"CHALLENGES AND OPPORTUNITIES ACCELERATED BY 'MAKE IN INDIA' FOR TECHNICAL EDUCATION FOR BETTER EMPLOYABILITY & ENTREPRENEURSHIP"

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Abstract :

Technical Education is one of the most important components of the entrepreneurial ecosystem for creating a knowledge society which means a quality life of the society. There has been a tremendous amount of developments that has taken place to improve the quality of life of the people through sound technical education. At present there are 6214 Engineering and 3764 management institutions, with the intake capacity of 2934580 and 449829 students respectively. Still the technical and the higher educations have their own issues connected with suiting the demands of labor market. India has a huge potential to be the superpower with its abundant natural resources and young workforce. Since the globalization, liberalization and the privatization, there has been an expectation that India will seize all the opportunities and showcase its potential. But manufacturing sectors contribution to India's GDP has reduced from 15% to 13%. So "Make in India" which is a programme to make India the manufacturing superpower by encouraging and inviting manufacturers to set their bases in India needs a skilled labour force which has the tacit knowledge about manufacturing. Skilled labour required in manufacturing are in short of supply and this affects productivity and quality of manufacturing companies. This paper concentrates on challenges and opportunities for the Technical education institutions in preparing designed individuals who can possess tacit knowledge to meet and exceed the demands of labor market through its curriculum, which will enable to achieve the objectives of Make in India Programme which is a strategic move towards making India a manufacturing hub.

Key words:

Technical Education, Knowledge society, designed individuals, tacit knowledge, labor market.

Introduction:

The huge employability challenge in India is caused by relentless focus on celebrating knowledge acquisition and marks/grades to confirm the same. Hence it is a paradox when one says that the world and India is increasingly moving towards a knowledge gained society. It is also important to note that in an application driven profession, it is important to live-breath-do in a holistic and seamless manner. Hence, the technical education has to dramatically reduce knowledge content testing by rote, and replace it with multi channels of knowledge acquisition – from websites, teachers, peers, and self directed study.

They have to upgrade the curriculum that would be needed for the immediate future. More importantly; it is the pedagogy that has to be transformed the most. Higher focus on application, assimilation will ensure that there is a minimal gap between thought, intent and action. This will help the graduates to possess sufficient competency to perform a set of tasks/roles.

The direct co-relation between higher education and human resource development is an area of copious research. The two subjects have been studied from a variety of standpoints; notable among them are skill development, productivity and maximization of the potential for human resource development.

To say that an adequately evolved and broad-based higher education system is indispensable to economic growth and nation building would be a truism. Capacity building in the national context presupposes numerous resources—financial, natural and more—not the least of which is the human resource. Developmental activities require workforce which is skilled across the range in terms of extent: semi skilled, skilled and specialized. Therefore there is a need for strong technical educations like engineering and management.

Need for Knowledge Management for Sustainable Employment:

Learning is a complex dynamic process of interacting with many sources of information in meaningful ways to construct new knowing and understanding. Knowledge management enables a learning community to learn more effectively. Knowledge management is very important to an organization. Mission, conception, change and performance are four dimensions of knowledge management, which define the value of an organization.

The most important area of knowledge management is the concept of tacit knowledge. Unlike most other management tools, knowledge management encloses every individual in the organization cutting across departments, functions and business units.

Tacit knowledge which describes the ability of a person to have the know-how of the things is derived out of observation, experience or practice and imitation.So the individual who knows the theoretical concepts must be able to apply it in the appropriate context to be termed as a designed individual.

A designed individual will be able to apply the skills wherever necessary. Say a welder, fitter and riggers who are perfect interms of understanding where the hammer needs to be hit and how the parts need to be fixed is a perfect designed individual than the one who does not know. In case of manufacturing units these individuals are required for better productivity and quality manufacturing.

Since technical education determines the development and socio-economic condition of a nation, there is a greater need for high quality technical education to produce technically skilled manpower in India. Talented employees can obviously be created only through high quality engineering and vocational teaching and training. Leading institutions have adopted standard competitive research and object-oriented study programmes. Some of the programmes are innovative in nature and offer tremendous advantages and benefits to students, universities and industries. The main benefits to the students can be summarised as: gaining confidence in decision making, relating theory with practice, increased job opportunities, realization of responsibility, opportunities to know one's weaknesses and strengths, and opportunities to work with modern equipment and on problems of current importance.

