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Achieving Academic Quality Excellence in the Wake of Skill India Program with Special Reference to Indian Higher Education System

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Introduction

Higher Education in India is defined as post schooling Education which is considered as foundation stone for employability. It is considered as powerful tool for people in enhancing their social, economical, cultural and moral capabilities. Every year Indian Higher Education system is producing the largest pool of graduating students. Indian Higher Education System (IHES) is experiencing paradigm shift. With the advent of various educational policy reforms and capability enhancement programs such as "Skill India", it looks possible to brighten up the face of higher education. Strong need is felt for improving the quality of Higher Education Institutions (HEI) in India

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as their performance in global ranking is dismal. Government is leaving no stone unturned in improving this situation.

In July 2015 Prime Minister of India has launched Skill India initiative – 'Kaushal Bharat, Kushal Bharat'. In which GOI is targeting 400 million youth to be trained by the year 2022 (PIB, 2015). A fully fledged Ministry of Skill Development and Entrepreneurship was set up in November 2014 to facilitate the empowerment of youth. India, being a developing nation, has witnessed exemplary initiatives in making the youth more competent and sustainable for the challenges faced by workforce on global level.

There is no doubt that IHES is continuously growing but the qualitative aspects, which we can expect after 67 years of independence, are not evident. Our education system needs a lot of input on skills front so that students can be equally competent on academic as well as technical front. Overall knowledge and skill building promotes development and prosperity of the nation. In present paper the authors have tried to connect the initiatives taken separately under higher education and skill India and the impact of ambitious program of skill India mission over higher education.

Objectives of the Paper

The objectives of this research based article are as follows:

1. Take the assessment of current higher Education system in India.
2. Take an overview of Skill India Mission.
3. To assess the importance of various determinants required for academic excellence.
4. To analyze the applicability of various facets of Skill India Mission which can play important role in academic quality enhancement.

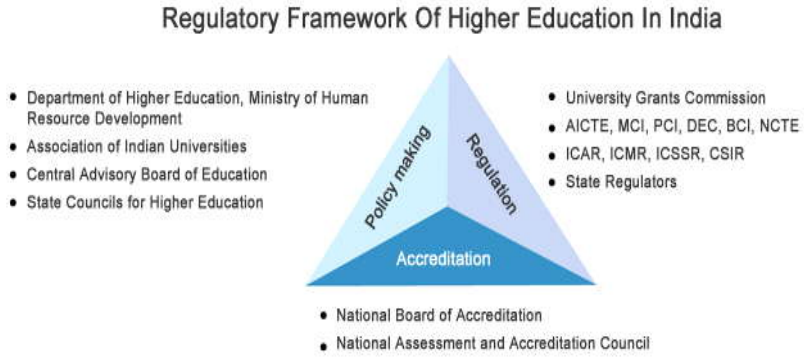
Higher Education in India

• Overview

IHES includes general, technical and vocational Education. India, with population of 1.21 billion demographically variable people, is projected as world's next youth power center with 65% of population below 35

years of age. Having such a large setup of more than 1.4 million schools consisting of 220 million plus student enrolment and 36,000 plus higher Education institutes. India is considered as a major player in higher Education on global level.

IHES is considered as one of the most regulated and mingled system where central and state governments have multiple bodies for framing and implementing regulations. The overall regulatory system can be seen here—



Source: IBEF Education and Training August 2015

The system is having three major components of policy-making, regulation and accreditation which are completely under control of central and state ministries.

Currently, as per MHRD annual report 2014-15, the accredited higher education institutes, completely under preview of MHRD, are as follows—

Further as per UGC annual report 2014-15, the no. of universities and colleges on central, state levels can be seen in the following graph–

India being 3rd largest higher education system after China and USA has faced question mark on its education system in the end of the year 2015. The question mark was raised on securing the lower-end rank by Indian Universities and Institutions among the world's academia in ranking given by some indepen-dent agencies. In QS World University Rankings, 2015, two of Indian top notch institutes have made their mark on 147th and 179th rank. BRICS & Emerging Economies Rankings, 2015 has given 11 slots to top Indian institutes in top 100. Even in Asia University Rankings, 2015, only nine Indian universities have made their mark in top 100 slots (Rediff Report, 2015). The question

HIGHER AND TECHNICAL INSITUTIONS AT A GLANCE

(i)	Central Universities	44*
(ii)	Deemed University	130
(iii)	Technical Institutions	16-- Indian Institutes of Technology(IITs) 30--National Institutes of Technology(NIT)
(iv)	Management Institutions	13--Indian Institutes of Management
(v)	Information Technology Institutions	4--Indian Institutes of Information Technology(IIIT)
(vi)	Science & Research Councils	5--Indian Institutes of Science Education and Research(IISER) 1-- Indian Institute of Science(IISc)
(vii)	Planning & Architecture Institutions	3 – School of Planning & Architecture
(viii)	Training Institutions	4--National Institutes of Technical Teachers' Training & Research(NITTTR)
(ix)	Planning & Consultancy Institutions	1-NUEPA & 1- EdCIL
(x)	Area/Sector specific Institutions	7 [1 -Indian School of Mines (ISM), Dhanbad; 1 -Sant Longowal Institute of Engineering and Technology; 1-North Eastern Regional Institute of Science & Technology (NERIST), Itanagar; 1 -Central Institute of Technology (CIT), Kokrajhar; 1 -National Institute of Industrial Engineering (NITIE), Mumbai and National Institute of Foundary & Forge Technology(NIFFT), 1-Ghani Khan Choudhury Institute of Engineering & Technology (GKCIET), Malda, West Bengal.

