.

The **objectives** of the university include pursuit of excellence in teaching, learning and research. It is to evolve, promote and impart higher education for development of techno-managerial cadre to tackle emerging challenges for transformation of rural society through inclusive growth and integrated rural development and to function as Centre of excellence for extensive skilling and entrepreneurship.

The University has at present **Two Centres of Learning**:

1. Centre of Research, Innovation and Evaluation, and,
2. Centre for Training, Publications and Supervision

Five Schools of Study and Research:

1. School of Agri-business Management & Management of Rural Development,
2. School of Rural Development and Panchayat Raj,
3. School of Environmental Science & Public Health and Sanitation Management,
4. School of Social Sciences and Rural Reconstruction and,
5. School of Skill and Entrepreneurship Development.

The University is offering following Postgraduate Programs at present:

M.A. • Rural Development and Panchayat Raj • Public Administration • Economics (Development Economics)	**M.Sc.** • Geoinformatics • Food Science and Technology • Computer Science (Data Analytics)	**M.S.W.** • Community Development (Rural Reconstruction) • Community Health
M.B.A. • Rural Management / Agri-business Management	**M.Com.** • Entrepreneurship / Co-operative Management	**MPH** • Master of Public Health

In coming Academic Years, the University will offer Certificate, P.G. Diploma Courses, in addition to UG and PG degree programs, relevant to Rural Development and Panchayat Raj.

Facilities with Special Features

- Separate hostels for boys and girls
- Well equipped library with e-resources
- Computer lab with internet / wi-fi facilities
- Communication Skills Development Training
- Rural Immersion, Internship Programmes and Project Works.
- Periodical Organization of Seminars, Workshops and Conferences.
- Special lectures by Eminent Faculty and Professionals
- Only prescribed fees and no other extra fees charged
- Transportation facilities from hostels to University
- Fee reimbursement and scholarships for eligible students

The University has set up state of the art infrastructure. It has several senior faculty drawn from academia and industry, in addition to energetic and enthusiastic young faculty. The New Campus is being built in 353 acres of land with all the entire required infrastructure.

MADHAV UNIVERSITY

Established by the Rajasthan state Govt. Legislature Act No. 7 of 2014 and Approved by the UGC, AICTE, AIU, AYUSH, PCI, BCI, NCTE,NCVT, IAP)

Madhav University aims to advance and disseminate knowledge and maintain the highest standards of education through teaching, research, extension education programmes and conceptual aspects relevant to the need of the tribal masses. University has started job oriented courses in almost all the fields of Sciences, Humanities, Social Work & Social Sciences, Engineering & Technology, Computer Science, ITI, Agriculture, Horticulture, Forestry, Commerce, Management, Hotel Management, Fire & Safety, Law, Paramedical Sciences, Ayurveda & Naturopathy Yogic Science, Homoeopathy, Pharmacy, Education, Physical Education and Library Science etc.

Madhav University is offering outstanding education to the students of India and abroad by providing a learning experience designed to develop intellectual abilities, as well as social, moral and ethical values.

UNIVERSITY COURSES

HOMOEOPATHIC

Homoe-opathic	B.H.M.S. (Bachelor of Homoeopathic Medicine and Surgery)
	Diploma in pharmacy
	Diploma in Nursing & Compounder (Homoeo.)
Medical	M.Sc. Medical Anatomy
	M.Sc. Medical Physiology
	M.Sc. Medical Microbiology / Clinical Micro-Biology
	M.Sc. Medical Biochemistry / Clinical Bio-Chemistry

ALLIED HEALTH SCIENCES

PARAMEDICAL	Diploma
	B.Sc.
	M.Sc.
PHYSIOTHERAPY	BPT
	MPT

AYURVED, YOGA & NATUROPATHY

Ayurved	Diploma in Pharmacy
	Bachelor of Pharmacy
	Bachelor of Pharmacy (Ayurved) L.E.
	Master of Pharmacy
	Bachelor (Ayurved Nursing)
	Bachelor (Ayurved Nursing)
	Diploma in Panchkarma
	Certificate Course in Panchkarma Technical
	Diploma in Naturopathy
	Diploma in Herbal Farming
Yoga & Naturopathy	Bachelor of Naturopathy & Yoga Sciences
	B.A.(Yoga)
	B.Sc. (Yoga)
	M.A. (Yoga)
	Diploma In Yoga & Naturopathy
	Certificate Course in Yoga & Naturopathy
	Post Graduation Diploma in Yoga & Naturopathy
	Certificate Course in Magnet Therapy

COMMERCE

B.Com
B.Com (Hons.)
M.Com

MANAGEMENT

Diploma in Hospital Administration BBA
BBA (Hons.)
MBA
MBA Executive (Part Time)

HOTEL MANAGEMENT

B.Sc.
BHMCT
MHMCT
Diploma in Hotel Management

FIRE & SAFETY

Certificate / Diploma / B.Sc.

LIBRARY SCIENCE

D. Lib B. Lib
M. Lib

ENGINEERING

Diploma / B.Tech/ M.Tech (Civil, Mechanical, CSE, ECE, EEE, Electrical)

CS & IT

DCA	PGDCA
BCA	MCA
B.Sc. IT.	M.Sc. IT

I.T.I

Mechan Diesel
ic Fitter
Electrician
Wireman

SCIENCE

B.Sc. M.Sc.

AGRI. SCIENCE

Diploma B.Sc. (Hons.)

ARTS

B.A
B.A.Eco. (Hon.)
M.A MSW

LAW

BA. LL.B.
LL.B.
LL.M.

PHARMACY

D.Pharm
B.Pharm
B.Pharm (L.E)
M. Pharm

EDUCATION

B.Ed.
BA B.Ed.
B.Sc.B.Ed.
B.El.Ed.

