

Leadership Pivotal to Productivity Enhancement for 21st-Century Indian Higher Education System

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Abstract

Good governance enhances efficiency both in public and private sector organizations. Productivity and good governance are closely associated to aid value for investment both in terms of time and money, and end-user satisfaction. Productivity Enhancement and quality improvement of higher education depend on governance-trends and productive leadership of the institution. Discipline, and quality vision set, and policy practiced by the leadership in Higher Education Institutions (HEIs) propagate down the timeline-hierarchy. This article addresses the pivotal factors and parameters worldwide studied, accepted and opined in various case studies and policy making schemes for good governance of Higher Education Indian Institution (HEIIs). This is necessary to enable their leadership enhancing the organizational productivity for 21st-century Indian subcontinent. The 3rd largest youth in the world studying in HEIIs would contribute the most to the growth of 21st-century Indian economy and living standards. This shall be possible when educational productivity of HEII-leadership is innovatively transformed into transformative innovation. In this paper effects, consequences, impacts, opportunities, problems and remedies regarding pivotal issues and challenges of and for existing HEIIs for becoming world-class education system are systematically reviewed. Recommendations based upon studies and findings are made for 21st-century HEII-leadership, and practical model is presented to measure the productivity.

Keywords: higher education productivity, resource optimization, human values, 21st century Indian higher education institutions (HEIIs), leadership

1. Introduction

World seeks 'excellence' across all Higher Education (HE) roles such as effective leadership, teaching-learning-research innovation (TLRI) to fulfil the needs of learners and society (Sundararajan, N. 2019). From students' perception of excellence, HEIs should attentively strive for excellence in quality initiatives and socio-economic productivity. The 21st-century HEIIs are different in terms of international and global competitions, socio-geographic diversity and culture of learners, Information and Communication Technology (ICT) and students' scholarship and mobility, learning and earning trends (Sparrow, H. 2013). Theoretical understanding of excellence-measurement was mainly based upon academic and research standards (Skelton, A. 2007) before two decades, quality transformational leadership (Harvey, L. & Green, D. 1993), enhancing synergic relationship amongst students, teachers, administration, parents, public, Government and industry. Science, Technology, Engineering, Arts, Mathematics, Medicines, Management, Social Sciences and Humanities (STEAMMMSH) not only the Science, Technology, Engineering and Mathematics (STEM) are the 21st-century focus areas. Sundararajan (2019) opines that without excellence in teaching, the HEII-productivity can never be substantially enhanced. Alonzo (2010) agrees for decision-making leadership in HEI governance through implementation of teaching-education policy is major player to enhance its productivity and equal is the role of accurate implementation of sustainability development (Aleixo, Ana & Azeiteiro, Ulisses & Leal, Susana, 2018). Efficient and productive economic system is found more stable and just aligned with the legitimate interests of the world, a role model for 21st-century HEIIs.

1.1 Needs and Demands from HEI Leaderships

UGC's initiatives (Ved Prakash, 2011) to enhance productivity (quality and excellence) in 12th Five-year plan through mandatory National Board of Accreditation (NBA) and National Assessment and Accreditation Council (NAAC) accreditation has involved attracting quality faculty and promoting faculty mobility. That also needs to have continuous Faculty Development Training Programmes, necessary reformation in academic system for staff development and talent promotion centres. It also incorporates to encourage student mobility and evaluation of faculty by students and peer team. In addition, leveraging ICT and e-initiatives should be made mandatory for participation through e-resource sharing and networking of HEIs through implementation of national to international portals. There should also be implementation of e-governance in all internal and external processes of the departments, and autonomous HEIs should be promoted for infusing cultural collaboration and cooperation for these initiatives. Along with them improvement in funding system, criteria and pattern for UGC, fellowship, institution building and laboratories, gender discrimination, plagiarism, recruitment of the leadership, political interference, optimum utilization of labs and available library research resources have been given significance.

Floud S.R. (2010) strongly advocated for redefining professional standards for HE teachers, rewards like best teaching excellence awards to deserving teachers, journey from quality to excellence rather than quantity in HEI, study on teacher to researcher ratio, and allocation of funding and trust on even researchers. It's mandatory for HEI leadership to implement Acts, Statutes, Ordinances and Regulations for productive functioning of HEIs. (Dwivedi, Vedvyas J. & Joshi, Yogesh C., 2018) Monitoring clarity and transparency in processes of admissions, recruitment, periodic academic growth and performance, financial audit, internal and external evaluation processes are equivalently pivotal.

Like NAAC and NBA (Shirish, 2019) but more universal steps to excel the existing Indian HE system can be interdisciplinary, oriented to resource crunch removal, research outcome excellence such as publications and patents, and higher degree of autonomy. Indian HEI verticals have high and strong walls. First that one's mind is groomed to be blindfolded about the dept. 2nd that having no clue about its excellence. So, interdisciplinary studies, researches, courses and transactions need be opened. CBCS is one productive blended learning-oriented methodology which if implemented effectively using ICT, Internet of Things (IoT), Artificial Intelligence Technology (AIT), start-ups and incubation innovations would certainly enhance global employability (employability is a measure of efficiency: Joshi, K.M. & Ahir, K.V., 2014, p. 445) of our learners from public or private HEIs.

1.2 Scopes, Significance and Limitations of Leadership for Productivity Enhancement of 21st Century HEIs

Quality Faculty and Staff in India HE system is ever expanding in multidimensional manner which needs strong financial, sponsorship and funding support from private or government agencies to meet with its expenses and developmental initiatives. Modern and up-to-date resource creation and facilitation such as excellent high-end infrastructure, ICT and day-to-day financial dealings are very necessary to run, manage and govern the HEIs. Only healthy survival can lead to innovative and quality outcomes in true sense and not only on paper. When many parents sell out or mortgage their house, assets and take loan to fund their wards' expensive education to enroll in national or international HEI of excellence then it increases our responsibility more to provide state-of-arts facilities. Cycle of funding compels HEIs to take bank loans or levy hefty tuition fees. Government's withdrawal of sponsorship or funding of HEIs will deepen the threat of resource crunch that will lead to murdering and suppressing innovative and futuristically productive achievements. Kothari Education Committee (1968), NPE (1986), 12th five-year plan (2012-17) and UGC quality mandate (2019) emphasize on quality faculty and assisting administration staff for overall productivity enhancement in HEIs.

We define the wholesome as STEAMMMSH for interdisciplinary research contribution for local to global societal upliftment. IHE is globally known for poor presentation. Records and statistics THE ranking (2019) mentions that HEIs' research outcomes are mediocre, inadequate, repetitive, futile like excavating a corpse from one grave burying into the other. Only Harvard University's ground-breaking innovations in past 50 years is more than that of all HEIs when are put together. Means, India, the giver of Zero to the world now contributing zero to the world in R&D! Thanks to NIRF initiative due to which at least HEIs have productively started thinking for quality improvements for the predefined parameters.

Gender, caste, creed, background, medium, attire, religion, tradition, culture and region bias, or discrimination create socio-educational injustice and unbalance. It is unacceptable. Our vast population faces basic and fundamental need-based challenges like uniformly good quality of education, food, transportation, water etc. Not to our surprise that Indian New Education Policy (2019) expecting the Gross Enrollment Ration (GER) to reach 50 percent by 2035 which today is less than 25 percent seems a daydream when it comes to quality and productivity in HEIs. More than

double to the existing GER and that too in long 15 years! UNESCO opines, 'Higher education as no longer a luxury but essentiality to socioeconomic development'. Hence, though it is intangible and complex to measure need be evaluated for its productivity through its leadership.