Matching the requirements of Labour market with the Higher Education:

India has a huge potential to be the superpower with its abundant natural resources and young workforce. Since the globalization, liberalization and the privatization, there has been an expectation that India will seize all the opportunities and showcase its potential. However the recent years has showcased a tremendous growth in the services and is contributing to the GDP than manufacturing. Manufacturing sectors contribution to India's GDP has reduced from 15% to 13%.

The government has announced a number of initiatives to improve the share of manufacturing in GDP starting with the national manufacturing policy and more recently the Make in India campaign.

While many domestic and foreign companies/entrepreneurs have successfully started and are operating manufacturing plants in India,

there have been number of investments that have been stalled or did not fructify due to various issues. Setting up manufacturing business in India either by a domestic entrepreneur or a foreign company can be time consuming and resource intensive affair. One of the aspects where manufacturing companies face challenges is skilled labour.

Skilled labour required in manufacturing are in short of supply and this affects productivity and quality of manufacturing companies. With services growing much faster than manufacturing, talented young people have pursued careers in IT, ITES, BPOs, etc. leading to a dearth of managerial skills in the manufacturing sector. The setting up of the National Skills mission is a positive step in this direction.

National Skill mission is a partnership between the NASSCOM and the industry to develop a national database of registered and verified knowledge workers in the industry. This database is managed and run by NDML - a fully owned subsidiary of National Securities Depository Limited (NSDL).

National Skills Registry (NSR) aims to build a robust and credible information repository on the knowledge professionals in the sector. The data fields include permanent fact sheet of information on the professional along-with Photograph & appropriate background checks (where undertaken), thus providing identity security for the organisation and its clients. Biometrics is also included in this repository to ensure unique identification.

The benefits of NSR flow across to clients, service providers and employees. The data is owned by the employee who can authorize prospective employers to validate details and avoid duplication of background checks.

The industry benefits by having credible data on current and prospective employees eliminate issues of potential frauds and avoid repetitive background checks. Clients who deal with sensitive data are assured of proper verification checks of employees who are dealing with this data.NSR has enhanced the value proposition of Indian IT-BPO industry, as one that has raised the bars on security standards in pursuit of excellence and client satisfaction.

Experience has shown that private institutions are for more adaptable and non-formal provision is better in responding to the students' demand. Thus, a suitable mix of the public and the private, the formal and the non formal provision for higher education and training provides , an optimal solution and would meet the changing needs of economy and society.

Most of the Engineering and B-schools must focus exclusively on the interplay of enterprises and markets that must also look at:

Technology:

One must focus on 5 great waves of technology: computation, telecommunications, biotechnology and alternatives to the dense energy standard of oil.

Institutions:

A national business system must be defined as holding a number of components including state and financial institutions, as well as labour market regulations. The engineering and B-schools must coordinate economic activities of the stakeholders. It must address the scholarship requirements of both students and faculties.

Student exchange Programmes: In order to provide a cross cultural exposure and a global perspective to the students, one has to arrange for the student exchange programmes like that of IIMB.

Make in India and Employability:

The focus area of Make in India are providing employment, promotion of foreign direct investment and improving the share of manufacturing sector in GDP.

Only a labour intensive manufacturing sector can meet with the increasing employment needs in India and cater to the needs of the burgeoning local demanding young nation with over 800 million people under the age 35 and a median population of around 26 years, the initiative would definitely provide ample opportunities and a clear headway towards employment and fulfilling the demands of available talent and labour pool.

Challenges of education before "Make in India" mission:

Providing employment is one aspect of manufacturing and making sure that this employment is sustainable is a different ballgame altogether. Sustainability in the employment could only arise if the two ends- supply and demand of skilled workforce meets at the desired levels. Improving the skill set of the workforce and aligning them with the expectations of corporate and manufacturing entities is crucial.

As per the reports published in the CII's National Conference of Skill Development, hardly one third of the candidates met the expected criteria for employment and 32.77 % of the candidates were found employable. There are more appalling results upon delving more into sector specific outcomes such as one third of the candidates from polytechnic background could not pass the benchmark levels set by the employers.

This skill gap requires redefining the relationship between education (academia), industry and business.

