

STRATEGIES FOR REIMAGINING INDIAN HIGHER EDUCATION LANDSCAPE

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Estimates reveal that India will become world's largest nation by 2030 in terms of youth population. To nurture this youth as a talent pool, skill and competency-based courses as expected by 21st century workplace scenario needs to be imparted to the students. Also, a globally respected learner centric integrated educational ecosystem needs to be created in the country. For this, the Indian higher education system must align its activity-mix to international accreditation standards, along with those put in place by Indian accreditation bodies to receive its respect at the global landscape of higher education. At present, the Indian higher education system is fragmented into too many silos marked by several lacunae. Some of these lacunae can be removed by adopting the STEAM approach in developing inter as well as multi-disciplinary teaching-learning methodologies, offering flexibility and credit based recognition to the courses; expanding access to higher education through online courses; sensitisation on 'sustainability'; exposure to new-age technologies; and fostering experiential learning pedagogy backed by continuous assessment and evaluation mechanism aimed at holistic development of the learners. The paper is an attempt to indicate broad strategies required for reimagining the Indian higher education landscape in accordance with 21st century skillsets and competencies as expected of this young talent pool.

PRELUDE

Estimates reveal that India will become world's largest nation by 2030 in terms of young talent pool. Being the largest education system in the world, there is a huge potential for development through constantly focusing on quality of education and strengthening its position in the global student market. 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. But the Indian higher education system is afflicted with many drawbacks

like: fragmented into too many silos; segregation into departments or disciplines; lack of educational access in poor socio-economic areas; lack of faculty and institutional autonomy; inadequate mechanism for career enhancement and progression of faculty and institutional leaders; lack of research at most institutional setups and the lack of transparent and competitive peer-reviewed research funding across disciplines; suboptimal governance and leadership of comparatively older higher education institutions; and a regulatory system allowing sub-standard institutions to thrive while constraining young, excellent, innovative institutions. In order to eliminate these drawbacks, the Indian higher education system must align its activity-mix to international accreditation standards, as well as those put in place by Indian accreditation bodies to receive its respect at the global landscape of education. Broad strategies are required for reimagining the Indian higher education landscape in accordance with 21st century skill sets and competencies as expected of this young talent pool. It is important to create a globally respected and learner-centric integrated educational ecosystem with the provision of skill and competency courses as expected by 21st century workplace scenario through the following: the STEAM approach in developing inter as well as multi-disciplinary teaching-learning methodologies; offering flexibility in credit based recognition; online learning; sensitisation on 'sustainability' through curriculum; exposure to new-age technologies; and fostering experiential learning pedagogy for real value addition in the learner, backed by continuous assessment and evaluation mechanism, aimed at holistic development of the learner with gender sensitisation, are some such strategies.

GLOBALLY RESPECTED LEARNER-CENTRIC AND INTEGRATED EDUCATIONAL ECOSYSTEM

In accordance with globally respected higher education systems, integrating the system in the country at various levels (primary to higher education) will ensure that we educate our youth with a larger purpose in view, wherein teaching-learning will not happen in compartments (as an end in themselves,) but will stay linked all through from primary to higher levels. The complete separation of 'arts' and 'science' or between 'academic' and 'vocational' streams, as also talked about in National Education Policy (NEP)-2020, needs to be done away with. Undergraduate (3-4 year) degree courses with multiple exit options, masters, doctoral, professional, and vocational programmes to be significantly enhanced by being accessible in vibrant multidisciplinary institutions. As per NEP-2020, Higher Educational

Institutions (HEI) comprising of large, multidisciplinary universities and colleges will be called multidisciplinary only if they offer at least two programmes or majors in the arts and humanities, at least two in science and mathematics, and at least one in the social sciences. It is expected that most multidisciplinary HEIs in the long run will offer far more than this minimum requirement and will also include professional and vocational programmes.

In alignment with the NEP-2020 (Fig. 1), integration of Primary-Secondary-Tertiary-Higher Education systems with industry and regulatory bodies, is the way forward. Due to cut-throat competition at various levels, no minimal level of interaction exists between two HEIs (Kasturirangan 2019). There should be no silos for arts-science-management-design, and other similar streams as well; more close collaboration among local institutes to bridge the gap between learning and market requirements; and providing opportunities to attract young talent from poor communities.