NAAC recommends conferring Autonomy to A⁺ HEIIs while apparently the students and staff live in invisible fear, misperception and blindfolded misgivings of its disadvantages such as exploitation and degradation of future quality, more responsibility and less rights or less degree of freedom. Other side, NEP foresees all HEIIs to be conferred Autonomous by 2035. This is a long way dream need be reformulated for better productivity of the HEIIs. The challenges with joys (Shah & Bhatt, S. 2019) derived from the journey of entrepreneurship, contributory on all platforms, especially when higher education system reforms, in Leadership and entrepreneurship versus productivity are considered.

In this paper authors have proposed the productivity measuring and evaluation model for an HEII. This model takes into consideration various parameters which are dependent on decision-making of governance system in HEIIs. Model also includes various miscellaneous aspects such as agitations, strikes, grievances, court cases etc. Finally, the output of the model is expressed by a Quality-grade which classifies a HEII into excellent, very good, good, average, poor scale.

2. Framework for Eye-Opening Challenges for HEIIs' Leaderships – An Overview

AISHE (2017-18) reports that HEIIs; namely Universities (882/903), Colleges (38061/39050) and Stand-Alone Institutions (9090/10011), undertaken in survey have 285 universities which have affiliated colleges while 343 universities are privately managed having constituent colleges and 357 universities are located in rural areas. 15 Universities in 11 states only are exclusively for women education, 110 Universities are in dual mode offering distance and regular both courses, 500 full-fledged universities, 126 technical, 70 agriculture-allied, 22 Law, 13 Sanskrit and 10 Language universities. Uttar Pradesh, Maharashtra, Karnataka, Rajasthan, Andhra Pradesh, Tamil Nadu, Gujarat and Madhya Pradesh are top eight states having highest number of HEIIs. HEIIs' average density is 28 i.e. no. of HEIIs per lakh eligible population in age group 18-24 years while 60.48 percent HEIIs are located in rural areas, 11.04 percent exclusively for women with ONLY 3.7 percent Ph. D. programmes and 36.8 percent for PG Studies, and to our surprise about 34 percent HEIIs run single programme where 83 percent are privately managed, of which 55.1 percent run B.Ed. Only. Total Enrolment was 36.6 million (19.2 million boys and 17.4 million girls, i.e. 47.7 percent of total is girls' enrolment) where in about 19 percent HEIIs are less than 100 while only 3.7 percent HEIIs have enrolled more than 3000 students. National GER in HEIIs was about 25.8 percent (for 18-24 years of age group), male GER was 26.3 percent and female GER was 25.4 percent. Distance education GER was 11 percent of which 42 percent were females. Only 46,144 foreign students are studying in HEIIs from across 166 countries. Hence globalization of HEIIs is still a dream as most of these students are from 10 neighbouring countries (Nepal, Afghanistan, Sudan, Bhutan, Nigeria) constituting 64 percent of foreign students enrolled. 78 percent private HEIIs enroll only 67.4 percent students and total faculty members are about 12,85,000 (58 percent males, 42 percent females) having 72 female teachers per 100 male teachers. Student-teacher ratio is 30:1 (regular mode) while 20:1 (including adhoc and visiting modes). Administration staff is less than 40 percent (for grade C), 28 percent (for grade D), where per 100 male admin staff, female staff are only 47. Against 20,179 males, 14,221 females had been awarded Ph. D. making total of about 34,400 with share of 32 percent from state universities, 20.4 percent from HEIIs of national importance, 15.8 percent from central and about 14 percent from deemed private universities. A very disappointing is that the Ph. D. share of females is lowest from HEIIs.

2.1 21st Century Oriented Entrepreneurial Education

Education leadership is entrepreneurship. Being the 3rd largest Higher Education System (Wassankar, A.D. 2017) in the world, India is facing proportional challenges of unemployment and financial economic resource crunch. Unemployment leads to poverty (Gautam, A. & Manisha, 2019) and weaker economy. Creating and giving job opportunities needs developing entrepreneurial culture, trend, mindset and opportunities that can only be nurtured and promoted through education leadership. Entrepreneurship education helps in creating wealth that strengthens local economy in terms of manufacturing, marketing, service units, research centres and other dynamics of creative ideas. Entrepreneurial skills promote more long-lasting sustainable business models. These skills are dependent on HEII factors (Salem, M.I. 2014) such as developing resources for continuous encouragement and involvement of the stake holders, setting strong role model leadership and governance. The strategic policy decisions should be market driver, which should have strong correlation of fund allocation and creation of market awareness by integrating entrepreneurial activities, developing healthy culture by adopting best practices and reward best performers. Main entrepreneurship education challenges pertaining to HEIIs are traditional Indian culture giving importance to

emotional affinity not productivity, bureaucratic regulations and paper work delays to start a start-up (Walsankar, 2017), incomplete or nil entrepreneurial education (E.D.I. Gandhinagar, India-2003), absenteeism or lack of standard uniform framework such as vision or planning and that too resource allocation guidelines, and most serious that high dependency on Governments due to insufficient private sector participation and non collaborative interest, and non involvement of alumni. Entrepreneurial education provides best creative environment and opportunities to enhance leadership capability for the next generations.

2.2 Leadership Responsible for Gender Imbalance in Worldwide Higher Education Institutions

2.2.1 Existing Scenario in HEIs and HEIIs

Senior levels representation of women in HEIIs is very less and is improving at a slow pace even in developed countries where it could rise by 0.2 percent (Bhandarker, 2016) during 2013-16. Logically, HEI productivity-enhancement can't be appreciated where contribution of women is so unbalanced. Effective-leadership's decision making in HEIIs is responsible for this imbalance. Statistics clearly reveals that very few women are on top positions reason being not undertaking education at HEIIs. Bhandarker, 'Enrolment ratio as 28.5 percent (Technology), 40.2 percent (IT sector), 35.6 percent (Management), 32.1 percent (Law), 40.5 percent (Ph D)'. Well planned strategy (Richards R., O'Shea J. & Connolly M., 2004) to encourage attract women for their contribution is needed. Otherwise it shall be extremely difficult for the productivity to reach 50 percent even if the entire world population-talent shall not be contributing. 24 percent women in corporate world work at entry level, 21 percent at managerial level, 19.5 percent at senior levels and 14 percent at executive levels it declines to 7.2 percent at Chair levels (Kelly Global report 2013). Astonishingly, 46 percent women leave after ten years of precious experiences due to motherhood life. In HEIIs, provision of flexible policies offered by companies like American Express, Microsoft, PepsiCo, TATA would enhance productivity through more women-contribution.

2.3 Female-productive-contribution in HEI Leadership and Productivity Enhancement: Three Examples

Case 'I': Female-productive-contribution in HEI leadership and consecutively productivity enhancement in IHE is found to be extremely poor. Forbes (Jan. 10, 2019) reports, 'Drew Gilpin Faust, 1st ever, the Only Female President of world's most prestigious Harvard University'. One live case of Faust confirms 'HEI's productivity enhancement gets success provided that biggest obstacles are overcome by effective leadership'.

Case 'II': *Gender bias in academia is always an issue*: University of Pennsylvania's 1st female chair in late 1981, even having no maternity leave provisions, she proved that the female-leadership is never against male colleagues while taking decision, howsoever fact is that women-leadership are more practical, bold, strong and kind.