Developmental activities of Government of India to strengthen Higher **and Technical Education:**

As per Prof. Yashpal,Former Chairman UGC-"Management of Universities" Yojana-2009 , the history of inculcating formal technical education in India started in the 19th century although it got momentum in 20th century with the onset of Constitution of Technical Education Committee of Central Advisory Board of Education (CABE). After India achieved Independence in the year 1947, the head-start of technical education emerged as a major concern for the Indian Government in order to face upcoming challenges and bring the country ahead.

The established the Indian Institutes of Technology, Indian Institutes of Management and Indian Institutes of Science were a vital step in the development of technical education in the Indian subcontinent. The ability of these institutions to produce competent and hard core intelligent scientists and engineers had managed to change the outlook of Indian on the global front. India was earlier known for yoga, meditation and holy places, but now it is reckoned for computer engineers.

Therefore, in order to maintain the standard of technical education all across the country, a statutory authority namely- The All India Council for Technical Education was set up in 1945. AICTE is renowned for planning, formulating and sustaining similar standards through accreditation, funding in particular colleges, monitoring and evaluation and awards thereby ascertaining coordination in management of technical education in India. The main objective of these authorities is to ensure that all the admission procedures, selection criteria, entrance examination and information regarding allied preparation material are carried out appropriately all across the country. Under the term 'Technical', there comes a number of courses which include degree and diploma courses in Engineering, Master degree Courses in Engineering, Master of Computer Application (MCA), Master of Business Administration (MBA), Pharmacy Courses, Courses in Architecture and Applied Arts and Hotel Management and Catering Technology Courses.

As per the Annual report of the AICTE 2013-14, The Government of India (Ministry of Human Resource Development) constituted a National Working Group to look into the role of AICTE in the context of proliferation of technical institutions, maintenance of standards and

other related matters. The Working Group recommended that AICTE be vested with the necessary statutory authority for making it more effective, which would consequently require restructuring and strengthening with necessary infrastructure and operating mechanisms. The Council is a 51-member body and has a Chairman, a Vice-Chairman and a Member Secretary with tenure appointments.

The details of the approved programs/ institutions and intakes for the year 2013-14 (up to October 2013) are summarized below:-

Sl.No.	Programme	No.of Institutions	Intake
1	Engineering and Technology	6214	2934580
2	Management	3764	449829
3	MCA	1571	122644
4	Pharmacy	1419	168287
5	Arch	165	12870
6	HMCT	119	9337
7	Applied arts & Crafts	67	4866
	Total	10298	3702413

Source: AICTE annual report 2014.

The Council has granted approval to 171 Institutions in the year of reporting and with an additional intake of 14898 in the various Technical/Management courses.

Major achievements in respect of following schemes of AICTE are given below:

● Scheme of community colleges under pilot project (AICTE Scheme of Equipment Grant-in-aid):- Government of India has decided to set up 200 pilot Community Colleges in existin colleges/polytechnics from the academic session 2013. Industry, including business, service, agriculture and allied sectors will be associated at all levels of activities in these College viz., development of curriculum, training of trainers/ teachers, supply of guest faculty and hands on practical training and evaluation to increased the confidence of the employer in the skills acquired by the learner.

● AICTE approved Public/Private Institutions under National Vocational Education Qualification Framework(NVEQF):

AICTE has given approval to 376 Institutes and 79 training providers to start the Scheme of Community Colleges under Pilot programme w.e.f. 2013-14. In 2012-13 One Institute on a pilot basis started at level 3 for training 100 students in auto sector and 100 students in IT sector.

● Employability Enhancement Training Programme (EETP) under AICTE: To facilitate technical institutions to respond to the\need of providing state of art Telecom equipment based operational Skill to engineering graduates to enhance their qualification, competence and employability by enhanced skill up-gradation, AICTE has signed an MoU with BSNL to use the training facilities and faculty of BSNL for the benefit of students in AICTE approved institutions under its Employability Enhancement Training Programme(EETP).

● National Employability Enhancement Mission (NEEM): The objective of National Employability Enhance Mission (NEEM) is to offer on the job practical training to enhance employability of a person either pursuing his or her graduation / diploma in any technical or nontechnical stream or have discontinued studies of degree or diploma course to increase their employability.