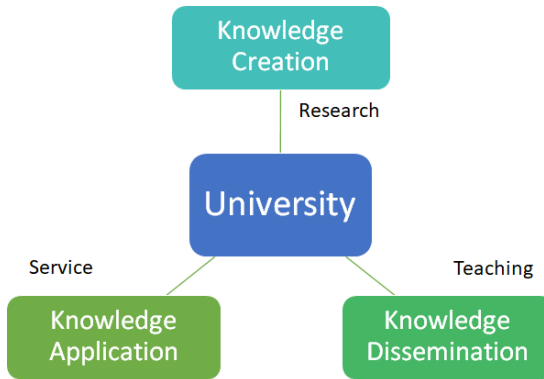
FIG. 1: EDUCATION SYSTEM MEETING GLOBAL STANDARDS (THINK TANK)



TEACHING AND RESEARCH IN INDIAN UNIVERSITIES

While the NEP-2020 gives a roadmap for improving the condition of undergraduate education in India; it also advocates that universities (Fig. 2) have to be contributing to all the three components of the Knowledge Cycle (KC), which are: (i) Knowledge Generation (KG) – Research; (ii) Knowledge Dissemination (KD) – Teaching; and (iii) Knowledge Application (KA) – Services, typical of a world class

FIG. 2: UNIVERSITY AND KNOWLEDGE CYCLE

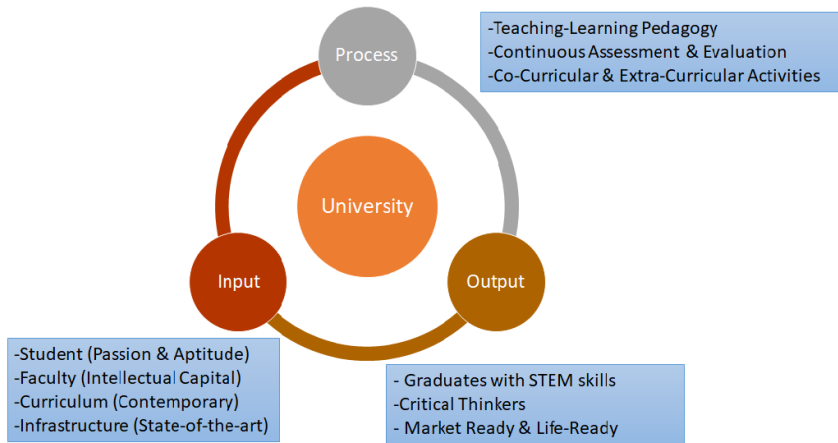


institute for higher education. According to the policy, categorisation of institutes to be either: (i) research universities, with equivalent focus on research and teaching; (ii) teaching universities, with primary focus on teaching and considerable concern on research; or (iii) autonomous degree granting colleges with their main focus on teaching, and should be understood in that frame. A blend of teaching and research is the need in the present scenario where the prime focus of higher education institutions should be to impart knowledge through effective teaching-learning process and integration of research component to it.

Bringing in and building on the elements of ‘quality’ in three of the critical components of a University system, which are the: (i) input; (ii) the processes; and (iii) the output, which are what will make our universities, globally respected. Putting quality measures in place will result in graduates getting adequate domain knowledge plus 21st century skill sets and competencies, to meet industry and community requirements: (i) admitting students, augmenting faculty, developing curriculum and building infrastructure (input); (ii) effective teaching-learning process integrated with continuous assessment and evaluation mechanisms ably supported by co-curricular and extra-curricular activities (processes); and (iii) acceptance of graduates by the competing market environment (output).. JKLU (JK Lakshmipat University) is successful in re-modelling education as an Input-Process-Output system, which is applicable to concerned stakeholders (Salam 2015).

As shown in Fig. 3, the critical parameter of ‘Input’ is important for any institute. New entrants (students) to the education system have to be evaluated intensively by checking their aptitude and considering the passion possessed by them for any course of their choice. Intellectual capital should be aligned with the vision and mission of institute and

FIG. 3: HOLISTIC QUALITY HIGHER EDUCATION ECOSYSTEM IN AN HEI



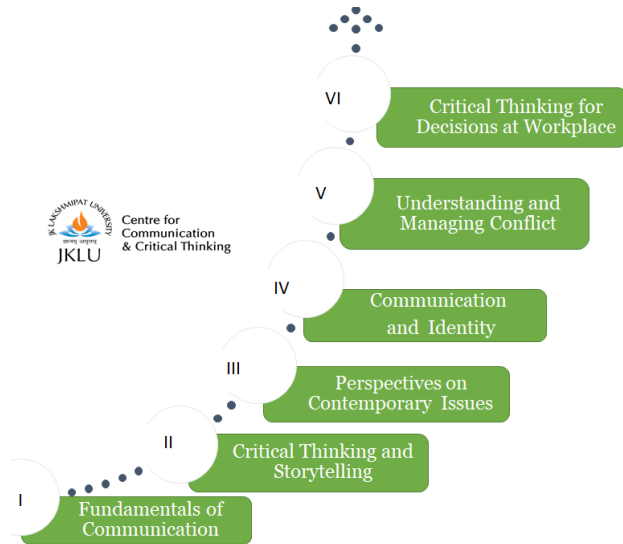
the curriculum needs to be contemporary as per market demands. State-of-the-art infrastructure is required to impart effective quality education. In the ‘Process’ component, teaching-learning pedagogy needs to be given utmost priority to embark experiential learning for learners. Continuous assessment and evaluation is another important parameter for any institute. Evaluating and assessing students at regular intervals will help in doing fair evaluation and invoke the feeling of healthy competitiveness in students. Life beyond the curriculum ensures involvement of students in numerous co-curricular and extra-curricular activities for a healthy mental well-being of learners. The third component, ‘Output’, focuses on graduates possessing STEM skills, so that they can become critical thinkers who can be easily deployable in industry.