PHYSICAL EDUCATION

D.P.Ed.
B.P.Ed.
M.P.Ed.

REQUIREMENT

Professors •Associate Professors
Assistant Professors to teach above Courses (Ph.D/NET Qualified Candidates should apply,
Experience candidates will be preferred.)

Ph.D. All Subjects

"Madhav Hills" NH-27,
P.O.- Bharja (Abu Road)
Pindwara (Sirohi) -307026 (Raj.)

8875028991
- 92,93,94,

Email : info@madhavuniversity.edu.in
Website: www.madhavuniversity.edu.in

महात्मा गांधी अंतरराष्ट्रीय हिंदी विश्वविद्यालय, वर्धा

नैक (NAAC) द्वारा 'A' ग्रेड प्राप्त

विश्वविद्यालय की स्थापना भारत की संसद द्वारा पारित अधिनियम 1997 क्रमांक 3 के अंतर्गत एक केंद्रीय विश्वविद्यालय के रूप में की गयी। देश का यह पहला अंतरराष्ट्रीय विश्वविद्यालय राष्ट्रपिता महात्मा गांधी की कर्मभूमि वर्धा में 212 एकड़ क्षेत्रफल में फैला हुआ है।

विश्वविद्यालय के विद्यापीठ (Schools)

*भाषा *साहित्य *संस्कृति *अनुवाद एवं निर्वचन *मानविकी एवं सामाजिक विज्ञान *प्रबंधन *शिक्षा *विधि

विश्वविद्यालय के पाठ्यक्रम

भाषा विद्यापीठ : भाषा प्रौद्योगिकी एवं सूचना तथा भाषा अभियांत्रिकी में एम.ए., एम.फिल., पी-एच.डी. **विदेशी भाषा** : चीनी, जापानी, स्पेनिश, फ्रेंच में सर्टिफिकेट डिप्लोमा एवं स्नातक.

साहित्य विद्यापीठ : हिंदी साहित्य, तुलनात्मक साहित्य तथा प्रदर्शनकारी कला (फिल्म एवं थिएटर) में एम.ए., एम.फिल., पी-एच.डी. * संस्कृत, मराठी, उर्दू, अंग्रेज़ी में एम.ए.

संस्कृति विद्यापीठ : गांधी एवं शांति अध्ययन, स्त्री अध्ययन, दलित एवं जनजातीय अध्ययन, बौद्ध अध्ययन में एम.ए., एम. फिल., पी-एच.डी.

अनुवाद एवं निर्वचन विद्यापीठ : अनुवाद अध्ययन, प्रवासन एवं डायस्पोरा अध्ययन में एम.ए., एम.फिल., पी-एच.डी.

मानविकी एवं सामाजिक विज्ञान विद्यापीठ : जनसंचार, मानवविज्ञान में एम.ए., एम.फिल., पी-एच.डी. * समाजकार्य में बी.एस.डब्ल्यू., एम.एस.डब्ल्यू., एम.फिल., पी-एच.डी., *राजनीति विज्ञान, समाजशास्त्र, इतिहास में एम.ए.

प्रबंधन विद्यापीठ : एम.बी.ए.

शिक्षा विद्यापीठ : शिक्षा शास्त्र में बी.एड., एम.एड., एम.फिल., पीएच.डी. *मनोविज्ञान में एम.ए.

क्षेत्रीय केंद्र प्रयागराज (इलाहाबाद) : हिंदी, राजनीति विज्ञान, स्त्री अध्ययन में एम.ए. बी.एस.डब्ल्यू, एम.एस.डब्ल्यू, अनुवाद में पी.जी.डिप्लोमा.

क्षेत्रीय केंद्र कोलकाता : हिंदी साहित्य और जनसंचार में एम.ए.

पोस्ट - हिंदी विश्वविद्यालय, गांधी हिल्स वर्धा - 442001 (महाराष्ट्र) फोन. 07152-230902
ई-मेल : registrar.mgahv@gmail.com वेबसाइट : www.hindivishwa.org

ಮಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

MANGALORE UNIVERSITY

(Accredited by NAAC with 'A' Grade)

"University with a Difference"

"Envisioned, empowered and committed to the principles of 'expansion, inclusion and excellence view to making every student employable, socially responsible and ethically sound citizen of our nation through Choice Based Credit System (CBCS)"

Post Graduate Courses available at Mangalore University Campus under CBCS the academic.

Economics	Biotechnology	Food SCIENCE & Nutrition	Geography
English	Environmental Science	Geo-informatics	MBA
History	Chemistry	Materials Science	MCA
Kannada	Biochemistry	Marine Geology	MSW
Political Science	Applied Chemistry	Microbiology	MBA(T.T.M)
Sociology	Organic Chemistry	Statistics	M.Com
Journalism & Mass Communication	Industrial Chemistry	Yogic Science	M.com(HRD)
Botany	Computer Science	Master of Library & Information Science(MLISc)	M.P.Ed
Zoology	Electronics	Medical Physics	M.Ed.
Biosciences	Physics		

Diploma/Certificate Programmes: PG. Diploma in yogic science and Certificate Course in Yogic Science, PG Diploma in Cyber Security.
Correspondence Courses : B.A.,B.Com,B.B.A.,M.A.(Economics,English,History,Kannada,Political Science, Sociology),M.Com.

Courses available at:
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Chikka Aluvara,Kushalanagar,Kodagu
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Email: pgcchikkaluvara@gmail.com
M.A.in Kannada, Journalism& Mass Communication,
History, Political Science, MSW, M.Com,

M.Sc. in Microbiology, Biochemistry, Computer Science, Environmental Science, Botany, Chemistry.