Case 'III': University of Minnesota appointed the very 1st Female President in its 167-year history on Dec 18, 2018, Joan Gabel, the 1st Female Provost of University of South Carolina for 5 years contract from a pool of 67 applicants. Her long association with higher education in various leadership roles positioned her uniquely to listen carefully, meet challenges and identify opportunity to collaborate with students, faculty, staff and alumni, donors and policymakers.

Case 'IV': IHE scenario is even worse. In 2015, only 13 Women hold the Vice-Chancellors amongst 431 public universities (3 percent) despite girls' outstanding performance in exams and women constitute 50 percent of teaching positions in HEIIs (Chethak, 2015). *THE* world ranking of HEIs (Ellite, 2016) reports 'Just 17 percent of top 200 universities are led by a woman' while it was 14 percent in 2015 which shows the gap is slowly narrowing. Indeed, it's serious that only 34 women out of top 200 universities worldwide were in leadership roles in 2018, while 36 in 2017 and that too 4 of the 6 from Sweden and 11 from USA. *THE* 2015-16 ranking enlists 33 women in HEI leadership amongst top 200 while it was 28 in 2014-15 ranking.

Doing for right reasons and goals: Leadership has its darker-sides too, with large power comes huge responsibility, so leadership have to have single-clear-vision-eye about what to accomplish and never lose sight of that as it isn't about power but purpose.

Take leap without being afraid of: Serious productivity means to act in real-time instead of giving speeches and feedbacks while sitting in offices.

True leadership happens in 'Grey-Space'. Leadership and that too productive leadership is always grey in colour. Leadership picks between the best of two imperfect choices and tries landing in right place 'effective leadership makes decision, however imperfect, and executing against it.' HEI leadership means power to persuade retail politics not absolute power. One cannot run a meeting the way is run a graduate seminar! If one is too decisive, is accused of being aggressive and top-down, while otherwise is criticized for being too nice and not leading, especially for

female-leadership which is "just-not-right". Notably, long-standing HEI clubs preferably do not admit women and many are alcohol-fueled, create conditions for sexual assaults.

2.4 Leadership, Internationalization and Collaboration of 21st Century Indian Higher Education

2.4.1 Meaning and Deep Understanding of Leadership Roles

ICT Revolution has opened and geared up greater avenues and lead to huge amount of information sharing scenario through social e_print media in HE world. Increasing the economic capacity of our country having such large population has the only driving force 'Internationalization of HEIIs' (Pasupalak, 2019). Worldwide HEIs now reorienting the existing ordinances, mandates, socio-cultural educational methodology, modernization of infrastructures, trying to enhance overseas collaborations to accommodate the global students. HEIIs' Internationalization will help learners to avail the quality education, research learning (Joshi, & Ahir, 2014) and earning like the developed countries through sharpening the productive skill and practical talents. Strengthening their academic professional performance through 21st century's relevant course curriculum, enhancing encouraging faculty guiding approaches and confidence, updated modernized well equipped laboratories & study centres like libraries, reforms in E-governance, strong networking with micro-to-mega industries and exchange programme with accredited, reputed and esteemed HEIs of truly global nature. Internationalization of HEIIs means an institutional quality process of seamlessly integrating the teaching-learning and research, societal services to face various kinds of global challenges in all aspects of better living standards and future developments. Internationalization-scope means International Collaboration done through professional study programs for online, correspondence, distance, part-time courses under higher education hat at various campuses facilitating the learners with the man and infrastructure resource-sharing to enhance research and academic activities as per latest advancements in TLM. Priority be given to promotion of bunch of foreign languages and access to cross and multicultural understanding which play pivotal roles in socio-economic productive transformation thorough revision and reforms in curriculum (*The Future of Jobs report 2018*).

2.4.2 International Collaboration and Globalization: The Ways to Enhance Productivity of the HEIs

Through International collaborations (IC) can be fulfilled the needs and demands of high-quality education for 21st century in STEAMMMSH. Hence, this is the most basic requirement of Indian growing-economy from global market demand perspective, where ICT, data analysis and data handling facilities and revolutionary learning and access interventions have become handy and much handy tools. To meet with the global standards; world class HE system need technology enabled infrastructure, modern adaptable teaching methodologies, futuristic syllabi course, exposure to international platforms through learner exchange modes, and enhance capability to cater to the needs of future international market. Globalization of HEIIs would mobilize the overseas academia to suit Indian situation for example, liberalization of regulatory academic educational policies starting from local-regional and to national and global levels with appreciably better coordination amongst internal to interface components of HEII. Becoming practical in life is possible through experience of series of experiments. Hence collaboration enables the learners to have valuable exposure of advanced laboratories equipped and learning facilities to broaden scopes of STEAMMMSH. Pasupalak (2019), "OUAT has strengthened collaborations with various national international organizations for furthering academic and research activities through collaborative programmes sharing the human resources and infrastructures. OUAT is committed to enhancement of quality of teaching and research through collaborations with overseas organizations, International Rice Research Institute, Philippines International Center for Research, Nairobi Kenya, International Center for Agricultural Research, Lebanon, Norwegian Institute of Bioeconomy Research Norway, University of Minnesota USA, Internatirmal Maize & Wheat Improvement Center."

Indeed, the HEII globalization journey of sustainable excellence has dual sides as Policy Decision Governing Processes, and HEII initiatives and productive actions in Academics and Research (Varghese, 2019). Political bottlenecks (Chaudhary, S. 2011)) from the HEIIs have to be removed which is possible if HEIIs' leadership comes forward and together. Mathematical statistical state-wise analyses confirm that HEIIs are eager to improve the faculty quality and performance, but budget allocation restrictions are unbearably tight and suffocating. Systematic corrective actions to review the elements of productivity enhancement and parameters adopted by accreditation body like NAAC, standards and expectations should be strictly adopted in decision - making and academic research processes.

2.5 Justifying the Leadership's Responsibility

In 2007 the then Prime Minister Dr. Manmohan Singh asserted, 'Quality rating of 60 percent of Indian universities and 90 percent of Indian colleges are quite lower than average world quality rating' (Ashok, 2019). India has

developed quantitatively but not qualitatively on the international purviews. Students' discipline, government policy, usage of technology and ICT and employability in India are not much appreciated. The complex web of challenges and issues of IHE enlists the first one as funding or financial resource crunch and uniform fund distribution-regulation (MHRD and UGC funding schemes (2018-19) amongst all public HEIIs. The grants received by HEIIs are refunded back due to non-utilization of allotted funds. Additionally, corruption is also observed in the grants received by the HEIIs. Hence, the good purpose is not served. Privatization in IHE created an adverse impact as these institutes consider education as profiteering business where they award degrees to non-deserving students. These institutes also lack quality resources and poor teaching-evaluation and research which result in exploitation of stake holders, especially faculty and staff members. Dreams of Globalization of HEIIs have led to compromise of healthy social integrity and ethical falldown. Infact HEIs in overseas have more adaptive, flexible and productive higher education system which attracts talents from across India and other under developing countries. These talented professionals under learn-earn schemes get settled there and start contributing their best to those countries and societies after adopting their life system. Entire IE system from school to university lack innovation even in STEM related HEIIs practical exposure is given less importance compared to theoretically highly philosophical aspects. One of the reasons is that these HEIIs have nil facilities and faculties to promote hands-on-practicals. Leadership at these HEIIs also does not take these aspects seriously.