STEAM (STEM plus the Arts – Humanities, Language, Liberal Arts, and Design)

As we are aware, STEM includes Science, Technology, Engineering and Mathematics, while explicitly focusing on scientific concepts. On the other hand, STEAM includes all components of STEM with an additional flavour of the arts by giving weightage on Humanities, Language, Liberal Studies and Design to be integrated with Science and Technology. STEAM education provides an opportunity for the learner to learn creatively through inquiry, project and problem-based learning approaches. Here, learner groups work collaboratively to create physical project, based on understanding of scientific (STEM) concepts. Special mention to the approach applied at the authors’

workplace, through an inquiry-centric project-based learning where students are applying concepts of integration (Mathematics) in finding volume integral while building a coracle (boat). In the same context, management students are applying basic principles of define, ideate and prototype design aspects in their learnings. Similarly, design students are learning computer languages to automate their task. STEAM is revolutionising the education system globally to create a new way of learning that is engaging, multifaceted, and diverse in a way which is prevailing in the open culture of a Design Studio and Maker Space. In continuation with the same, many universities has a unique state-of-the-art Centre for Communication and Critical Thinking where learners are trained to critically analyse problems from multiple perspectives, solve them creatively, and communicate their thoughts effectively. Figure 4 highlights the various course offerings for all students irrespective of their disciplines. Every student is required to pursue these 21st century courses in order to fulfil their credit requirements.

FIG. 4: CENTRE FOR COMMUNICATION AND CRITICAL THINKING



Provision of Skill Courses, as expected by the 21st Century Workplace Scenario

India is one of the largest producers of Science, Technology, Engineering and Mathematics (STEM) graduates. Higher education must therefore build expertise that community will need over next 20-25 years. The future workplace will require critical thinking skills, communication skills, problem-solving skills, an innovative mindset,

and interdisciplinary capability. Single-skill and single-discipline jobs are likely to become obsolete and further automated in the near future. Therefore, higher education must develop innovative and creative learners with intellectual desire, and a spirit to learn and apply for the larger societal benefit. The author's workplace successfully integrated courses like entrepreneurship, Artificial Intelligence, Information Security and Cloud Computing, programmes like Interaction Design, Product Design, and Interdisciplinary Design, and inclusion of capstone project to learn business strategy.

Developing Inter as well as Multi-Disciplinary Teaching-Learning Approach

Nalanda and *Takshashila* describe education as knowledge of 64 *kalas* or arts including singing, playing musical instruments, medicine, engineering, mathematics, etc., also known as liberal arts now, which is the need of the 21st century. Each university must launch a few new-generation highly interdisciplinary degree programs with a nearly equal contribution by at least two different departments. Emphasis should be on integrating seemingly very different disciplines, like Philosophy and Governance; Computational Social Sciences; Sustainability & Innovation; Healthcare Engineering, Digital Humanities; Technology, Art, and Psychology; Medical Informatics; Law and Technology, Technology and (different areas of) Management, Technology and Psychology, Urban Studies; Education Technology; Museum Technology, and so on. Research universities, as envisaged in the DNEP, must have at least 60 per cent student population in masters' and doctoral programmes with an overall student-faculty ratio of 12:1 or better. At teaching universities, at least 20 per cent of the student population must be in masters' and doctoral programmes with an overall student-faculty ratio of 15:1 or better. At the core of student-centric programmes, the authors' institution has done its bit in reimagining education through introduction of experiential project-based learning in the engineering curriculum, which was designed and delivered with the support of Olin College of Engineering (USA) where engineering courses are amalgamated with interdisciplinary subjects pertaining to application domain (Kasturirangan 2019).