CONSTITUENT COLLEGES

F.M.K.M.C.College,Madikeri
Ph NO: 08272-228334
Email: principal.fmkmc@gmail.com
B.S., B.Sc., B.Com.,BSW,BCA, B.Com Voc (Comp.Application), M.Sc.in Physics, M.A.in Economics, MA English, MBA (TTM), M.Com.

University College, Mangalore
Ph. NO: 0824-2424760,
Email:ucmangalore1@gmail.com
B.A., B.Sc., B.Com. BBA, B.A. (HRD) M.Sc.in Chemistry, M.A.in Hindi, Sanskrit, Economics, M.Com.P.G. Diploma in Yogic Science, Certificate Course in Yogic Science.

University Evening College
Mangalore
Ph. NO: 0824-2424608
Email:uecm2015@gmail.com
B.A., B.Com. BCA, BBA, M.A.in Konkani, M.Com.M.B.A (I.B) Diploma in French Language. Diploma in German Language

University Fr.Gr.College
Mangalagangothri
Ph. No: 0824-2287326
Email: ufgcmg@gmail.com
B.A., B.Com.,BBA

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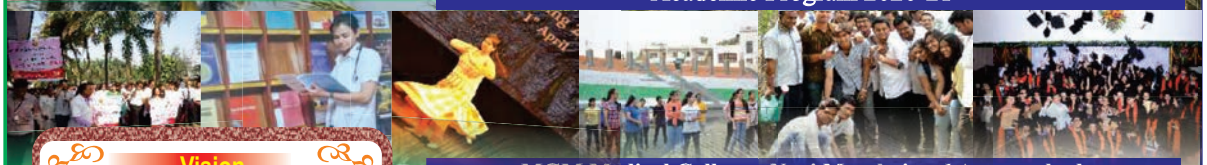
Tel: 91-824-2287276, 2287347, Fax: 91-824-2287424, 2287367
Directorate of Correspondence Courses. Tel: 91-824-2287824

MGM INSTITUTE OF HEALTH SCIENCES

(Deemed University u/s 3 of UGC Act, 1956)
Grade 'A' Accredited by NAAC
Sector-1, Kamothe, Navi Mumbai - 410209
Tel. No. 022-27432471, 022-27432994, Fax No. 022 - 27431094
E-mail : registrar@mgmuhs.com ; Website : www.mgmuhs.com

Academic Program 2020-21



Vision

MGM Institute of Health Sciences aims to be a top-ranking Centre of Excellence in Medical MGM *Institute of Health Sciences aims to be a top -ranking center of Excellence in Health Science Education , Health Care , and Health Research.*

Mission

Students *graduating from the Institute will have the required skills to deliver quality health care to all the sections of the society with compassion and benevolence, without prejudice or discrimination at an affordable cost.*

As a Research Center , it shall focus on finding better, safer and affordable ways of diagnosing , treating and preventing diseases. In doing so, it will maintain the highest ethical standards.

"To wipe every tear from every eye"
Mahatma Gandhi

MGM Medical College - Navi Mumbai and Aurangabad

UG Program : MBBS

PG Program: Anatomy , Physiology , Biochemistry , Microbiology , Pharmacology , Pathology ,

MD : Community Medicine, General Medicine, Respiratory Medicine, #Emergency Medicine, Dermatology, Paediatrics, Anaesthesiology, Radiology, Psychiatry, # Immuno Haematology , #Geriatrics, # Family Medicine.

MS : General Surgery , Orthopedics, Ophthalmology, Obst . & Gynaec., ENT , #Traumatology & Surgery

Superspeciality Program:

DM : Cardiology, *Nephrology,
Mch: Cardio Vascular Thoracic Surgery, Urology, * Plastic Surgery

M.Sc.(Medical): Medical (Anatomy, Physiology, Biochemistry,Microbiology, Pharmacology,Health Profession Education)

Department of Physiotherapy - Navi Mumbai and Aurangabad

UG Program : BPT,
PG Programs: MPT in 5 disciplines:

- #Cardio Vascular & Respiratory Physiotherapy
- Musculoskeletal Physiotherapy
- *Community Physiotherapy
- Sports Physiotherapy
- Neuro Physiotherapy

Department of Nursing (Navi Mumbai)

UG Programs :
- BSc Nursing
- Post Basic BSc Nursing

PG Programs:
- MSc (Medical Surgical Nursing)
- M.Sc (NPCC Nursing)
- ## M.Sc Psychiatric Nursing
- ## M.Sc Peadiatric Nursing
- ## M.Sc Community Health Nursing
- ## M.Sc OBGY Nursing

Department of Biomedical Sciences- Navi Mumbai & Aurangabad

UG Programs:

- B.Sc Operation Theatre & AnesthesiaTechnology
- B.Sc Cardiac Care Technology
- B.Sc Perfusion Technology
- B.Sc Medical Dialysis Technology
- B.Sc Medical Laboratory Technology
- B.Sc Medical Radiology & Imaging Technology
- B.Optometry

PG Programs:

- M.Sc Medical Biotechnology
- M.Sc Medical Genetics
- *M.Sc Clinical Research
- #M.Sc Clinical Embryology
- #M.Sc Clinical Nutrition
- #M.Sc Molecular Biology
- #Masters in Public Health
- #M.Sc Biostatistics
- M.Sc Medical Radiology& Imaging Technology
- M.Sc Cardiac Care Technology
- #M .Optometry
- Master in Hospital Administration

Department of Prosthetic & Orthotics, Navi Mumbai

UG Program:
- Bachelor in Prosthetic & Orthotics (BPO)

For Ph.D. & Fellowship Programs details, please visit www.mgmuhs.com

Important Note:
Only in Navi Mumbai
Awaited INC approval
* Only in Aurangabad

For further details of admission kindly refer our website : www.mgmuhs.com

NATIONAL INSTITUTE OF FOOD TECHNOLOGY ENTREPRENEURSHIP AND MANAGEMENT

Deemed to be University (De-novo Category) under Section 3 of the UGC Act, 1956

Ministry of Food Processing Industries, Govt. of India

NATIONAL INSTITUTE OF FOOD TECHNOLOGY ENTREPRENEURSHIP AND MANAGEMENT (NIFTEM) is a Deemed to be University (De-Novo category) under Section 3 of the UGC Act, 1956 and an autonomous Institution under the Ministry of Food Processing Industries, Government of India. It is a world-class institute of global standards in Food Technology Entrepreneurship and Management. The Institute caters to the needs of various stakeholder entrepreneurs, industry, exporters, policy makers, the government and the existing institution.