*Of which, 39 are being given maintenance and development grant by UGC. The IGNOU, New Delhi, the Central Agricultural University, Imphal and the Indian Maritime University, Chennai are being funded by MHRD, Ministry of Agriculture and the Ministry of Shipping and Transport respectively. The funding for South Asian and Nalanda Universities is being made by MHRD.

Source: MHRD Report 2014-15

was loud enough to have clarification from Indian minister of HRD in parliament. Parameters and weightage(Sinha, 2015) used for the assessment by QS World University rankings are as follows:

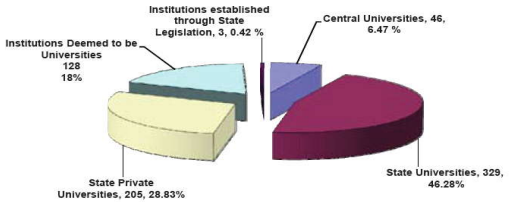
- Teaching (Learning Environment) — 30%
- Research (Volume, Income and Reputation) — 30%
- Citations (Research Influence) — 30%

Table 1.1(a): Type-wise number of University/University level Institutions and College as on 31.03.2015

S. No.	Type of Institutions	Number of Institutions (As on 31.03.2015)
1.	Central Universities	46
2.	State Universities	329
3.	State Private Universities	205
4.	Institutions established through State Legislation	3
5.	Institutions Deemed to be Universities	128
	Total	**711**
6.	**Colleges**	**40760***

** Provisional*

Graph : 2.1(a) Type-wise number of Universities as on 31.03.2015

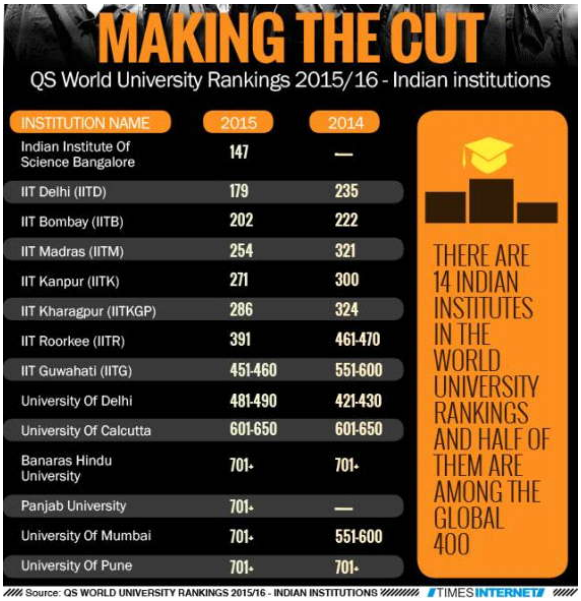


Source: UGC Report 2014-15

- International Outlook (Staff, Students and Research) — 7.5%
- Industry Income (Knowledge Transfer) — 2.5%

The rankings had some positive aspects like first time listing of some of the institutions. A part of Indian academia has rejected the parameters and credentials of the ranking itself.

The concerns of Indian higher education can be understood in the words of Indian President, Shri Pranab Mukherjee, in April 2013 at SIDO KANHU MURMU convocation ceremony (Ernst & Young, 2013) "There is need for Indian universities to catch up with counter-parts in the quality of teaching and research. Research and innovation must be given new impetus. Out of 260 lakh students, who were enrolled at the undergraduate level and above in 2011-12, only one lakh or 0.4 per cent had registered for



Source: www.timesofindia.indiatimes.com

PhD. The total number of patent applications filed by Indians in 2010, was close to only six thousand, while 3 lakh applications were filed by Chinese, around 1.7 lakh filed by Germans, 4.5 lakh by Japanese, and 4.2 lakh by Americans. The number of patent applications by Indians comprised only 0.3 per cent of the total applications filed in the world."

Special Policies and Initiatives

Government is trying to improve the accessibility, quality and affordability of higher education. As per Press Information Bureau, GOI, in an answer, given by MHRD minister in Loks Sbaha, following are the quality enhancement programmes currently in place in IHES-

1. University Grants Commission (UGC): Qualifications for Appointment of Teachers and other Academic Staff, Mandatory Assessment and Accreditation of Higher Educational Institutions Regulations, 2012, Promotion and Maintenance of Standards of Academic Collaboration between Indian and Foreign Educational Institution Regulations, 2012, Colleges with Potential for Excellence (CPE), Universities with Potential for Excellence (UPE), Centres with Potential for Excellence in a Particular Area (CPEPA), Special Assistance Programme (SAP) etc.
2. The All India Council of Technical Education (AICTE)—Faculty Development Programme, Research Promotion Scheme, Visiting Professorship, National Faculty in Engineering and Technology with Industrial Collaboration (NFETIC), Mandatory Accreditation, Regulations for Entry and Operation of Foreign Universities/Institutions.
3. Centrally Sponsored Scheme of Rashtriya Uchchatar Shiksha Abhiyan (RUSA)—Flagship program of MHRD was launched in 2013 to strategically fund the state higher education institutions. It will also create new universities by upgradation of colleges and clusters of colleges. Semester System, Choice Based Credit System, Curriculum Development, New Admission Procedures, Examination Reforms.