Offering Flexibility in Credit-based Recognition

Moving towards more liberal undergraduate education with imaginative and flexible curriculum in order to fulfill the needs of the industry and society by giving credits for such courses. Applicability and acceptability of new courses/programs as part of a programme;

linking school education with higher education; balanced structuring of liberal education; and emphasis on spiritual development and yoga, are what will work, going ahead. The authors' university follows a choice-based credit system and flexible curriculum like some percentage of total credits are given to courses offered in plus domain areas through MOOCs (curated MOOCs), entrepreneurial initiatives, independent seminar, and capstone projects. Flexibility in opting for interdisciplinary subjects without any compartmentalisation in sciences, arts, social sciences, etc. is what the authors' university encourages.

Online Learning expands access to Higher Education

Online learning is playing an important role in reforming higher education system. During the pandemic, it has been observed that a total shift and transition occurred in the education system worldwide. Self-quarantine and social-distancing compelled educational institutions to suspend classes and move to the online learning mode. By using online meeting and webinar platforms, students are getting a chance to listen and interact with seasoned professionals and professors through signature and distinguished lecture series. Online education is surely helping in the coronavirus pandemic across the world to put minimal impact on students: online master classes, seminars, workshops, e-panel discussions, online internships in augmented way with online teaching-learning process, which are all pivotal for higher education system pervasively. However, online learning has many challenges in terms of poor connectivity, network issues, software-hardware resources etc., still battling with issues like skill-gap, lack of hands-on practical experience, fair assessment and evaluation mechanisms (Raina 2020).

Exposure to New-Age Technologies

In technology-led innovation driven context, students similarly need to be exposed to new-age technologies to stay abreast and ahead on the same. Exposure of courses like Robotics, Automation, Design Thinking, Internet of Things and Data Analytics across all disciplines in undergraduate and graduate level teaching in Engineering, Management and Design are mandatory for all students in the university where authors are working.

Sensitisation on 'Sustainability' through Curriculum

Students need to be caught young on issues and concerns on critical areas like 'sustainability'. As part of almost each and every course/

programme they are studying, students need to be sincerely sensitised on this aspect. In the authors' university, learning outcomes of the courses reflect this factor.

Balance between Learning and Market-readiness

In reimagining the education system, institutes need to strike a balance between learning and market opportunities by integrating key employment skills, life skills, entrepreneurial abilities through courses like Power of Storytelling, Law and Ethics, Design Thinking, Critical Thinking, Social, Emotional and Ethical (SEE) learning into curriculum. Imparting education and learning primarily focuses around the preferences of the learner and this results in migration from traditional modes of learning. In the technology-led innovation driven context, students need to be exposed to new-age technologies to stay abreast and ahead on the same.

Fostering Experiential Learning Pedagogy for Holistic Development of Learners

Structural and learning reforms are needed to become a world class educational institute. It is crucial to design innovative solutions to foster the best teaching learning pedagogy to cater to the needs of 21st century skill sets and competencies for better a learner-centric model. Incorporation of project-based learning or experiential learning is crucial in the higher education system through intense checks on student intake quality, fair evaluation and assessment policy are as per global standards. Engagement of industry experts in curriculum design, delivery as well as continuous assessment and evaluation mechanisms will definitely accelerate the performance of higher education institutions to meet market demands. At the authors' institution, they have implemented Project-based Learning in coordination with Olin College of Engineering, USA. Standard academic practices, ethics, and integrity to be maintained at zero tolerance. Institutes should provide learning facilities to students with experiential research works and projects to earn valuable hands-on exposure of the industry. This way, students get a basic idea of the actual industry they are going to get absorbed into and are able to pick up ideas and tactics much quickly when it comes to solving complex business problems, creating new development plans for a company, or taking up new challenges with a certain level of conviction.

Gender Sensitisation

Gender gap is closing in as the number of male students globally moved from 17.7 to 75.1 million and the number of female students

rose from 10.8 to 77.4 million. Discourse of feminisation is limiting. NEP-2020 also includes gender-related themes and provisions across the teaching-learning curriculum for better gender ratio. Government has also implemented various schemes and programs to provide equal opportunities and status to females in the country (Pessoa 2009).

CONCLUSION

The digital-age education system calls for reimagining Indian universities to provide experiential learning pedagogy, collaborative coalition among educational institutes local as well as international, employers, students, schools, regulatory bodies, professionals, and industry to bridge the existing gap and help in driving reforms. There is no purpose in continuing to operate in silos. Fostering strategic collaboration among all stakeholders is needed with an objective to nurture and groom young talent according to the market and society's demand. Another objective behind Reimagining Indian Universities is to inculcate habit of 'Learning through Life' by developing eagerness in mind of young learners and raising inquisitiveness to learn and apply new concepts or contents.

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- <https://tomprof.stanford.edu/posting/1619>

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