2.6 Bottlenecks and Hurdles against Internationalization

Disproportionate admission numbers and resources creates imbalance. Authors' have seen personally that large number of Government funded or aided public HEIIs have dangerous student's faculty ratio like 50:1. Prevailing true-situation is even sick when more than 100-150 students per class room get enrolled while class room sitting capacity is 60-70 only and that too students' attendance in reality never crosses 40-50 percent. Think, if all 100 plus students in blue moon day attend this class. It is very much difficult to do teaching-learning process both for students and teacher. Due to irregularities students cannot understand concepts of subjects and teachers cannot explain, discuss or even highlight the left-out topics. Hence, copy cases and unfair means in examination have become incurable diseases though CCTV, on-line or computerized systems have helped a little. Rural or semi urban HEIIs have enrolled much more students than their resource capacity and they mostly allow students to directly appear in exams. These HEIIs have poor infrastructure, computational facilities, faculties (Chaudhary, 2011) etc. Absence of professional training, innovation, start up, exposure to concerned industry knowledge, communication skill set are reasons that the students of these HEIIs are not performing well and hence the country's global productivity gets hampered. Inculcating the root level core ethical human values (NAAC, 2019, p. 44), enhanced employability, interdisciplinary project-practical based learning, innovative knowledge gaining with economical earning, entrepreneurship guidance are requirements of 21st century IHE system. HEIIs do not address their students to accept, deal with and move on for failure which is an impractical training (Dr. Kalam).

3. Quality Characteristics of HEII Leadership for 21st Century

Jeff Barnes, global leadership head at General Electric opines that HEII environment has become instable, volatile, uncertain, quite complex, ambiguous and boundaryless. Future trend of educational leadership development is like defining ideal employee totally separate from an ideal leader. Economic phrase 'nurse the baby, feed the child and free the adult' need be adopted by 21st century IHE leadership.

3.1 HEII Leadership Characteristics for Sustainable Growth for New Age (More, 2019) of 21st Century

Table 1. Issues of Traditional Century-old Recruitment, Evaluation and Review of Leadership in HEIIs

<p>To overcome one's ownself for strengths, weaknesses, likes, dislikes. Synchronization what leadership wants to do and what does and so HEII do not train it.</p>	<p>Finding, training and retaining right team for 'We', not 'I' for the matching abilities capabilities with solutions through entrepreneurship approaches for productive goals and dreams with empathy and belongingness.</p>	<p>Effectively most productive leadership characteristics to be focused for 21st century HEIIs are Collaborative orientation and direction, Global mind-set with desi outlook for cultural agility, Consciousness awakened state to overall environment and digitally dexterous, Orientation for innovative transformation, 360^o effective communications, integrity with developmental approach, Multitasking attitude for skill to convert risks into opportunities, and strong influential agility and creativity at professional and personal levels.</p>
<p>To take stock of HEI surroundings or environment around the leadership such as questioning and curiosity towards innovation and entrepreneurship, even in situation of failures. So, identify the pain points where learners love and cherish the most.</p>	<p><i>Sustainable resources</i>: optimized utilization towards learning to raise living standard under uncertainty and ambiguity circumstances for dealing with failure causes. <i>Productive leadership</i> recognizes intellectual of human resources meeting the needs of existing and futuristic emerging competitions.</p>	<p>Keen for keeping upgraded and updated with innovations happening in the surroundings useful for productivity enhancement.</p>
<p>Technology-driven HEII leadership must have demographic knowledge, economic mastery, ability to counter and tackle future skill shortages and diversity, culture of connectivity and social networks alongwith societal links and industry repo.</p>	<p><i>Leadership</i> optimum optimism, confident for multi-dimensional responsibility through inter disciplinary approach to attract stake holders to deliver the best.</p>	

Recruitment, evaluation and review for Vice-Chancellors and Directors in many Indian universities from time to time had been in legal controversy as its process is much politically influenced and term is also 3 years. The OECD-IMHE survey report (2003) compares the methodology and term duration of Vice-Chancellors (Chief Leader/officer of Academics, Administration and Researches). Other than India and Norway, VC term duration is 4-7 years, not only 3 years, which is renewable too. All countries have recruitment system quite different from India where ruling government interferes through Governor/Chancellor making the VC its 'yes-man'. A VC always is busy in routine assignments and hardly gets 25 percent of total time for productive contribution which propagates down the line. Hence in reality, growth and productivity of an Indian University is retarded. An HEII established in 1950 has travelled much less than the half what it had envisioned making productivity low.

3.2 Dependency of 21st Century Higher Education Leadership on Artificial Intelligence and ICT

Pew Research Centre with 979 experts, in a survey, conducted in 2018 to understand AIT impacts on 21st century education and future of human beings (Schaffhauser, D. 2018). Over 63 percent of experts opined that by 2030 the human capacities will enhance and most of the human beings would be better off. One of the respondent John Laird Professor, University of Michigan foresees that there will be improvement in individualized higher education and skill-based training. Lou Gross, Professor, Mathematical grid computing-ecological systems, University of Tennessee, said, "AIT would deliver better productive adaptive learning with its support to teachers and learners". Guy Levi, CEO, Centre for Educational Technology, Israel states, "AIT in HE would be a productive game changer to manage the diversified learning through innovative pedagogies and surely to enhance the learner's potential". Kristin Jenkins, Director, Bio-QUEST Curriculum Consortium, responded, "AIT will facilitate with perfect analysis of learners' and facilitators' growth and progress". AIT would focus on and resolve the complex 21st-century learning skills too.

Barry Chundakov, Principal, Sertain Research said that AIT would demolish the memorization aspects and trends of entire education spectrum as knowing is not retained while AI machine learning model would retain to connect and assimilate the generations. Henning Schulzrinne at Internet Technical Centre IEEE, Columbia University, stated "AIT based higher-education will become a luxury good to being delivered by videos on MOOC platforms with no human involvement to deal with tremendously increasing costs-to-learner". Karen Oates, Finance and Workforce Development, La Casa de Esperanza expresses her concern on AIT adverse impact on working poor to low-middle-income populations interms of losing their jobs, robotic culture will dominate and prevail. Social and personal economy will go down and even no sanctioning of fund for maintenance of AIT driven or run machines be

the situation. Biggest question would arise under breakdown situations when human won't perform precisely due to luxurious habits, especially in higher education system. David Zubrow, Carnegie Mellon University favourably spoke, "AIT could transform the world better for all through delivery of learning to all even to remotely located while threatening concern is that the control would be consolidated in few hands for their personal gains.

Noted threats of AIT run smart machines in comparison to numerous advantages that it offers should also be focused. These aspects are human capacity deterioration, high maintenance cost, non availability of experienced experts to maintain, dangerous breakdown situations, uniform awareness creation amongst all stakeholders, creating AI facilities at affordable cost to the entire society, training and re-training the users even for updated adaptable AIT, and individual human's personalized autonomy.

ICT enabled learning and productivity enhancement for 21st century can be made possible under three phases as preparation for policy development and capacity building, developing the blended courses and the use of blended courses through strengthening the infrastructure, and then evaluation of practicing the blended learning and its benchmarking. Schaffhauser (2018) identifies four main areas of 21st century HES as student acquisition, academic-learning, students' affairs, HEII efficiency and administrative decision-making processes getting direct benefits of AIT.

3.3 Practical Building Blocks (Scharmer, O. 2018) on the Way of Efficiently Building 21st Century HEII

CCAS for making HEII system sensible and aware-off itself meeting the 21st century demands in terms of industry-4.0.