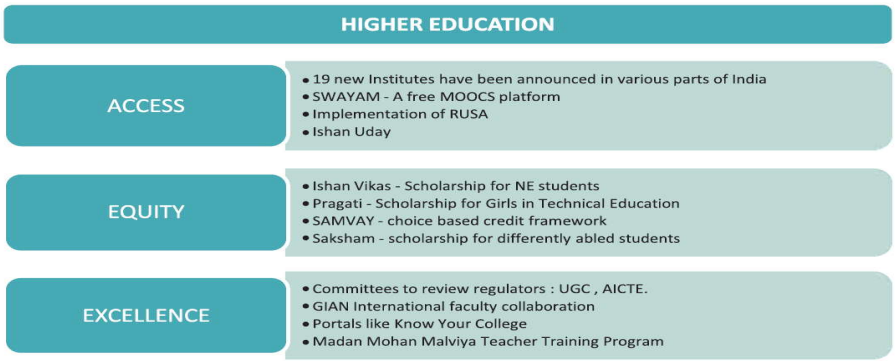
Determinants of Quality for Higher Education

Despite of having centrally aligned policies and bodies with heavy

budgetary allowances, country is facing issues in gross enrollment ratios, suitability of learning programmes and academic and industry acceptable potential of passing youth. There are several reports from government and independent bodies (IBEF, 2015) which suggests following improvising reforms to be taken immediately—

1. *Faculty*—To make imparting education as first choice for countries brightest mind and not as last option. Incentivized development and faculty exchange programmes. Performance based reward system as in industry.
2. *Infrastructure (Physical and Digital)*—Consists of buildings, well equipped class rooms, laboratories, computers, internet connectivity for demographically detached segments of society.
3. *Collaborations*—Between industry and academia to connect and enhance overall education pattern including curriculum, infrastructure, employability and research.
4. *Curriculum and Andragogy*—Learner Centric, multi disciplinary, flexible, skill focused and lifelong learning pattern to be adopted in designing curriculum. Experiential, blended learning to capture the attention of adult minds.
5. *Research*— International collaborations with community focused research. Developing research and patent capabilities of institutions.
6. *Regulatory and Resource Framework*—Simplification of controlling bodies and regulation, flexibility in designing and managing institutions according to the local needs. Linking of funding with performance of institutions and encouragement of more alumni-based allocations as well as smooth government allocations.

According to Annual Report of MHRD, GOI is focusing on following issues covering majority of reported issues—



Source: MHRD Report 2014-15

Skill India Mission

- **Overview**

National Skill Development Policy, 2009 had an ambitious target of 500 million skilled workers in the nation by the year 2022. Firstly the task was given to MHRD in July, 2014 a Department of Skill Development and Entrepreneurship was created under the Ministry of Youth Affairs and Sports which was converted into an independent Ministry of Skill Development and Entrepreneurship in November, 2014.

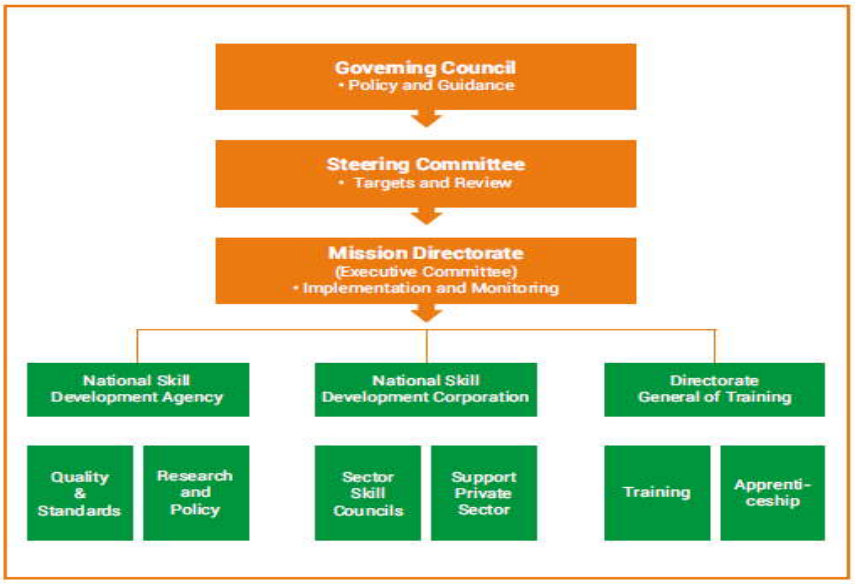
The Ministry has mission for Skill India Program as "To rapidly scale up skill development efforts in India, by creating an end to end, outcome focused implementation framework, which aligns demands of the employers for a well-trained skilled workforce with aspirations of Indians of sustainable livelihoods."

- **Constitution**

Keeping National Skill Development Mission at the base for designing and implementing the mission's objectives. The Mission is planned to have a Governing Council at apex level, a Steering Committee and a Mission Directorate (along with an Executive Committee) as the executive arm of the Mission.

Source: Skill Mission Report

Several Agencies are also formed for making this mission viable as under—



Source: Skill Mission Report

- **Mission and Sub-Missions**

Complete Skill India Mission is further divided into submissions to achieve individual factors

1. *Institutional Training*—It covers training provisions, placements, modernization, reforms for (a) curriculum (b) training

equipments and workshops (c) industry interface (d) pedagogy (e) finance, apprenticeship and long-term career progression.

2. *Infrastructure*—Qualitative capacity building, sustainable livelihood through Recognized Prior Learning and upskilling.
3. *Convergence*—Coordination, communication and convergence of multiple stakeholders across different levels.
4. *Trainers*—Meeting variety of skilling demands with quality of instructional methods and progression of training capabilities.
5. *Overseas Employment*—exploring opportunities and maintaining global standards to ensure mobility of skilled workers.
6. *Sustainable Livelihoods*—Empowerment of trainees to maximize the learning for long-term and sustainable livelihood.
7. *Leveraging Public infrastructure*—Usage of existing public infrastructure.