NIFTEM offers a full time programme leading to **Bachelor`s degree in Food Technology and Management, M.Tech Programme** in five disciplines; **Food Supply Chain Management**, **Food Safety and Quality Management**, **Food Process Engineering and Management, Food Technology and Management** and **Food Plant Operations Management.** NIFTEM also offers **Ph.D programme** and **MBA programme**. At NIFTEM the post-graduate students are encouraged to take up both cutting edge basic research as well as industry relevant projects.

Scholarships/Fellowships.: NIFTEM Merit Scholarship and NIFTEM Merit-Cum-Means Scholarship, AICTE, GATE scholarship, Limited NIFTEM Ph. D. Fellowship.

CAREER OPPORTUNITIES FOR NIFTEM STUDENTS IN FOOD SECTOR

Job prospects for graduates and post-graduates of NIFTEM are extremely bright and would be comparable to the best in other economic sectors of the country. Some career opportunities could be: Food Process Engineer, Food Ingredient Manager, Food Regulatory Specialist, Food Fermentation Specialist, Retail or Supply Chain Manager, Entrepreneurship, Product Development Scientist, Sensory Scientist, etc

STUDENT'S FOREIGN EXCHANGE PROGRAMME

Right from their first year itself, every year ten meritorious students of B. Tech and five of M. Tech programmes of NIFTEM are sent to foreign universities on student exchange programme of Academic learning with 100% support.

100 % placement of M.Tech. & B.Tech. students with MNCs and other Renowned Food Processing Industries.

Plot No. 97, Sector- 56, HSIIDC Industrial Estate, Kundli - 131028, Distt. - Sonepat, (Haryana)
Phone No. 130-2281020, 2281072, 2281085 & Fax No. 0130-2219772

Shri Mata Vaishno Devi University

(STATE UNIVERSITY RECOGNISED U/S 2(f) & 12(B) of UGC ACT of 1956)
Kakryal, Katra (J&K) 182320
Website: www.smvdu.ac.in Email: admission@smvdu.ac.in
Phone: 1800-180-7133 (Toll Free); 01991-285694 Extn. 2212; 2210

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NBA ACCREDITATED

PROGRAMS OFFERED

Bachelor of Technology (B.Tech.)

B.Tech. in Computer Sc. & Engineering
B.Tech. in Electronics & Comm. Engineering
B.Tech. in Mechanical Engineering
B.Tech. in Civil Engineering
B.Tech. in Electrical Engineering

Bachelor of Architecture

Master of Business Administration

Master of Science (M.Sc.)

Master of Science in Biotechnology
Master of Science in Botany
Master of Science in Mathematics
Master of Science in Physics
Master of Science in Chemistry

Master of Technology (M.Tech.)

M.Tech. in Computer Science & Engineering
M.Tech. in Electronics & Comm. Engineering
M.Tech. in Mechanical Engineering
M.Tech. in Energy Systems

Master of Arts (M.A.)

Master of Arts in English
Master of Arts in Sanskrit
Master of Arts in Philosophy
Master of Arts in Journalism & Mass Communication

Ph.D. in various streams

Integrated Program with Exit Option after B.Sc. (Hons.)/B.A. (Hons.)/B.B.A. (Hons.)

B.Sc. (Honours) Botany - M.Sc.(Botany)
B.Sc. (Honours) Mathematics - M.Sc.(Mathematics)
B.Sc. (Honours) Chemistry - M.Sc.(Chemistry)
B.Sc. (Honours) Physics - M.Sc.(Physics)
B.A. (Honours) English - M.A.(English)
B.A. (Honours) Philosophy - M.A.(Philosophy)
B.Sc. (Honours) Economics - M.Sc.(Economics)
B.A. (Honours) Economics - M.A.(Economics)
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Approved under Section 2(f) of the UGC Act, 1956

Shri Vaishnav Vidyapeeth Vishwavidyalaya

City Office: Shri Vaishnav Vidya Parisar, 177 Jawahar Marg, South Rajmohalla, **INDORE**-2 **Campus:** Ujjain Road, **INDORE**-453111.
Mob.: 9522237602, 9522237603, 9522237604, 9522237605, 9522237606, 9522237607 **Toll Free : 1800 233 9111**

For details, visit: www.svvv.edu.in admission@svvv.edu.in

Online Registration Open from:
14th January 2020
Register@ www.svvv.edu.in

SCAN & APPLY

↗ MoU with Hanyang University, South Korea & St. Cloud State University, USA for Student/Faculty Exchange and Joint Research. ↗ MoU with TCS for Technical Collaboration ↗ MoU with NRDC (Ministry of Science & Technology) for transfer of technology to industry.↗ MoU with NCSSS (National Cyber Safety and Security Standards) for Technical Collaboration. ↗ MoU with IBM for Technical Collaboration. ↗ MoU with redhat for Technical Collaboration ↗ Apple Authorized Training Centre Agreement for Education.↗ Agreement with CISCO Network Academy. Scholarship for the Meritorious Students.