● National Vocational Educational Qualification Framework, Domain: NIELIT certified IT Professional (NCITP): All India Council for Technical Education has approved to add a new specialization under IT Sector by the name NIELIT certified IT Professional (NCITP) proposed by NIELIT under NVEQF. In order to create a general awareness about the alignment of Employability Enhancement Training

NIELIT courses with NVEQF and using NIELIT accredited Centres as Skill Knowledge Provider(SKP) for imparting hands on skills to students, an MoU on 26th November, 2013 has been signed between AICTE and NIELIT and formally launched the new specialization under IT Sector by the name NIELIT certified IT Professional (NCITP) under NVEQF at NIELIT Centre in presence of Hon'ble Ministers from Ministry of HRD and Ministry of IT and Communication.

(iii) Council of Architecture (CoA):- The Council of Architecture (COA) has been constituted by the Government of India under the provisions of the Architects Act, 1972, enacted by the Parliament of India, which came into force on 1st September, 1972. The Act provides for registration of Architects, prescribing minimum standards of architectural education for the purpose of recognized qualifications and standards of practice to be complied with by the practicing architects. The Council is managing its affairs out of various fees received by it and since its inception no grants-in-aid are received from Government of India. The Council of Architecture is charged with the responsibility to regulate the ractice of profession throughout India besides maintaining the register of architects. For this purpose, he Government of India has framed Rules and Council of Architecture has framed Regulations as rovided for in the Architects Act, with the approval of Government of India. Any person desirous of carrying on the profession of 'Architect' must have registered himself with Council of Architecture. The registration with Council of Architecture entitles a person to practice the profession of architecture, provided he holds a Certificate of Registration with up-to-date renewals. The registration also entitles a person to use the title and style of Architect. Presently about 330 institutions impart architectural education in India leading to recognized qualifications. The COA is required to keep the Central Government informed of the standards being maintained by the institutions and is empowered to make representation to the Appropriate Government. The appropriate Government then makes an appropriate recommendation to the Central Government with regard to de-recognition of recognized qualifications as mentioned in the Schedule or the Act.

There are five Research Councils in various branches of higher education as given below:-

Indian Council of Historical Research (ICHR):-

The Indian Council of Historical of Research (ICHR) was established by the Government of India, in 1972, as an autonomous body to encourage objective and scientific research in various aspects of History. The primary objective of the Council is to give a proper direction to historical research, encourage and foster objective and scientific writing of history, not only from the point of view of national integration but also to inculcate respect for our cultural heritage without encouraging a blind acceptance of obscurantism and revivalism in historical writings.

Indian Council of Social Science Research (ICSSR): The Indian Council of Social Science Research (ICSSR) New Delhi, was set up in 1969 by the Government of India. Its primary objective is to promote research in Social Sciences and to facilitate its utilization by the concerned stake holders, to the State

Government coordinates and develops skills to undertake research in social and development to 25 research institutes and six Regional Centres engaged in social sciences research at different places in India. The International collaboration Programme has been envisaged to Promote academic links among the social scientists in India and abroad. The Council is one of the implementing agencies of the social science component of the Cultural Exchange Agreements (CEPs) and Educational Exchange Programmes (EEPs) signed between the Government of India and the governments of other countries. Bilateral collaboration with premier social science organizations abroad are also undertaken. Activities undertaken within the framework of these programmes is exchange of scholars, joint seminars, joint research projects, joint publications, etc.

Indian Council of Philosophical Research (ICPR):- The Indian Council of Philosophical Research (ICPR) set up by the Ministry of Education, Government of India, was registered as a society in March 1977 under the Societies Act, 1860, but it actually started functioning in July 1981 under the Chairmanship of Professor D. P. Chattopadhyaya.

The Council was set up with specific aims and objectives out of which some of main objectives are to review the progress of research in Philosophy from time to time; to sponsor or assist projects or programmes of research in Philosophy; to give financial support to institutions and organizations engaged in the conduct of research in Philosophy; to provide technical assistance or guidance for the formulation of research projects and programmes in Philosophy, by individuals or institutions, and/or organize and support institutional or other arrangements for training in research methodology; to indicate periodically areas in and topics on which research in Philosophy should be promoted and to adopt special measures for the development of research in neglected or developing areas in Philosophy and to co-ordinate research activities in Philosophy and to encourage programme of interdisciplinary research;

As a result of series of discussions, deliberations and consultations amongst eminent scholars of history, science, philosophy and culture, it was decided to undertake inter-disciplinary study, so thatinterconnection between science, philosophy and culture as they developed in the long history of Indian civilization could be brought out in detail.