● **Current Status and Achievements—**

Currently more than 70 skill development schemes are being implemented by over 20 central ministries/departments to achieve this ambitious result. Looking at results based on question asked in Lok Sabha 225.33 lakh people were trained by different ministries till February 2015 (PIB, 2015).

Pradhan Mantri Kaushal Vikas Yojana (PMKVY): This scheme is targeted for benefitting of 24 lakh youth with Budgetary Allocation of Rs. 1,500 crores.

Deen Dayal Upadhyaya Gramin Kaushal Yojana (DDU-GKY): Targeted for youth in villages in which 1500-2000 centres will be made to impart skills. NAREGA workers are also targeted for skill up-

Schemes Implemented by various Ministries

Year	Target (in Lakhs)	Persons skilled (in Lakhs)	Achievement
2011-12	46.53	45.58	**98%**
2012-13	72.51	51.88	**72%**
2013-14	73.42	76.37	**104%**
2014-15	105.07	51.50*	**49%**

*Source: LokSabha Questions, *up to February, 2015*

gradation. 1200 crore is budget allotted for scheme.

Entrepreneurship: Already trained 1,98,000 trainees under Entrepreneurship Development Programme (EDP).

International Collaborations: MoUs with Germany, UK, China and Australia support training of trainers, to scale up apprenticeships, curriculum development, benchmarking of standards and to make centres of excellence across country.

International Practices in Skill Development

Education departments and leading educational institutions throughout world are innovating and keeping pace with changing requirements, few of the cases (Ernst & Young, 2013) are cited here to be taken in consideration for IHES.

- *Launching of Innovative Courses*—Gaming Industry by Devry University, Agriculture Technology by Queens University, UK.
- Community Colleges in North America with Modular credit-based course, flexibility in entry and exit, mix of academic and vocational education.
- Boston University (School of Engineering) is introducing humanities and social sciences along with basic engineering, mathematics, and natural sciences.
- Community colleges in US keeps probation period from 3 years to 7 years to enhance the quality and assessment of faculty.

Impact of Skill India on Higher Education and Academic Excellence

Skill India and Higher Education in India goes hand in hand as both are targeting the citizens of nation to be more productive on social and economical front. Looking at the determinants of academic excellence required for higher education, following are the impacts—

1. Skill development policy impact on vocationalisation and skill enhancement of students (PIB, 2015)—In an attempt to give skill-orientation, UGC has come out with three major initiatives of B.Voc degree programme, Community Colleges and Deen Dayal Upadhyay Kaushal Kendras –

(Rs. in Crores)

Programme	*Year*	*Target*	*Approved*	*Allocation*	*Release*
Community Colleges	2013-14	100	64	29.13	6.04
	2014-15	100	102	94.92	29.13
	2015-16	100	111	67.18	24.68
B.Voc Degree	2014-15	100	127	231.36	80.64
Programme	2015-16	100	70	241.06	24.42
Deen Dayal Upadhyay KAUSHAL Kendras	2015-16	100	65	170.65	98.70

Source: www.pib.nic.in

These centres have not only provided the monetary allocations required but also the expertise to revamp the system.

2. Skill India mission via state councils, industry, international agencies, corporate training centres have attracted industry professionals towards the formal education system and vice versa. It has provided opportunity to many academicians to interact with industry. Thus this mission has improved the overall faculty quality by increasing their experiences.
3. With crores of rupees invested in developing centres with up-to-date facilities including video conferencing and internet connectivity, these centres have facilitated the youth in vocational education to connect with digital world. It has also provided a model to be followed by vocational education colleges and ITI's.
4. National Skills Qualifications Framework (NSQF) is the connecting link between theory-based curriculum and performance-based job description of industry. Skill India mission has contributed 1507 qualification packs for 614 job roles till Oct. 2015. This new approach to curriculum designing will give a thrust to academic curriculum development (PIB, 2015).
5. MoU have been signed with developed as well as developing countries to impart excellence in field of skill enhancement.
6. Looking at the constitution of Skill Ministry and Skill India Mission, central government have portrayed a sleek and clear structure of implementation where Centre will be the coordinating and policy-making institution, all

implementation task is divided among different agencies like NSDA, NSDC, DGT which again is deliberated to Sector Skill Councils and State Skills Councils. These councils are working on PPP (Public Private Partnership) basis in imparting the skills. It is only because of this sleek structure that Skill India mission is succeeding. This model can be used in higher education also.

7. Skill India Mission, through recognized prior learning, is connecting individuals with only skills and no formal education to training centers. These individuals can again be part of formal education system, hence improving the overall census of educated citizens in nation.

Suggestions

Although Skill India Mission is at its nascent stage in our country still considering its coverage and impact, there are some suggestions for both Skill India Mission as well as for higher education system.

1. Higher education reforms can be planned and executed parallel to Skill India Mission policy and implementation. Likewise infrastructure and manpower utilization will not only save country's resources but also amalgamated the knowledge and competencies among two distinct units.
2. RUSA has many resemblances with skill India courses. Successful skill courses can be used as dummy for universities for short term and innovative programmes.
3. Skill India is primarily focusing on making the youth ready for industry. But at the same point country is also facing issues with moral and social values. Skill India courses should have some compulsory subjects for it.
4. Recognized prior learning will include a huge chunk of formal education to deprived individuals. Universities can have collaborations with Skill India Programs where part time and distant education courses can be offered to deprived mass.
5. Faculty members from both the systems should be exchanged on regular basis for upgradation.
6. Local universities should be involved in MoU's between skill centers research and development initiatives. On the same level

industry should be encouraged to establish their research and development wing in institutions.