SHRI VAISHNAV INSTITUTE OF TECHNOLOGY AND SCIENCE

B. Tech. (4 years)
Agricultural Engineering/ Civil Engineering/ Electronics and Communication Engineering/ Robotics and Automation/Electronics and Communication Engineering (IoT)/ Avionics/ Mechanical Engineering/ Automobile Engineering/ Automotive Electronics/ Electronics and Instrumentation Engineering/ Railway Engineering/ Electrical Engineering/ Electrical & Electronics Engineering/ Mechatronics/ Instrumentation & Control.

M. Tech. (2 years)
Digital Communication/ Digital Instrumentation/ Embedded System/ Civil (Transportation Engineering)/ Civil (Structural Engineering)/ Civil (Water Resources Engineering)/Civil (Geotechnical Engineering)/Power Electronics/ Power System/ Renewable Energy/ Mechanical (Thermal and Design Engineering)/Industrial Engineering/Virtual Instrumentation

M. Tech. + Ph.D (2+3 years)*
Digital Communication/ Digital Instrumentation/ Embedded System/ Civil (Transportation Engineering)/ Civil (Structural Engineering)/ Civil (Water Resources Engineering)/Civil (Geotechnical Engineering)/Power Electronics/ Power System/ Renewable Energy/ Mechanical (Thermal and Design Engineering)/Industrial Engineering/Virtual Instrumentation

Dual Degree Programs

B. Tech. + M. Tech. (4+2 years)
Electronics and Communication Engineering (IoT)/ Civil (Structural Engineering)/ Mechatronics/ Electronics Communication (Embedded System and VLSI Design)

B. Tech. + MBA (4+2 years)
(All Branches)

Diploma Programs (3 years)
Mechanical Engineering/ Electronics and Instrumentation Engineering/ Electrical Engineering

SHRI VAISHNAV INSTITUTE OF INFORMATION TECHNOLOGY

B. Tech. (4 years)
Computer Science Engineering/Information Technology/ Computer & Communication Engineering/CSE (Big Data Analytics-IBM)/ CSE (Cloud and Mobile Computing-IBM)/ CSE (Artificial Intelligence-IBM)/ CSE (Enterprise System-redhat)/ CSE (Information and Cyber Security-NCSSS)/ CSE (Mobile Applications)-Apple AATCE/ Computer Science & Business Systems-TCS

M. Tech. (2 years)
Computer Science Engineering/ Computer Science Engineering (Big Data Analytics)/ Computer Communication Engineering/ Information Security

M. Tech. + Ph.D (2+3 years)*

Dual Degree Programs

B. Tech. + M. Tech. (4+2 years)
Computer Science Engineering/ Computer Science Engineering (Cloud Computing)/Computer Science Engineering (Cyber Forensic)/ Computer Science Engineering (Big Data Analytics)/ Information Communication Technology/ Information Technology

B. Tech. + MBA (4+2 years)
Computer Science Engineering/ Information Technology

Diploma Programs
One-Year Post Graduate Diploma in Computer Applications (PGDCA)
Six-Months Diploma in Computer Hardware and Networking (DCHN)

SHRI VAISHNAV INSTITUTE OF TEXTILE TECHNOLOGY

B. Tech. (4 years)
Textile Engineering/ Garment & Fashion Technology

M. Tech. (2 years)
Textile Engineering

M. Tech. + Ph.D (2+3 years)*

Dual Degree Program

B. Tech. + MBA (4+2 years)
Textile Engineering

B.Sc. (3 years) Fashion Design

SHRI VAISHNAV INSTITUTE OF FORENSIC SCIENCE

B.Sc. (3 years)
Forensic Science/ Forensic Psychology

M.Sc. (2 years)
Forensic Science/ Forensic Psychology

Dual Degree Program

B.Sc. + M.Sc. (3+2 years)
Forensic Science/ Forensic Psychology

SHRI VAISHNAV INSTITUTE OF ARCHITECTURE

B.Arch. (5 years)

B.Des. (4 years) Interior Design/ Product Design

B.Plan. (4 years)

M.Plan. (2 years) Urban Planning

Dual Degree Program

B.Des. + M.Des. (4+2 years)
Interior Design/ Product Design/ Graphics & Animation

SHRI VAISHNAV SCHOOL OF MANAGEMENT

MBA (2 years)
Engineering Management/ Family Business & Entrepreneurship/ International Business/ Media Management/Agri-business/ Business Analytics/Advertising and Public Relations/Executive MBA/Tourism

Dual Degree Program

BBA + MBA (3+2 years)
MBA + Ph.D. (2+3 years)*
} Marketing/ HR/Finance/ Operations

SHRI VAISHNAV INSTITUTE OF JOURNALISM AND MASS COMMUNICATION

M.A. (2 years)
Journalism and Mass Communication/Hindi Journalism

Dual Degree Programs

B.A. + M.A. (3+2 years)
Journalism and Mass Communication/Hindi Journalism

SHRI VAISHNAV INSTITUTE OF FINE ARTS

BFA (4 years)
Painting/ Animation

MFA (2 years)
Painting/ Animation

Dual Degree Programs

BFA + MFA (4+2 years)
Painting/ Animation

SHRI VAISHNAV SCHOOL OF LAW

One-Year LL.M.
Business Law/ Criminal Law/ Human Rights

SHRI VAISHNAV INSTITUTE OF AGRICULTURE

B.Sc. (Hons.) (4 years)
Agriculture

SHRI VAISHNAV INSTITUTE OF SCIENCE

B.Sc. (3 years)
Physics/ Chemistry/ Maths/ Life Science/ Computer Science/ Biotechnology/ Electronics/ Instrumentation/ Statistics/ Economics

B.Sc. (Hons.) (3 years)
Physics/ Chemistry/ Maths

M.Sc. (2 years)
Physics/ Chemistry/ Maths/ Environmental Science/ Analytical Chemistry