- C: Cross-sector innovation labs to bring the stakeholders, innovators, colleagues, partners and learners together into the stream.
- C: Creating the cross-intelligence capacity building through on-line cloud facilitation, M-learning and research such as MOOC and sharing all kinds of resources for close to zero cost.
- A: Awareness-based action research as deep-learning and data-imaging in the era of Big-Data making we visible by others' eyes such as facebook, linkedin, youtube, google-scholar, research-gate, scopus, and
- S: Societal needs of HEIIs to have experienced and knowledgeable faculties in order to create a learner centric learning environment. High quality practices and platforms in HEII system will make it sensible and conscious about meeting the 21st century demands in terms of industry-4.0.

3.4 Faculty Crunch in HEIIs, and in Indian Schools: Careless planning of the Educational Leadership

Quality improvement is possible once the system survives. As per Business Line, 'more than 2,15,000 teaching posts in schools' while as per MHRD, '35000 teaching posts in HEIIs' are vacant. Capgemini's innovative HR Einstein formula, $E = mc^2$ where engagement of employee depends on the factors namely motivation, compensation and career.

Table 2 (a). 'NAAC' Accredited, UGC 2(f)/12B Recognized HEIs (Ganesh, 2018) (www.ugc.ac.in), (31.3.2017), www.naac.gov.in (28.3.2017)

S. N.	State / Union Territory	No. of 2(f)/12B HEIs	No.2(f) / 12B HEIs NAAC accredited	% of 2(f) / 12B HEIs NAAC Accredited	% 2(f)/12B HEIs (Applied for NAAC)
1	Andaman Nicobar Islands	2	1	50	50
2	Andhra Pradesh	362	207	57	43
3	Arunachal Pradesh	9	6	67	33
4	Assam	297	169	57	43
5	Bihar	405	69	17	83
6	Chandigarh	20	10	50	50
7	Chhattisgarh	160	63	39	61
8	Daman & Diu	2	0	0	100
9	New Delhi	78	34	44	56
10	Goa	29	22	76	24
11	Gujarat	449	331	74	26
12	Haryana	175	126	72	28
13	Himachal Pradesh	55	36	65	35
14	Jammu and Kashmir	85	31	36	64
15	Jharkhand	123	34	28	72
16	Karnataka	617	446	72	28
17	Kerala	243	194	80	20
18	Madhya Pradesh	438	177	40	60
19	Maharashtra	1191	623	52	48
20	Manipur	58	19	33	67
21	Meghalaya	29	13	45	55
22	Mizoram	27	19	70	30
23	Nagaland	33	15	45	55
24	Odisha	465	206	44	56
25	Puducherry	18	9	50	50
26	Punjab	245	149	61	39
27	Rajasthan	258	128	50	50
28	Sikkim	1	1	100	0
29	Tamil Nadu	426	332	78	22
30	Telangana	230	109	47	53
31	Tripura	24	6	25	75
32	Uttar Pradesh	1942	211	11	89
33	Uttara hand	60	30	50	50
34	West Bengal	437	276	63	37
	All India	8993	3726	41	59

Table 2 (b). 'NAAC' Accreditation Criteria and Indicators for HEIIs (Ganesh, 2018)

Criteria	Indicator	Weight
Quality of Education	Alumni of HEII winning Nobel Prizes and Fields Medals	10%
Quality of Faculty	Staff of HEII Winning Nobel Prizes and Fields Medals	20%
	Highly cited researchers in 21 broad subjects say STEAMMSSH	20%
Research Output	Research articles published in Nature and Science	20%
	Research articles indexed in Science Citation Index-expanded, Social Science Citation Index	20%
Per capita Perfmrnce	Per Capita academic performance of HEII	10%

Table 2 (c). Ranking Parameters and Weightages-2017 (Ganesh, 2018)

Sr. No.	Parameter	Marks	Weightage
1	Teaching, Learning and Resources	100	0.30
2	Research and Professional Practice	100	0.30
3	Graduation Outcomes	100	0.20
4	Outreach and Inclusivity	100	0.10
5	Perception	100	0.10

3.5 Methodology to enhance productivity in HEIIs - Professional Ethical and Human value-based Education

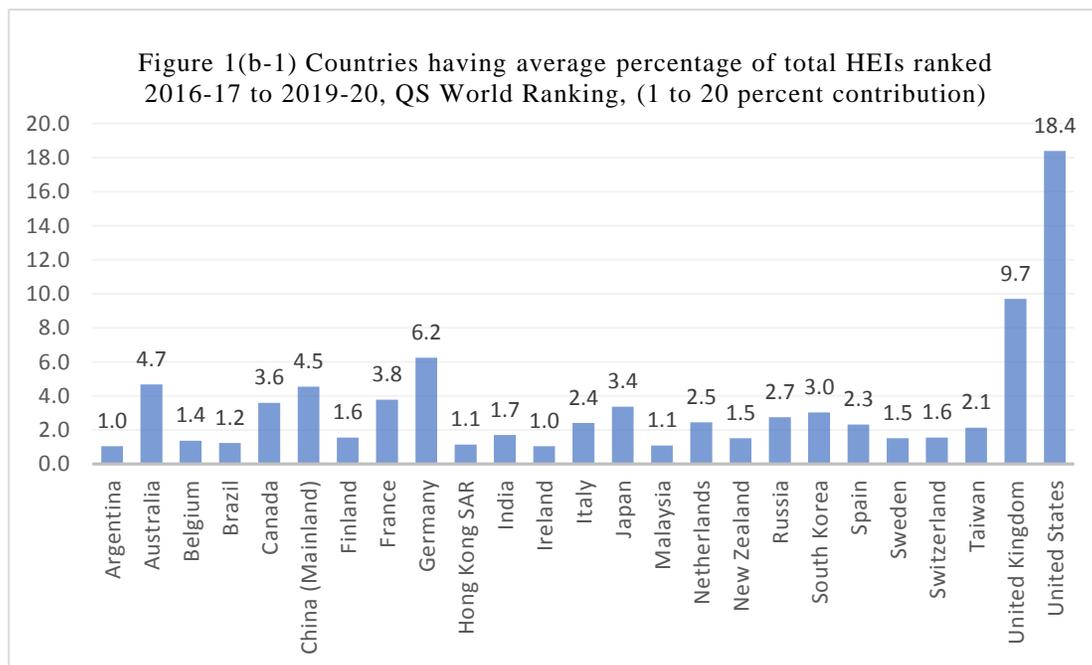
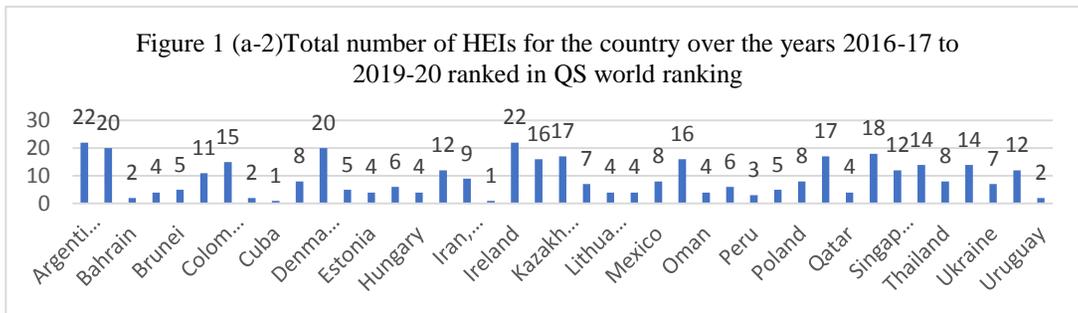
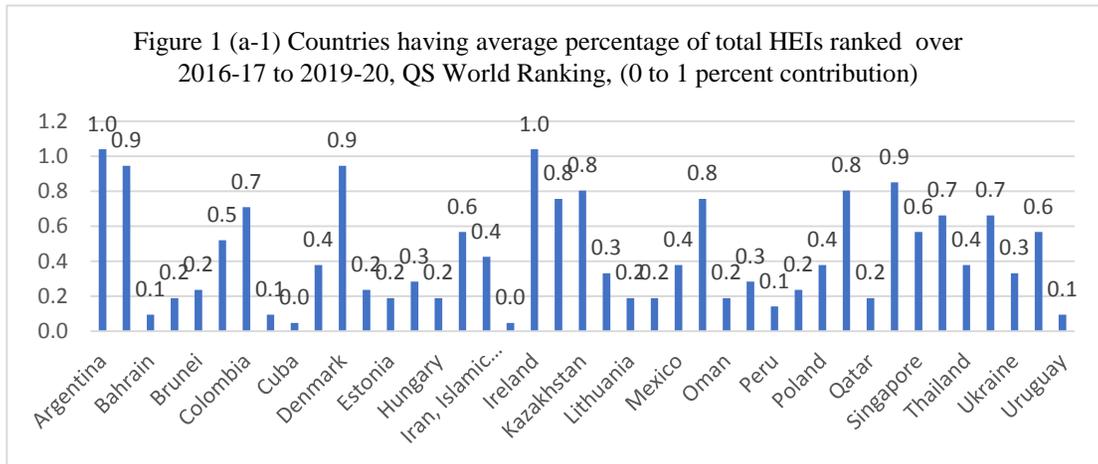
Social-humanity ground must be observed by teachers, staff members and learners and the same need be systematically periodically transparently evaluated by HEII governance as model of graciousness, cordiality, obedience, kindness and self realization alongwith basic and vocational education. This is complete education system which gives deeper understanding, takes care of society and culture, and produces contentment and high standard of living with perfect knowledge and liberation. Recommendations of National Policy on Education (1986), and National Framework School Education (2000) promote productivity and value of IES that includes cultural heritage, gender equality, environmental protection, democracy and constitutional national identity, removal of societal barriers, human rights for girl child education, and focus on cleanliness, justice, respect of law and integrity (2010 Conference of European Ministers of Education). USA, Australia, Canada, and UK transformed their HEIs into outcome-based education system which evaluates student's performance as a holistic approach, need based critical thinking and innovative approaches. Identical issues were addressed in 2002 by NCERT and 81st report of Parliament (1999) recommended value-based school and higher-education. Integration of values with traditional subject knowledge, professional methodology and modern ICT skills become practical wisdom which would be the productive base for 21st century IHE to meet with the global and local challenges.