Conclusion

Considering our nation as demographically, geographically and politically diversified, it seems that changes are hard to be done. Looking at the pace at which both systems are developing, innovating and implementing the initiatives, authors are optimistic that there will be a huge chain reaction of improvements in education and skill scenario of nation. Our country is having best of the resources and opportunities after so many years of independence and if implemented well and as designed these initiatives will change the tag of developing to developed India in years to come.

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Pedagogy of Skill Development

Amit Kauts*

Introduction

Education plays a very important role in overall development of human being as well as nation. Every country develops its education system to express and promote its unique socio-cultural identity besides meeting the challenge of time to leverage the existing potential opportunities. India at present is recognized as one of the youngest nations of the world with over 50% of the population under the age of 30 years. It is estimated that by 2025, India will have 25% of the world's total work-force. To harness this potential, India needs high quality education system with sound knowledge base and characterized by access and affordability, flexible and relevant to individuals as well as to the needs of the society as a whole. Today, the country faces a demand and supply mismatch as the economy needs more skilled workforce as managers and entrepreneur than produced annually. There are gaps between the knowledge and training provided by contemporary institutes of higher learning and requirement of workplace. The higher education system has to incorporate the requirement of various industries in its curriculum in an innovative and flexible manner while producing well groomed

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graduates equipped with employability skills.

Current Scenario of Indian System in Skill Development—Where we are on skills? The answer to this question is given by the analysis of the Indian system which displays very grieve picture, although the current primary education enrollment is high, but many students do not complete their high school education in order to graduate to tertiary education. As a result there are youth drop outs. They are not aware about the right direction; do not have access to any guidance about their future or the path that would lead them towards employability. Going forward, there is need to be more emphasis on Learners challenges and apprehensions regarding vocational education and training. The government continue to provide financial support to the learners for all school years, however to withdraw this support in the final stage of education seems unreasonable. The learner may end up in vicious circle, where he/she lack the funds for training in order to eventually become financially self-sustained, so he requires external support.

Countrywise percentage of skilled labor is as follows (2008):

Country	*Percentage of Skilled Labor*
Korea	96%
Japan	80%
Germany	75%
UK	68%
India	**10% (2% formal training and 8% informal training)**

From the above table it is clear that in India only 10% of the total workforce is receiving skilled training. As employers of every country face difficulty in filling up the jobs. For India, this difficulty is48%, which is above the global standard of 34%. The reasons behind not finding a suitable candidate for the available job are shortage of—

- Available applicants
- hard skills
- suitable employability
- soft skills

In contrast the countrywise percentage of employees finding difficulty in jobs in 2012:

Country	*% age of employees finding difficulty in jobs*
India	48%
Germany	42%
France	29%
Canada	25%
South Africa	10%
Spain	9%

According to NSSO survey, only 6% of the total workforce is in organized sector. The World Economic Forum indicates that only 25% of the total Indian professionals are considered employable by the organized sector. The unorganized sector is not supported by any structured skill development and training system of acquiring or upgrading skills. The skill formation takes place through informal channels such as family occupations, on the job training under Master craftsman with no linkage to formal education training or certification.

Enrolment in Higher and Technical Education in India (2009-10)

Course	*% of students*
Master degree	8.8% of Total Enrolled in higher education
B.A	30.4%
B.Sc.	10.4%
B.Com	9.9%
B. Arch /BE	9.3%
Medicine, dentistry, nursing,	1.5%
B.Ed.	2.5%
Others undergraduate programs	2.9%
Total	66.9%

Hence, B.A. is the most preferred course in under Graduate program in higher and technical education.

India has the world's youngest workforce with a median age way below that of China and OECD countries. Half the population of India

was younger than 25 in 2010. It will change to half the population being under 28 in 2030, making India a very young country for the next 20 years. The skill set of this population group plays a critical role in the growth of the country. It is imperative that adequate skill training is provided to this age group to make them productive. India is facing a skill deficit on account of the large demand-supply gap, which results in a large pool of potential learners. In India more than 50% of the total population in the age group of 15–59 years are potential learners and require some type of skill training. Government of India's ambition is of training 500 million people by 2022, which can be possible through working with the stakeholders, especially the industry, government and academia, to create sustainable and scalable skills propositions which will benefit the youth of the country from all sections of society. But, there are other significant considerations while training the individuals in skills of different vocations as Greinert (2004, 2005) stated that investments in the development of skills that are not immediately usable tend not to be made, resulting in a skills shortage in the job market. In order to be able to respond quickly and flexibly to market-oriented training behavior, educational programmes are modularized and equipped with certified powers. This leads to a multiplicity of programmes.

Vocational Pedagogy

Vocational pedagogy is one of the important means to achieve a skillful society. Vocational pedagogy encompasses the science, art and craft of teaching and learning vocational education. More simply, vocational pedagogy is the sum total of the many decisions which vocational teachers take as they teach, adjusting their approaches to meet the needs of learners and to match the context in which they find themselves. Being clear about the nature of vocational pedagogy matters: it forces us to think about the wider goals of vocational education and thus to improve its status and scope. It also helps us to understand that vocational education is worthy of serious study. Vocational pedagogy enables us to develop models and tools which can help teachers more effectively match teaching and learning methods to the needs of their students and the contexts in which they are working. A plausible description or theoretical underpinning cannot be developed for vocational pedagogy unless we are prepared to ask and answer some

fundamental questions about vocational education and vocational pedagogy in particular, as a paper published by (Cedefop) European Centre for the Development of Vocational Training (2015) concludes that, as learning outcomes are now well established within written curricula across most European countries, there is greater policy interest in pedagogical innovation, particularly, but not limited to learner-centered approaches, and calls for further research on the factors that affect them and the impact they have on learners. Further, in this direction Johansson et al. (2007) draw a distinction between vocational didactic which is mostly guided by constructivist learning theory and subject-specific didactic which is mostly related to cognitive learning theory.