M.Sc. + Ph.D (2+3 years)*

Dual Degree Program

B.Sc. + M.Sc. (3+2 years)
Physics/ Chemistry/ Maths/ Statistics

SHRI VAISHNAV INSTITUTE OF LAW

LL.B. (Hons.) (3 years)

LL.M. (2 years)
Integrated Programs (5 years)

B.A.LL.B. (Hons.)
B.B.A.LL.B.
B.Com. LL.B (Hons.)#

SHRI VAISHNAV INSTITUTE OF SOCIAL SCIENCES, HUMANITIES AND ARTS

B.A. (3 years)

B.A. (Hons.) (3 years)
Psychology/ Economics/ English Literature/Sociology/ Political Science/ Public Administration/Anthropology

M.A./M.Sc. + Ph.D (2+3 years)*

M.A./M.Sc. (2 years)
Psychology/ Applied Psychology/ Clinical Psychology/Counselling Psychology/ English Literature/ Sociology/ Economics/ Education/ Food & Nutrition/ Anthropology

Dual Degree Programs

B.Lib & I.Sc. + (1 year)
M.Lib & I.Sc. (1 year)
One- Year Advanced Diploma in French

SHRI VAISHNAV INSTITUTE OF COMPUTER APPLICATIONS

M.Sc. (2 years) Computer Science

MCA (3 years) Banking Technology

MCA (3 years)

Dual Degree Programs

BCA + MCA (3+3 years)

BCA + MCA (3+3 years)
Banking Technology

SHRI VAISHNAV INSTITUTE OF COMMERCE

B.Com (Hons.) (3 years)
Banking and Finance/ Entrepreneurship

B.Com (3 years)
Banking & Finance/ Entrepreneurship/ Tax Procedure/Computer Applications/ Plain

Dual Degree Programs

B.Com/B.Com (Hons.) + M.Com (3+2 years)

B.Com/B.Com (Hons.) + MBA (3+2 years)

SHRI VAISHNAV INSTITUTE OF HOME SCIENCE

Dual Degree Program

B.Sc. + M.Sc. (3+2 years)
Food and Nutrition

SHRI VAISHNAV COLLEGE OF TEACHERS TRAINING

B.Ed. (2 years)
Diploma

D.El.Ed. (2 years)*

FACULTY OF DOCTORAL STUDIES & RESEARCH (3 years)

Management/ Physics, Chemistry/ Maths/ Life Science/ Psychology /Library Science/ Computer Applications/Computer Science/ Computer Engineering/Environmental Science/ Electronics Engineering/ Electrical Engineering/ Mechanical Engineering/Textile Technology/ Civil Engineering/IT/ Forensic Science/ English/ Journalism and Mass Communication/ Biotechnology/ Education/ Fine Arts/ Sociology/ Agriculture/Economics/Political Science

Note: (1) SVET- 2020 for Ph.D in all streams will be held on April 26, 2020. **(2)** Lateral Entry seats are available in B.Tech & MCA Programs. **(3)** SVET (Shri Vaishnav Entrance Test) will be held online on May 03, 24 & 31, June 07, 08, 28 July 05 & 26, August 02 at 27 centers across the country. The seats in various programs will be filled on the basis of prescribed tests/ SVET-2020.

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*Subject to clearance of Entrance Test after completion of PG Program. • # Subject to approval of concerned Regulatory Authority

Sree Sankaracharya University of Sanskrit

Sree Sankaracharya University of Sanskrit, Kalady, Ernakulam Dist, Kerala - 683 574
Ph : 0484 2463380, 0484 2699731, E-mail:reg@ssus.ac.in, www.ssus.ac.in

The Sree Sankaracharya University of Sanskrit, Kalady, is a premier institution of higher learning and research in South India devoted to the propagation of Classical Sanskrit Language and Literature, Vedic, Vedantic and Vedangic studies, Modern Indian languages, Performing and Fine Arts, and Social Sciences. The University, named after Sree Sankara, the great exponent of Advaita Vedanta and an illustrious sage and philosopher of India, is situated at his birthplace, Kalady, on the banks of river Periyar (Poorna) in Kerala.

Courses Offered

UG Courses : Sanskrit Sahitya, Sanskrit & IT, Sanskrit General, Sanskrit Nyaya, Sanskrit Vedanta, Sanskrit Vyakarana, Music, Dance -(Bharathanatyam, Mohiniyattam) B.F.A.-(Painting, Mural Painting, Sculpture)

PG Courses : Sanskrit -Sahitya, Sanskrit Vedanta, Sanskrit Nyaya, Sanskrit Vyakarana, Sanskrit General, Comparative Literature & Linguistics, English Language & Literature, Malayalam, Hindi, Theatre, Music, Dance -(Bharathanattyam, Mohiniyattam), History, Philosophy, Vedic Studies, Sociology, Urdu, Arabic, M.Sc. - Psychology, Geography, M.S.W., M.P.Ed., MFA - Visual Arts

Diploma Courses : Part time P.G. Diploma in Hindi Translation & Office Proceedings, One year Diploma in Ayurveda Panchakarma & International Spa Therapy, One year P.G Diploma in Wellness and Spa Management

M.Phil Programme: Sanskrit Sahitya, Sanskrit Vyakarana, Sanskrit Vedanta, Sanskrit Nyaya, Sanskrit General, Malayalam, Urdu, Translation Studies, Hindi, English, Philosophy, History, Manuscriptology, Comparative Literature, Music, Sociology, Geography, Vedic Studies, Psychology

Ph.D Programme : Sanskrit Sahitya, Sanskrit Vyakarana, Sanskrit Vedanta, Sanskrit Nyaya, Sanskrit General Studies, Sanskrit Vedic Studies, Malayalam, Translation Studies Hindi, English, Philosophy, History, Manuscriptology, Comparative Literature, Music Dance, Sociolgy, Geography, Psychology, Physical Education, Vastuvidya, Social Work, Ayurveda, Theatre, Gender Studies, Urdu