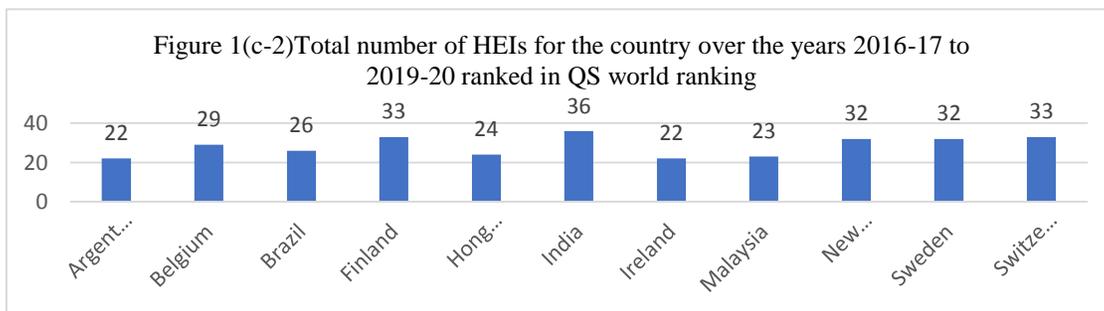
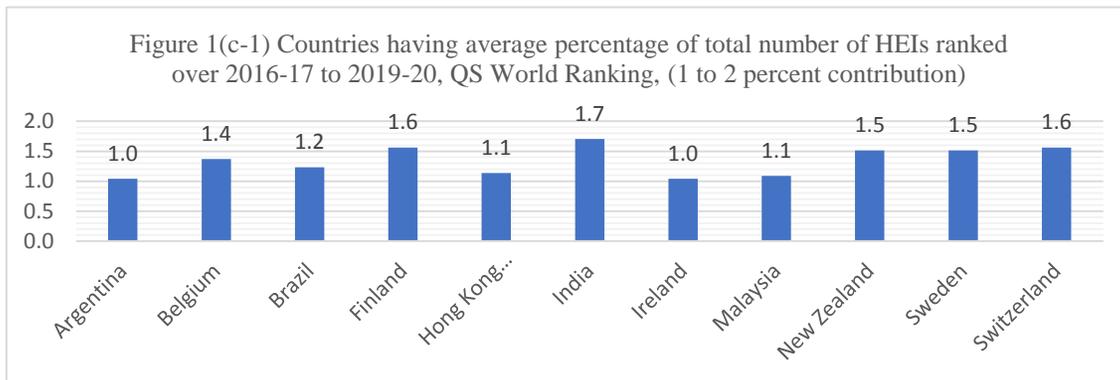
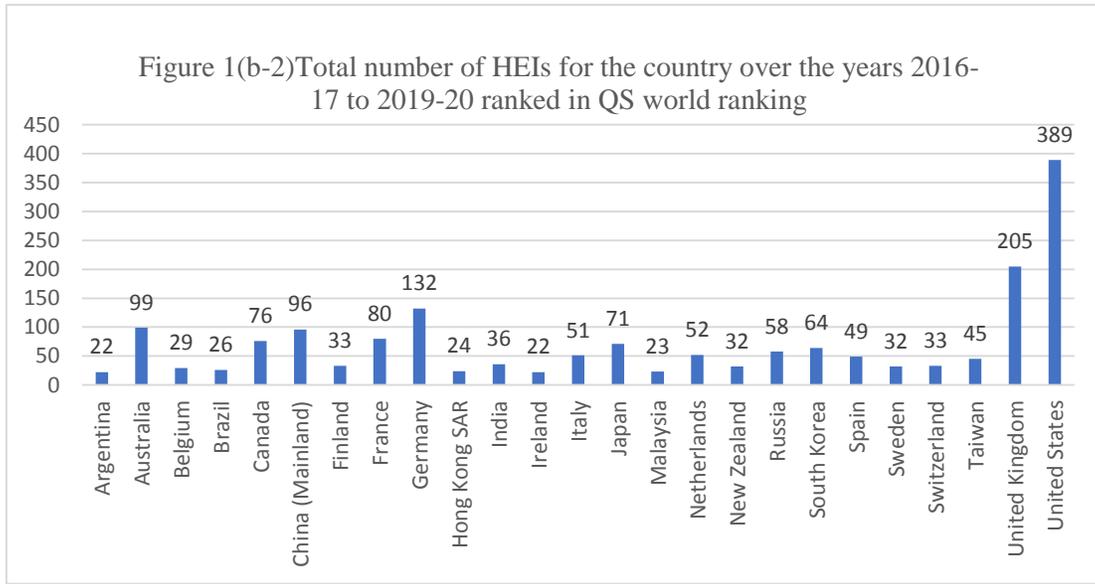
4. Concerns Relating Enhancing the Productivity of Existing Indian Higher Education