Vocational pedagogy includes several concepts which play a key role in its success. One such concept is skill. The definition of skill is vague. As defined by Vanpatten & Benati (2010, p. 39) "Skill refers to ability to *do* rather than underlying competence or mental representation". To clarify this concept, Cornford (1996) has mentioned nine separate defining attributes of "skill" and "skilled performance" from a psychological perspective, argued to be the most valid in accounting for skill acquisition and performance by individuals. These defining attributes are:

1. Skill is learned;
2. Skill involves motivation, purpose and goals;
3. Schemes are prerequisite for skilled performance;
4. Skills require content and context knowledge;
5. Skills are performed and transferred in the presence of specific stimuli;
6. Skills involve problem solving relevant to the context;
7. Skill involves relative judgments with individual differences in skilled performance evident;
8. Standards of excellence are important;
9. Skill involves comparable replication;
10. Considerable periods of time are required to reach high levels of skill.

No doubt a skill constitutes the important part of vocational pedagogy but for achieving the competence in skills of a particular vocation the other associated factors are equally relevant. Martin Mulder

and colleagues (2007) defined the vocational competency as 'the capability to perform and to use knowledge, skills and attitudes that are integrated in the professional repertoire of the individual. As per this view the first and fundamental part of skill development is acquisition of knowledge regarding the skills to be mastered. It is essential that knowledge and theory be taught in the context of practical problem-solving. It is not sufficient for a qualified worker to be able to parrot back their knowledge when prompted. They have to have been taught in a way that ensures that knowledge comes to mind when it is useful. This awareness of the future context of retrieval, enabling vocational learners to anticipate those contexts, and practicing the application of knowledge to support thinking in context, is vital. Knowledge base is required to deepen and broaden our understanding of higher skills development. Recognizing the significance of theoretical knowledge in skill development, the National Skill Development Policy document emphasized the innovative skill development schemes, in which trainees acquire theoretical learning at the institution while obtaining practical skills in the workplace.

Skill acquisition is a specific kind of learning and varying from routine learning, hence it requires specific knowledge for specific skills. Speelman (2005) stated that skill acquisition can be considered as a specific form of learning, where learning has been defined as "the representation of information in memory concerning some environmental or cognitive event". Therefore, according to him, skill acquisition is a form of learning where "skilled behaviors can become routinized and even automatic under some conditions".

Knowledge of a particular skill generally includes the basic purposes of a skill, various dimensions of a skill, principles to be followed while performing a skill, sequence of activities or events in a skill, techniques of supervising the training of skill and scope and opportunities in the market related to a particular skill. Therefore it includes both the declarative knowledge and procedural knowledge of a skill. According to Richards & Schmidt (2010), declarative knowledge is conscious knowledge of facts, concepts or ideas that can be stored as propositions and procedural knowledge refers to unconscious knowledge of how an activity is done. As elaborated by Vanpatten & Benati (2010), using declarative knowledge involves explicit learning or processes; learners obtain rules explicitly and have some type of

conscious awareness of those rules. The automatization of procedural knowledge entails implicit learning or processes; learners begin to proceduralize the explicit knowledge they own, and through situational suitable practice and use, the behavior becomes second nature. In both forms knowledge part provides the foundations on which a skill can be practiced, refined and developed.

The introduction of Skill Acquisition Theories has also been proved to be a great help for developing knowledge domains and their practical aspects across the fields of skill development. These theories have their origin in language learning but are used in orientation and training of different types of skills. Mystkowska-Wiertelak & Pawlak, (2012) stated that Skill Acquisition Theory is not just a theory of the development of language; rather it is a general theory of learning ranging from cognitive to psychomotor skills. One such theory, which is based on Adaptive Control of Thought (ACT), model claims that adults commence learning something through mainly explicit processes, and, through subsequent sufficient practice and exposure, proceed to implicit processes (Vanpatten & Benati, 2010). According to Vanpatten & Benati (2010), Adaptive Control of Thought (ACT) model, developed by John Anderson, is the most well-known models of skill-based theories. Anderson (1982) proposed a framework for skill acquisition including two major stages in the development of a cognitive skill, i.e., declarative and procedural stage. In this framework "facts are encoded in a propositional network and procedures are encoded as productions". This framework also supports the earlier discussed viewpoint regarding importance of declarative knowledge and procedural knowledge for the sound cognitive foundation required for developing a skill. With reference to this framework skill development progresses through three stages that is declarative stage, procedural stage and autonomous stage. Taatgen (2002) has linked Anderson's stages by saying "In the cognitive stage knowledge is declarative and needs to be interpreted. Interpreting knowledge is slow, and may lead to errors if the relevant knowledge cannot be retrieved at the right time. Procedural knowledge on the other hand is compiled and therefore fast and free of errors, and can be associated with the autonomous stage. The associate stage is an in-between stage, during which part of the knowledge is declarative and another part compiled."

Some concerning problems regarding selection and designing

appropriate knowledge for developing skills, are prevalent in India as the absence of proper Labour Management Information System (LMIS) impedes the very objective of the skill initiative in India as it results in poor linkage between skill development and employment. However, in order to deal with this problem the NSDC, through its SSCs, has initiated the process of developing sector-specific labor market information systems (LMISs), which will pave the way for a shared platform that would provide quantitative and qualitative information for designing knowledge base in the curriculum to address the needs of a particular skill in the market.