University Publications

The complete works of Sree Sankaracharya (5 vol)(Sanskrit), Brahmasoothram (Malayalam), Sreesankaradigvijayam (Malayalam), Preservation techniques of the Rigveda Chanting of Kerala (English), Perspectives of Kerala, Studies (English),Vedic texts and the knowledge system of India (English), Jaiminiya Samaveda – Kerala Namputiri Version (English), Shyama madhavam (Sanskrit), Shaileeparinamam Malayalanovalil (Malayalam), Urban land of Cochin City (English), Reflections on Ethics and Values (English), Making Princely state under British colonialism (English), Malayala Kavitha Irupatham Noottandil (Malayalam), Kaumudisobha (Malayalam), Bhattojidikshitadisasamasasutraniroopanam (Sanskrit), Samskrtakriyaviseshanadipah (Sanskrit), Karnabharam (Malayalam), Adivasisahity Vividhsandharbh (Hindi), Alankaraniroopanam(Malayalam) Principles of Sakti in Kashmir Saivism – Function and Evolution (English), Natakavum Samuhya Pratirodhavum (Malayalam), Ezhuthukarikalum Karthrthvavum (Malayalam), Poorvatharakal (Malayalam), Prakriyasarvasveeyaparibhashapaddhati (Sanskrit), Bhashanavodhanam Charitravazhikal (Malayalam), Smrithimandapam Prabhashana Parampara (Malayalam), Swathanthratha ke Andolan our Sahity (Hindi), The Trekker Begets Nectar (English), Haindavadharma Sudhakaram (10 Volumes,4 Volumes available Malayalam)

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CONSTITUENT COLLEGES& CENTRES	PROGRAMS OFFERED
• **MAHATMA GANDHI MEDICAL COLLEGE & RESEARCH INSTITUTE, www.mgmcri.ac.in** • **SHRI SATHYA SAI MEDICAL COLLEGE & RESEARCH INSTITUTE, www.sssmcri.ac.in**	Faculty of Medicine: MBBS, MD/MS, DM/MCh, M.Sc (Medical), Fellowship in Ultrasound Guided Regional Anaesthesia, Otology, Maternal & Child Health, OBG Ultrasound, Hospital Infection Control, Tropical Parasitology, Medical Genetics, surgical Management of Gender Dysphoria(M-T-F), Diabetes, Diabetes Education, Dermatopathology, Community Ophthalmology, e-learning in Health Profession Education.Ph.D
• **INDIRA GANDHI INSTITUTE OF DENTAL SCIENCES, www.igids.ac.in**	Faculty of Dentistry: BDS, MDS, Ph.D
• **KASTURBA GANDHI NURSING COLLEGE, www.kgnc.ac.in** • **SHRI SATHYA SAI COLLEGE OF NURSING**	Faculty of Nursing Sciences: P.B.B.Sc (N), B.Sc (N), M.Sc (N), Ph.D Faculty of Nursing Sciences: B.Sc (N)
• **FACULTY OF ALLIED HEALTH SCIENCES, sbvu.ac.in/ahs/**	B.Sc (AHS), B.P.T, B.M.R.Sc, M.Sc
• **SCHOOL OF PHARMACY**	B.Pharm.
• **CENTRE FOR HEALTH PROFESSIONS EDUCATION, sbvu.ac.in/hpe/**	PG Certificate, PG Diploma in Health Professions Education, M.Phil, PhD
• **CENTRE FOR MUSIC THERAPY EDUCATION & RESEARCH, sbvu.ac.in/cmter/**	PG Diploma in Music Therapy, M.Sc Medical Music Therapy, Ph.D
• **CENTRE FOR YOGA THERAPY EDUCATION & RESEARCH, sbvu.ac.in/cyter/**	PG Certificate, PG Diploma in Yoga Therapy, M.Phil, Ph.D
• **CENTRAL INTER-DISCIPLINARY RESEARCH FACILITY, cidrf.res.in**	PG Diploma in Pharmacogenomics, Ph.D in Interdisciplinary Research

LEADERSHIP:

Chancellor Shri. MK Rajagopalan,is a visionary educationist. Sri Balaji Vidyapeeth strives to achieve its vision, through the efforts of Dr. PrashanthRajagopalan, the Vice Chairman. The Vice Chancellor Prof. Subhash ChandraParija, a Dr. BC Roy Awardee is an internationally acclaimed academician, researcher and author who has contributed significantly to the growth of medical education, research and patient carein various positions.

SBV AT A GLANCE:

Campus : Two (Main & Off), No of Students:3800+,

NIRF Rank : SBV: 72nd in 2019, MGMCRI: 23rd in 2018.

SRI PADMAVATI MAHILA VISVAVIDYALAYAM

Padmavathi Nagar, Near West Railway Station,
Tirupati, Chittoor (Dt.), (Andhra Pradesh)

Tel: +91-877-2248417, 2284588
Fax: +91-877-2248416
E-mail: registrarmahila@yahoo.com
Website:www.spmvv.ac.in

COURSES OFFERED:

Under Graduate Programmes:
B.Ed, B.Ed (Special-Hearing impaired), LL.B (3 & 5 years), B.Pharmacy, B.P.Ed, B.Sc Nursing and GNM, B.Tech & B.Voc. courses viz.,
(i) Fashion Technology and Apparel Designing (3 years) (ii) Nutrition and Health Care Sciences (3 years).

