Quality Research and Teaching Curricula as Road Map for Making Indian Universities Attain World Class Stature

Dr. Asha Gupta
Associate Professor – Chemistry, Govt. Meera Girls PG College
Udaipur (Rajasthan) – 313001
Email: guptaasha86@gmail.com

Abstract *- Quality research and world class curriculum in Science, technology, humanities has not attained the desired status in a holistic manner. It has developed in the form of patches of excellence. We are still not sure about to what to teach, why to teach, when to teach, how to teach and who will teach. This has seriously impaired our curriculum development, pedagogy of teaching, continuity between school, college, university education, planning, management, futuristic vision, inculcation of value based education entrepreneurship and research. Nexus between industry and research to fragmented and is on very fragile premises, planning, scope and content. Our curricula and research do not holistically address national concerns and issues of security, energy, food, bio-diversity, environment, health, hygiene, sanitation standards, water quality, information technology etc. Emerging frontiers in bio-technology, nanosciences have not received wide spread attention, nor they have been implemented in according to natural needs and globalization. Quality research required centers for excellence in training professionals in the field of Science and Technology. Compartmentalisation of Sciences & Humanities has caused isolation of talents, prevented interaction, dialogue and communication. This has resulted in 'Ivory Tower' approach of individual efforts rather then 'Team' and 'Group effort'. The concept of multi-disciplinary approach, state of the art laboratories, digitalisation of teaching methods are the primary steps to enhance the quality of research and teaching in the Indian University - Collegiate Systems. There is need to understand the regional problems and issues of India - a land of vast resources, bio-diversity and human resource. The evaluation standards, feed backs, monitoring, discovering ways and means to correct the national priorities vis-a-vis global challenges and opportunities can result into turning our present nearly archaic syllabi, teaching methods, avenues and goals of research into structures that can become world class. Ethics, code of conduct, philosophy and psychology of educational processes required coordination, comprehension, freedom of expression, a "Think Tank" approach, professionalism inculcation of proper motivation and attitude. Our youth needs to be skilled, creative, competitive and willing to learn the new art and craft of Science and technologies. Education is the sources of empowerment. Knowledge is power and it is the very basis of evolving a powerful society. We have the talent, but we need the will, mechanisms and support.*

Key Words: *Quality Research, Teaching Curricula, Road Map, Design.*

I.INTRODUCTION

Indian Universities and Collegiate system has shown signs of weakness in all its essential components e,g, academics, administration and financial management. Many commission and committees have been formed at the state and central level to identify the causes and to suggest remedial measures. It has been conceded globally that education is the source of empowerment for all sections of a society. Knowledge based societies will not only thrive but would dominate the world in all spheres. The last decade has been the source of astonishing changes in the field of science, technology, skill development and behavioral manifestations across the world [1]-[4].

Nations which have embedded in their policies the new scenario of development via science and technology are out of wilderness of superstition, ritualized traditional thinking, living and modus operandi.

India with a population of 1.25 billon stands in front of the comity of nations in having largest percentage of youth. Computer science, information technology has brought the world and its contained global wisdom, intelligence, expertise and experience at the 'finger tip' level. Education has sensitized the youth of our country. Their aspirations have grown linearly. The wish to complete with the best of the world has energized them, despite the regional diversities, short comings, inconsistent policies and poor implementation with no system of feedback, coordination and control They are the 'pockets of excellence'. Their team work and vision for a 'New India' has been manifested by the successful Mission Of Mars. Areas of computer science, bio-technology and I.T. have also excelled. Yet it is sad to find that out of over 2,800 Universities and 30,000 Colleges none of them appears in the list of even first three hundred as per survey in 2014 [5]-[8].