Practice is the second important component of the vocational pedagogy which is concerned with the arrangement of learning situations in such a manner that an ample opportunity of implementation of possessed knowledge of skills can be provided. Gessler (2015) assumed that in vocational education training, it is important to design learning opportunities, so that the learner can satisfy practical requirements in the workplace, on the one hand, and be able to shape his or her work as well as the work environment, on the other hand. It is important to organize activities of direct experience to make the trainees have a first hand experience to apply a skill to undertake or perform a task effectively. The role of teacher or trainer in this context is vital hence should be well trained and equipped. Lucas, Spencer and Claxton (2012) found that vocational teachers need a clear understanding of the variety of learning methods that lead to different learning outcomes, before they can make informed and effective pedagogical decisions. In general, a teacher's teaching is only as good as his or her ability to harness the kinds of learning that reliably lead to development of the desired outcomes. Without this process of thinking through the relationship between desired outcomes and instructional design, neither teaching nor learning is likely to be good enough. Examples of a number of tried and tested teaching and learning methods are gven below, including learning:

- by watching
- by imitating
- by practising (trial and error)
- through feedback
- through conversation
- by teaching and helping

- by real-world problem-solving
- through enquiry
- by thinking critically and
- producing knowledge
- by listening, transcribing and remembering
- by drafting and sketching
- by being coached
- by competing
- through virtual environments
- through simulation and role play, and
- through games

According to DeKeyser (2007b), among researchers who study skill acquisition processes there is a consensus that practice with a given task gradually decreases reaction time and error rate. Carlson (1997, as cited in DeKeyser, 2007a, p. 2) has defined practice as "repeated performance of the same (or closely similar) routines". As it can be observed, this definition is fairly vague and seems to reflect behaviorist views rather than those of cognitive psychology. DeKeyser (2007a) has found the definition by Newell and Rosenbloom (1981, as cited in DeKeyser, 2007, p. 2) to be more precise, i.e., "Practice is the subclass of learning that deals only with improving performance on a task that can already be successfully performed". Practice which is required for learning in skill Acquisition Theory, according to Dekeyser (2007b) should be meaningful. Therefore the practice should form a meaningful part in the vocational pedagogy as given research references seem to be enough to prove that practice has vital role in the process of mastering a skill and consistent refinement.

Newell & Rosenbloom (1981) have studied practice and its following performance improvements, both theoretically and experimentally. On the theoretical side, they have formulated 'chunking theory of learning' which is rooted in cognitive psychology. And on experimental side, they have argued that a single law, i.e., the "power law of practice", describes all of the practice data. According to Newell & Rosenbloom, this quantitative law of practice states, "plotting the logarithm of the time to perform a task against the logarithm of the trial number always yields a straight line, more or less".

Hulstijn (2002) believes that automatization conforms to the power law of learning both in, what Gupta & Dell (1999) name, "repetition

priming" and "skill learning". The former occurs when we process identical stimuli over and over again, whereas the latter occurs when we process stimuli which (1) vary in some respect at the surface, but (2) share similarities or regularities at an underlying level of structure.

Kyle Freedman (2012) stressed upon using andragogical techniques instead of pedagogical techniques for improving corporate skills and gave five practical strategies for the same purpose.

1. **Make application of knowledge and skills clear and upfront.** Too often, employees taking part in corporate training classes fail to see the application of the knowledge or skills until well into the training, if ever. To better ensure success, begin each training session by linking the training content to practical application. This will instill early motivation in students, a key to andragogical success.
2. **Build in interactive exercises.** Interactivity is key to ensuring students remain attentive and engaged. Engaged students learn at a faster rate and have a higher knowledge retention rate than disengaged students, according to Arindam Nag's November 8, 2012 CommLab India blog (Nag, 2012). Great sources of interactivity include simulations, assessments, and discussions. One of the best strategies to build in interactivity is to have a teach-back, where learners act as the facilitator for smaller chunks of content.
3. **Turn training into problem solving.** Employees face problems every day in any industry, regardless of tenure, compensation, or job-level. Many of us are used to "fighting fires" when issues occur with customers, clients, supervisors, or internal staff. This has turned many of us into equipped problem solvers. Try to turn your content into a problem and have your students work towards the solution.
4. **Lose your "trainer ego".** Yes, trainers do have egos. Many trainers glory in the spotlight, and thus, they dominate the conversational airspace. But in truth, the knowledge held by an instructor, regardless of experience, pales in comparison to the knowledge held by a class full of trainees having different way to master a skill. Learn to appreciate their knowledge, and make your aim to transfer one individual's knowledge or skills to the rest of the class.

5. **Evaluate to ensure effectiveness**. As with any training or instructional design methodology, you must evaluate how effective your training strategy is. Always be willing to change your content, exercises or delivery style to meet the needs of the students.

Attitudinal orientation towards the skill to be learned is the foremost and significant task in vocational pedagogy. Vocational education and training consists (at least) of vocational orientation, initial vocational education and training, and continuing vocational education and training. While elaborating about the temporal structure of vocational education Gessler (2015) stated that a vocational didactic has to be aligned with the respective objectives pursued in a particular phase of (work) life, vocational orientation, vocational development and education, and further vocational training and re-orientation.