4.1 Facts and Figures

IHE Growth mapping (Vishwith Shetty, 2013) shows that number of universities increased from 25 in 1947 to 677 in 2013, 700 colleges in the year 1947 to 35539 in 2005, students' enrolment has increased from 0.1 million in 1947 to 21.80 million in 2013. Constraints of HEII-globalization are truly dynamic having challenges and opportunities parallel, said Peter Drucker, such as innovation in translocation and transnational education, multicampus franchised and even overseas learning and research centres, off campus and distance mode or on-line or part-time studies, dual or integrated or exchange programmes, and provisions of breaks, extention, waive-off, credit transfer and continuity in semester based education system. GoI has poor track records regarding compulsory free primary education due to large population. On other end, Indian economy demands earning from education sector. HEII as service sector cannot afford high-end productive-researches and highly skilled researchers and so IHE finds it difficult to produce highly skilled manpower for ICT (Goodyear, P. 2005), knowledge, health, communication, finance, security, infrastructure, management. Without hollistic and out-of-box-thinking, planning and approach, HEII aspirations on leading world economic forum is impossible through existing HE system which excels an individual but not the society. So, private HEIIs autonomy with new-devised funding and scholarship scheme for learners should make sure that no deserving candidate faces injustice towards higher education. The QS, and THE world ranking reports

(2019) represent that IHE stands no where amongst world HEIs with respect to quality (More, 2019), productivity, research and innovation (Ranganathan, R. & Rao. SVL, 2011), globalization, entrepreneurship and employability (Dwivedi, Vedvyas & Joshi, Yogesh C. 2019) and that is because of crisis in HEIIs' leadership.





4.2 Productivity Contribution of HEIs on World Platform

QS world university ranking statistics shows that productive contribution of HEIs over the four years from 2017 to 2020, was meagre while Indian Education System is the 3rd largest in the world. The average productive contribution of USA was above 20 percent, 10 percent of UK, 7.5 percent of Germany, 6 percent of Australia, 6 percent of China while that of Canada was 4.3 percent, of France was 3.9, of Japan and South Korea little above 3.5 percent, Russia, Italy and Netherlands ~ 2.5, Taiwan 2.2 percent while India, New Zealand, Sweden, Finland and Switzerland was almost equal (~1.5 percent) as depicted for this QS ranking in figure 1 (a-c).

5. Approaches for Productivity Excellence in Indian Higher Education: Leadership Perspective

Productivity and quality in IHE couldnot be clearly understood jointly by employees, employers and regulatory agencies because of multiplicity and complexity of objectives (Vargese, 2019). 21st century HEII productivity enhancement can only be ascertained when governance, leadership, teachers and students are transparently made aware of vision, mission and predetermined input parameters to strategic output objectives of HEIIs processes. ISO suggests a three-point process of productivity evaluation under subheads of suitability of procedures and objectives, plans and actual execution of activities, and effectiveness of productive activities and goals.

5.1 Proposing a Productive HEII Model: Central to Leadership

Curriculum goals and objectives should be revised and communicated systematically. It should be flexibly designed so that it can be aligned with the fast changing societal and educational demands. Feedback from stakeholders should be collected, reviewed and then required steps should be taken to improve productivity and transparency of the IHE system. This promotes uniformity and equality in all processes across the HEII. Governing bodies of an HEII must periodically review and communicate its initiatives, plans, goals, objectives, regulations, norms, innovative decisions and policies transparently for creating a flawless and growth-oriented culture. Productivity assurance system must be nurtured for all academic administrative affairs which conducts productivity assessment, analyzes productivity sustainance and promotes productivity enhancement on periodic basis as a tool for good governance and purposeful leadership (Middleton, 2019) of 21st-century HEII.

5.2 Computing the Productivity of HEII as a Process: Pivotal is Educational Leadership

Based upon authors’ knowledge, experiences and skills, the productivity measuring and evaluation model for an HEII has been proposed in figure 3, where A to I are main input-variables (table 2) whose quality generally in HEIIs are dependent on decision-making governance system of HEIIs. Quality-grade of these variables are, excellent = 5, very good = 4, good = 3, average = 2, poor = 1. Marking-formula is based upon these grades, such as Marks scored = 10 * Grade. Hence, Total maximum marks for A = 250 and minimum marks for A = 50 and likewise for B to I grades. HEIIs’ Productivity ‘P’ is function of all variables that is grade and score of P also varies from excellent to Poor depending upon the combined grades and scores of input variables. Miscellaneous aspects, parameters and factors to be given minus five marks for each one and multiplied and retotaled then for cases such as agitations, strikes, grievances, court cases etc. based upon the regulatory councils’ official reports and observations. Similarly an Analysis Model for Internal (HEII) Quality Assurance (Scheme) System (Ganesh, 2018) connects the dots which comprises of students, teachers, staff members, management, employers, employees, alumni members, parents of the students and learners, state and central governments, and industry.

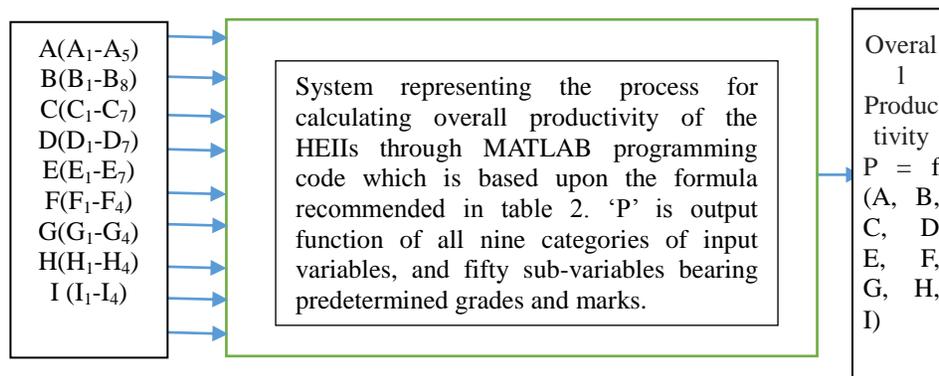


Figure 3. Evaluation and Improving System for Enhancing the HEII Productivity ‘P’

Table 2. Nine Variable-Model for Enhancing HEII-Productivity and Ranking (Inspiration: NAAC-India Criteria, Times Higher Education World Ranking, NIRF and QS World Ranking)