National Council of Rural Institute (NCRI), Hyderabad: The National Council of Rural Institutes (NCRI) was borne out of the programme of Action (PoA) on National Policy on Education (NEP) – 1986.

It was set up in 1995 as an autonomous organization under the Ministry of Human Resource Development (HRD) with the mandate to promote rural higher education. The mandate of NCRI is (i) promote Rural Higher Education on the lines of Mahatma Gandhi's revolutionary ideas on education so as to take up challenges of micro-planning for transformation of rural areas as envisaged in NPE 1986 (as modified in 1992); and as it was suggested by Radhakrishnan Commission (1948); (ii) consolidate network and develop Rural Institutes and endow them for recognition; (iii) develop Rural Institutes into

Regional Development Institutes and Rural Universities, which shall function as hubs for knowledge connectivity, and emerge as effective agents for rural transformation in the backward regions, through voluntary initiatives, wherever possible; (iv) regulate the quality of education of rural institutes and educational programmes in the area of rural higher education of all the Universities in India;

(v) design a variety of courses at the tertiary level around emerging rural occupations; (vi) strengthen teacher training facilities for Gandhian Basic Education; (vii) strengthen the content of all these institutions with emphasis on science, technology and management on the one hand and traditional wisdom on the other; (viii) promote vocational training programmes and initiatives for self-reliance; (ix) encourage field-oriented courses of rural institutes; (x) promote action-research as a tool for social and rural development; (xi) promote extension services to the community through micro-level planning; and (xii) advise Government of India on all such matters pertaining to rural institutes as may be referred to it from time to time.

Indian Institute of Advanced Study (IIAS), Shimla: The Indian Institute of Advanced Study is an advanced residential centre for free and creative enquiry into the fundamental themes and problems of life and thought. It was established in 1965 under the Societies Registration Act 1860 and is housed in Rashtrapati Nivas, Shimla. The main aim of the Institute is to promote creative thought in areas which have deep human significance and to provide an environment suitable for academic research and also to undertake, organize, guide and promote advanced research in all areas of Humanities and Social Sciences.

Fellows form the core academic community of the IIAS. During the year 2013-2014, three National Fellows, three Tagore Fellows, 31 Fellows and 8 Guest Fellows were at the Institute. Besides, the Institute invites scholars of eminence to deliver lectures at the Institute. In this regard, 4 Visiting Professors and 9 Visiting Scholars visited the Institute during the period under report.

(i) Establishment of New Model Degree Colleges in Educationally Backward Districts: A new scheme was introduced in 2010 to provide central financial assistance for establishment of a Model Degree College in each of the identified 374 Educationally Backward Districts (EBDs) where Gross Enrolment Ration (GER) for higher education was less than the national (GER). The main objective of the scheme was to enhance access to degree courses in EBDs of the country, so as to achieve expansion in higher education with inclusion, equity and quality.

Essentially, the scheme was a motivational one for State Governments to uplift under-served districts educationally by providing appropriate financial assistance. The scheme was now been subsumed under a new centrally sponsored scheme called Rashtriya Uchchatar Shiksha Abhiyan (RUSA).

(ii) Rashtriya Uchchatar Shiksha Abhiyan (RUSA): The objective of the scheme was to set up one model Degree College in each of the identified 374 Districts with Gross Enrolment Ration lesser than National Average.

As the practice of management is application led and multi disciplinary in character, changes in the business, social, economic and political environment have significant consequences on the leading technical education institutions. In the recent past these institutions have triggered significant re-thinking and reset processes. If VUCA (Volatility, uncertainty, Complexity and ambiguity) is going to be the new normal deepening and widening innovative and multi disciplinary inputs need to be incorporated in the curriculum.

Conclusion:

The interface between the industry and the institutions has to increase in order to keep in touch with the latest requirements of the industry. Student exchange programmes and special vocational education must also be introduced. One must promote partnership between NGOs, private sector & public sector, along with increasing the scope of Apprenticeship Training in Service Sector, Informal Sector and High Tech Sector. Universities and institutions should adopt more job and object-oriented technical education curricula linked with industries and research organizations to meet the present and future challenges of rapid technological changes and industrial development in India.

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