Post Graduate Programmes:

M.Sc Applied Mathematics, Applied Microbiology, Bio-Chemistry,Bio-Technology, Integrated Bio-Technology (5 Years), Botany, Home Science (i) Clinical Nutrition & Dietetics (ii) Community Health & Nutrition, (iii) Food Science and Quality Control, (IV) Human Development Family Studies, Sericulture, Organic Chemistry, Physics, Zoology, Industrial Microbiology, Integrated Food Technology(5 Years), M. Pharmacy, M.C.A, M.Tech, Statistics & M.Vocational Courses-(i) Fashion Technology and Apparel Designing (ii) Nutrition and Health Care Sciences.

M.A.: English Language & Literature, Telugu Language, Literature &Translation, Music (Veena & Vocal), Bharathanatyam, Women's Studies, Economics, MSW (Social Work), M.C.J. (Communication&Journalism) MBA in Media Management, M.Ed, M.Ed Special Education (Hearing impaired), Public Relations, Master's in Fine Arts (5 years Integrated), M.B.A, LL.M, M.P.Ed and M.Com Courses.

PG Diploma Courses: Family Health and HIV/AIDS counselling, Early Childhood Care & Education, Advanced Bioinstrumentation and Yoga.

Certificate Courses: Vocal, Veena, Bharatanatyam, Devotional Music,Kuchipudi, Violin, Key Board, Traditional folk Music, Guitar and Yoga.

DDE offers: 9 P.G. Courses, B.Ed, B.Ed Additional Methodology, 3 P.G. Diploma Courses, 1 Diploma Course: Music (Sankeertana, Varnam and Annamayya Antarangam).

VICE- CHANCELLOR: Prof.Jamuna Duvvuru
REGISTRAR:Prof.D.M.Mamatha

Sri Padmavati Mahila Visvavidyalayam (University for Women) was founded in the year 1983 by **Padmashri Dr.N.T.Rama Rao**, the then Chief Minister of Andhra Pradesh, with the fervent desire to train women students as better builders of the Nation and to inculcate skills of leadership in all aspects of life.The University was established under the Sri Padmavati Mahila Visvavidyalayam Act of 1983,which has come into force on the 14 of April 1983. It was started with ten faculties and 300 students and twenty staff members. Today the University has a student population of 6500 and an academic staff of 255. This year the University is going to have 59 courses at the post-graduate and undergraduate level and a good component of research.

Student Amenities:

Physical Amenities: Green and Environment friendly Campus, Ten Hostels to accommodate all students requiring the facility,Well furnished Classrooms,Canteen and Recreation rooms,Auditorium with 1000 seating capacity and well equipped seminar Halls,Buildings provided with ramps for physically challenged,100% automated Central Library with E. Resources, INFLIBNET and DELNET,Day Care Centre for children of staff & students.
Health Care: Health Centre available on campus with residential staff,Clinical Laboratory for routine investigations, 24 X 7 Ambulance service,Referral services as and when required,Periodical Health Camps,Specialised consultant services (Ophthalmology & Dentistry),6 Bedded Inpatient Ward. The facility for ultra sound scanning is also made available to the students and staff from this academic year 2019-20.
Sports & Games: Well established Indoor stadium of 1196 Sq.m for playing table tennis, shuttle, caroms,Play Grounds/ Courts for Volley ball, Kho-Kho, Kabaddi, Hand ball, BallBadminton, Cricket, Hockey& Tennis,Gymnasium-Multi-Gym facility with 11 stations,400 mts Athletic Track,Sports Hostel.
Entrepreneurship & Skill Development: Soft skills and Language Lab facilities,United Nations –Asia Pacific Centre for ICT, as a ToT Centre for Women Entrepreneurship,Sri Padmavati Mahila Visvavidyalayam Innovation society,APSSDC Skill Centre in the campus for continuous skilling programmes for the students, SPMVV Society for Innovation, Incubation and Entrepreneurship (SSIIE), implementing the DST-NIDHI Technology Business Incubator (TBI), Robotics and IoT laboratories,Life sciences, cell culture and Bioinformatics laboratories, Biotechnology,Bio-NEST incubator, Dassualt's labs for advanced training for the Engineering and Technical students.Centre for Consultancy' and Allied services with the consultancy policy for the University in place Common Research facility (DST - CURIE)
IT Infrastructure : Wi-Fi Enabled Campus,1 GBPS Internet Connectivity, Computer Centre with internet and updated Software.
Placements : Placement Cell is established for facilitating campus interviews. Reputed firms regularly visit the campus. Career counselling is also extended.Advanced training given though Skill Development Center. Career counselling and Training for facing interviews & Group discussions.

SRI RAMACHANDRA
INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Category – I – Deemed to be University)
Porur, Chennai – 600 116, Tamil Nadu

Applications called for the post of:

DIRECTOR (Sri Ramachandra Centre for ODL/On-line Education): One

Essential Qualifications:

(i) Ph.D. in Health Sciences/Computer Sciences/Information Technology/Educational Technologies.

(ii) 10 years of Teaching/Research/ODL & online education experience of which 5 years in Institute/ Department of Distance Education/SWAYAM/NPTEL/CEC/IGNOU or Industry based ODL-Online centres with track record of developing e-resources for higher education and skill development.

(iii) Additional qualifications/Diploma in Online education technologies from national/international institutions – desirable.

(iv) Upper age – limit : 50 years.

PROFESSOR – RESEARCH

In Specialities of General Medicine/Paediatrics/Obstetrics & Gynaecology/Cardiology/Endocrinology/ Nephrology /Neurology/Oncology/Radiology or any other Interdisciplinary Branches Like Clinical Research.

Essential Qualifications:

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		St. Joseph's College	M. A. in English
		Siliguri College	M.A. / M.Sc. in Geography, M.A. in Bengali
		Salesian College	M.A. in English, Education, Psychology
		Kurseong College	M.A. in Nepali
		Jalpaiguri Law College	LL.M
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