Variables	Subvariables	
Academic Aspects (A1-A5)	1. Course curriculum design, regular updates, planning and implementation	4. Existence of students' feedback system and consequential improvements implemented
	2. Academic flexibility and adaptability as CBCS, Interdisciplinary	5. Continuous evaluation system such as examination, projects, attendance, discipline, internal and external, quizzes, debates, seminars
	3. Enrichment through practical delivery	
Teaching Learning Aspects (B1-B8)	1. Teaching Methodology making learning easy	6. Teaching Evaluation Process, and its periodic reviews and reforms
	2. Learners' enrolments and profile	7. Learners' performance and learning Outcomes
	3. Learners' diversity and flexibility	8. M-Learning, MOOC, SWAYAM implementation
	4. Teaching Learning Process	
	5. Teachers' quality and productivity	
Infrastructure and Campus (C1-C7)	1. Learning related ICT oriented infrastructure facilities	5. Initiatives for Earth, Energy, Water, Green facilities
	2. Library and Reading IT Facilities	6. Radiation, Pollution and plastic free status and culture
	3. Instructional Areas as Classrooms, Laboratories, Seminar Halls, Tutorial Rooms	7. Wi-Fi, Paperless administration and departments, Environmental consciousness
	4. Maintenance and cleanliness	
Research and Innovation Aspects (D1-D7)	1. Research culture, atmosphere, facilities	activities and participations and awards.
	2. Publication and Patent Initiatives and outcomes, impacts and support	5. Resource Mobilization for research fund.
	3. Fund raising methodology through research consultancy projects, industry income.	6. Research extension activities such as village adoption, laboratory utilization during vacations.
	4. Research encouraging and promoting	7. Staff intension and motivation to pursue for research studies and contributions
HEII's Leadership, Management and Governance (E1-E7)	1. Various Leadership roles as Transparent Regulations, Vision, Objectives, Plans	5. Steps taken and under plan for internal quality improvements and assessment
	2. Developmental Strategies, initiatives, actions and executions and deployment	6. Status of various committees as per course regulatory agencies and bodies, NCTE, BCI, PCI, AICTE, UGC, MHRD, INC, IMC, AIU
	3. Staff development HR Norms and Implementation for empowerment strategies for all stakeholders at all levels	7. Collaboration, Tie-up, MoU with concerned industry and organizations relating the courses and programmes being offered and in future planned to be offered
	4. Financial sources, mobilization and utilization	

<p>Approval, Recognition, Accreditation Aspects (F1-F4)</p>	<ol style="list-style-type: none"> 1. Tabular details of approval, recognition and accreditation status for all courses and programmes from concerned regulatory bodies since inception. 2. Minutes of meetings and approvals of all sections/departments/colleges for any small decisions taken and implemented and executed since inception of the institution such as 	<p>appointments, terminations, increments, punishments, course-exam-funding-scholarship related reforms.</p> <ol style="list-style-type: none"> 3. Audited reports related libraries, laboratories, academics, accounts 4. Actions and initiatives taken for circulars and notices from time to time by regulatory authorities and councils
<p>Alumni and Stakeholders' contribution and extra-curriculars (G1-G4)</p>	<ol style="list-style-type: none"> 1. Alumni contribution in any forms such as training the students, funding, knowledge upgrade, placement 2. Societal out-reach and extra curricular activities in practice and being undertaken. 	<ol style="list-style-type: none"> 3. Contribution from students' parents, staff and expert from outside under any terms as books-equipment-financial donation 4. Involvement of institution appreciating the other stake holders from nearby areas, villages, retired citizens from the society etc.
<p>Learners' perspectives, Best Practices and future alignment (H1-H4)</p>	<ol style="list-style-type: none"> 1. Learners' mentoring, psychological training and support to appreciate their performance 2. Monthly/Quarterly progress monitoring system for learners and involving updating their parents for improvement. 3. Engaging the learners in academic, 	<p>technical, extra-curricular activities, projects, assignments, societal activities such as plantation, legal aids, counseling, health and green clubs</p> <ol style="list-style-type: none"> 4. Detail all best practices department /institution-wise, yearwise since inception
<p>Globalization, Collaboration and Internationalization Outlooks (I1-I4)</p>	<ol style="list-style-type: none"> 1. Present status of institutional internationalization in all sections such as faculty, students, visits, exchange programmes, research, academics, knowledge and resource sharing etc. 2. Yearwise growth in terms of collaboration for global exposure and experiences by and for stakeholders 	<ol style="list-style-type: none"> 3. Conferences, Institutional Boards, Member ships, Alumni, Technology-Knowledge Transfer cases etc. 4. International contribution in exams, teaching, advisory, policy funding decisions, under any head-subhead from A to I.

6. Discussions and Recommendations

Leadership should initiate to define the professional standards for HEIIs to recognize and set benchmark for teaching-learning-evaluation roles. Measuring the productivity, efficiency and effectiveness through building evidence for improving the existing trends and practices for all the teachers and learners where leadership, and governance should participate as role models.

6.1 Recommendations: 4 Ls

Leadership should focus on direct impacts of behavioural, cultural, entrepreneurship, ethics and etiquettes, morals, attitude and professionalism with human values in and outside the HEII campus in line with (UK Professional Standards Framework for teaching and supporting learning in higher education, December 12, 2019).

Leadership should establish and nurture productive educational developments at HEIIs for quality (Tam, M. 2001) and innovative ICT enabled classroom teaching, practical learning, creative educational pedagogy (Vandenkendelaere, B. 2011). to improve skill of the students and promoting sharing of optimized utilization of learning resources, efforts and capacities of all kinds at all levels across the system.

Leadership should create awareness to recognize challenges, opportunities and risks through close cooperation, healthy coordination which in turn will increase and excel productivity. Leadership's vision for 21st century should include training the trainers for excellence in teaching (Sparrow, H. 2013), strengthening academic identities, finding sustainable scope by introducing 'teacherresearchers' (Floud, 2010).

Leadership should devise policies for raising and providing funding (Floud, 2010), creating career communities as intensive resource (Lee, Y. & Patel, S., 2019), building quality teaching-learning-research as the landscape of HES (Zaffar, A.N. & Siddiqui, M.H., 2019).

6.2 Implementation: RRCA, the Immediate Need of the Era

HEII model-activities to be adopted immediately under guidance of able leadership for 21st century, called as Educational Leadership's Productivity Enhancing Attributes (ELPEA), can be summarized as RRCA.

Recruiting teachers of excellent academic-research background having some industrial experience so that innovative and practical learning can be made possible for students through hands-on-projects useful for 21st century alongwith collaborative exchange programmes and courses.

Reward and appreciation systems for best teachers for their overall productive contribution, necessary aids in policy and decision-making strategic developments from HEII level to national and international levels.

Curricular and extra curricular aspects, Teaching-learning and evaluation methodology, Research-Innovation-consultancy and extension, ICT infrastructure and learning-training resources, Student skill sharpening support and progression, Leadership governance and management, Best practices and other accreditation parameters for HEII as per 2012 UGC mandate.

Adoption of NBA's Self Assessment scheme to focus on fund raising and financial assistance alongwith continuous improvement in the HEII during previous years

7. Conclusions

Purposeful leadership is seed and root to productive development of HEI. S/he is a born leader, implicitly leadership is basically genetic i.e. one is either a leader, a follower, an iconoclast, an unfocused vagabond or worse. The leaders of an HEI could be developed, nurtured instead of assigning leadership based upon seniority in academic hierarchy. Two dimensional effective Academic and Administrative Leadership at all levels, vertical and horizontal, from department to institution to policy makers is the need of 21st century HEIIs. Century old traditional hierarchical leadership alone cannot meet the 21st century requirements and demands. The models, methods, issues, challenges, hurdles, problems, opportunities, remedies and risks mentioned in this review study open the innovative doors for future aspirants, HEIIs and regulatory councils towards elevating the performance of Indian higher education system. Productivity enhancement through investments in innovation and researches will enable the 21st century HEIIs to elevate the overall quality of higher education as an important aspect of 'absorptive capacity' for the society. For faculty and admin staff, recruitment to promotion and long-term retention should base on quality, character, true learning and not on mere educational qualifications. They must compulsorily be well facilitated for continuous periodic training before and during tenure for global standard performance. IHE has so far been only nursed as a baby, fed as a child and not freed but over regulated. Hence, establishing a National Independent Productive Regulatory Authority (NIPRA) is the need for 21st century. This productive model presented here includes various aspects of an HEII such as agitations, strikes, grievances, court cases etc. which are generally not considered and infact neglected while measuring the Productivity.

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