II.OBJECTIVES

The purpose of this presentation is to examine the following issues with an aim to suggest and recommend remedial measures;-

1. Is language and cultural diversity an impediment in synergizing teaching curricula with research priorities?
2. Can the curricula be designed for imparting state of the art knowledge, experience and expertise to make the end user skilled, professional and creative thinker and action oriented person?
3. Can university teaching and research become compatible to the industry?
4. Identification of national priorities, can these be handled through the educational processes to turn out a man-power (Human Resource), which is so skilled so

as to make India a hub of production rather than a service center.

II.OBSERVATIONS

A perusal of literature on higher education indicates intricate patterns. Thus, there are several parallel curricula, trivial research, suspect system of evaluation and accreditation. Class room teaching of archaic curricula by 'chalk and talk' method, emphasis on 'rote memory' creates boredom, restlessness, anxiety and tensions in youth [9]-[13]. Rural youth are at enormous disadvantage. They are at the bottom of ladder of 'learning, experience and attain no skill and expertise. At least they are 'trained' to form a part of the subservient population of youth. Semi urban, urban and metro youth also show stratification- since they receive education via state-run colleges- universities, private universities all running in different direction with regard to their approach, attitude, perception, and methodology to disseminate information. Use of I.T. and digitalization is serge [14]. The youth is in hurry. They want to know about the challenges and opportunities that can be fathomed out from the vast, volcanic resources of knowledge in energy field of basic science, humanities, law, engineering, medical sciences [13]. Interdisciplinary approaches are advocated but not implemented. Educationists, planners, administrators, implementers cannot agree on the basic questions of what to teach (research), why to teach (research), when to teach, how to teach (research) and who will teach (research). National priorities like security, bio-diversity, environment, food, energy, water, pollution, issues of health, hygiene, sanitation, housing, city planning, etc. are not knit comprehensively, cohesively in a meaningful and for significant and / or significant manner.

Nexus between industry, research-teaching awaits establishment. There are patches of such collaboration but the industry looks at university research with suspicion. Its credibility and practicality is in doubt.

Universities are centers for freedom of expression, dialogue, communication. There is vacuum of varying degrees. Everyone wants the government to do something. This is true for all state universities and collegiate systems; others want U.G.C., ICMR, AICTE to step in. There are National commissions, committees, whose recommendations remain unattained because of inhibitory pressures of financial difficulties. The system of academic and professional (performance) audit is non-existent.

IV.DISCUSSION

Realistic assessment of teaching curricula, research priorities can help in providing holistic education to youth. If 'Make In India' program is to succeed then a very strong functional connection subject to periodic review, evaluation is needed. All curricula should lay emphasis on skills, art and craft of communication, creative thinking, script writing, innovative methods of teaching, refinement of scientific investigations, inputs and use of technology. A structured parameter of academic/ professional audit has to be put in place.

Curricula need to be multidisciplinary and multidimensional to cite a model. There should be department of Life-Sciences. The archaic segmentation of Zoology, Botany, Micro-biology, Bio-technology, etc. should be merged with Bio-Chemistry and Bio-Physics. Strong emphasis has to be on learning instrumentation techniques. In a 3 year program of B.Sc. the focus should be on Life-Sciences**:**

- **First Year Course may include**; Cell- Biology, Genetics, Bio-Chemistry, Bio-Physics, Bio-Statistics and Behavioral Science.
- **Second Year :** Environmental Science, Biodiversity, Pollution, Health and Hygiene, Pathology.
- **Third Year :** Biotechnology, Instrumentation Science, I.T., Nanotechnology, Diagnostic Life Science.

Similar exercises need to be done for P.G. Courses and for Research Scholars who should be imparted training and work experience with industry, NGOs and entrepreneurs. It will be wise to train, maintain strong human resource from the school level itself so that the feeder system to colleges, universities and research institutes become refreshed continually by creative visual ideas. In the fast changing dynamic world of ours, conservation and reviving archaic educational programs by just giving them 'fancy names' is meaningless.

It is hoped that all the stakeholders of this conference will find opportunities to work together as teams to promote the ideas of rejuvenation to reenergize the Indian Educational System.

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