The perceived value of tasks is probably the most important to the learner's success. Research and theory on motivation (McCombs, 1984, 1987; Schunk, 1990) indicate that learners are most motivated when they believe that the tasks they're involved in is relevant to their personal goals. Glasser (1981) and Powers (1973) hypothesized that human beings operate from a hierarchical structure of needs and goals: they must satisfy basic physical needs (e.g., food, shelter) and psychological needs (e.g., acceptance, safety) before being able to form goals—to decide what they are "consciously trying to accomplish" (Schunk, 1990). From this perspective, working to develop a positive mental climate focuses on meeting students' psychological needs. A growing body of research indicates that when students are working on goals they themselves have set, they are more motivated and efficient, and they achieve more than they do when working to meet goals set by the teacher (Hom and Murphy, 1985; Schunk, 1985). This research strongly implies that if educators expect students to be motivated to succeed at classroom tasks, they must somehow link those tasks to student goals. Some powerful ways of doing this include allowing students to structure tasks around their interests, allowing students to control specific aspects of tasks, and tapping students' natural curiosity while attempting at mastery of a skill.

Attitude and attitude change theories can also make important contribution to drawing orientation of students towards skill training and skill development. Few of the general views of different attitude

change theories are discussed here for inferring some ideas for to design vocational pedagogy.

Early Learning Theories

This section might more accurately be called *behavioral theories of attitude change.* A major commonality of these theories was their emphasis on the stimulus characteristics of the communication situation. Learning theories of attitude change received major emphasis by Hovland and his associates in the Yale Communication Research Program (Hovland, Janis & Kelley, 1953). For attitude change to occur, more than rehearsal and practice had to take place. The Yale researchers emphasized the role of incentives and the drive-reducing aspects of persuasive messages as mechanisms for reinforcement, thereby creating acceptance of new beliefs and attitudes. In the Yale model of attitude change emphasis is placed on attention, comprehension, and acceptance.

Consistency Theories

The basic assumption of these theories is the need of the individual for consistency. There must be consistency between attitudes, between behaviors, and among attitudes and behaviors. A lack of consistency causes discomfort so that an individual attempts to ease the tension by adjusting attitudes or behaviors in order to once again achieve balance or consistency.

Social Judgment Theory

Social judgment theory focuses on how people's prior attitudes distort their perceptions of the positions advocated in persuasive messages, and how such perceptions mediate persuasion. In general terms, the theory assumes that a person's own attitudes serve as a judgmental standard and anchor that influences where along a continuum a persuader's advocated position is perceived to lie (Sherif & Hovland, 1961). Social judgment theory is an attempt to apply the principles of judgment to the study of attitude change.

Functional Theories

A fundamental question about attitudes concerns their purpose: that is, what functions do attitudes serve? Understanding the purposes of

attitudes is the identifying characteristic of functional theories. Attitudes serve different functions for different individuals or for the same individual in different settings. The reasons for attitude changes are individualized and related to personal functions of attitudes. The central theme of functional theories is that changing an attitude requires understanding of its motivational basis, or its function for the individual. Knowing what function an attitude performs for a person helps guide the designer of the persuasive message who wants to change the attitude. Whatever function attitudes perform, they provide a frame of reference for comprehending and categorizing objects, persons, and events, and only by understanding an attitude's function can attitude change efforts be successful.

The attitude change theories are highlighting the importance of positive attitudes for learning new skills and to sustain in the training of skill development with raised level of motivation.

Given discussion is evident for emphasizing on the role of knowledge, practice and attitude in the vocational pedagogy aiming at skill development. The discussion can be concluded here with details of learner-centered vocational pedagogy given by de Bruijn and Leeman (2011), that introduces eight dimensions regarding knowledge, practice and attitudinal aspects and each of which references a distinctive function served by some experience or activity that should form part of learner-centred teaching and learning in vocational education and training.

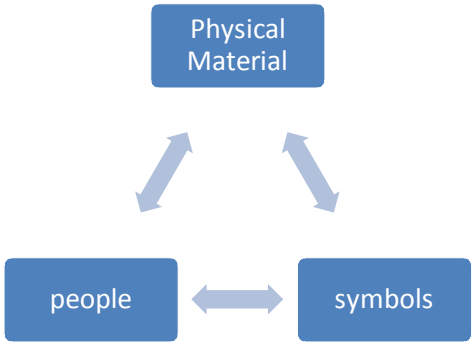
Dimensions	*Evidence for high performance in this dimensions*
Formation of vocational identity	Skills and knowledge are connected to the development of attitudes, beliefs and values associated with a vocation or occupation.
Authenticity of task	Learning activities are real or realistic work tasks performed in real or realistic contexts.
Reconciliation of subject-oriented and thematic material	Subject learning and other learning experiences are connected together for the learner, for example, theoretical knowledge is applied in practical tasks.
Construction	Students were able to formulate

	problems and seek solutions.
Adaptive instruction and modeling	Teachers adapt their support to the current understanding and capability of learners, seeking, for example, through the use of learning materials, progressively to reduce support.
Coaching	Students are guided through learning; they are shown how to learn and progress.
Development of self regulation skills	Learners are helped to develop self-management and organizational skills
Development of reflection	Through reflection on learning and work experiences, students develop autonomy, expertise and habits.

Five key steps of developing vocational pedagogy

- Be clear about the goal of vocational education
- Understand the nature of your 'subject'
- Be clear about the breadth of desired outcomes. Understand the range of learning method
- Understand the range of learning methods that may, take together, provide the best blend
- Bear in mind any contextual factors like the nature of learners, the expertise of the 'teacher' and the settings for learning

In order to assist thinking about vocational pedagogy research identifies the three types of vocational education, with the possibility that each program is likely to be a mix of all three which is shown in the diagram below



The above pedagogy includes plumbing, Civil engineering, performing arts, marketing, electrical, installation, creative arts and graphic design, computer games, journalism, information, technology, accountancy, sportscience, childcare, construction management, hair dressing, aromatherapy and counseling.

Outcomes of Vocational Education

In considering the outcomes of vocational education, the research identifies six clear outcomes that fulfill the overall goal of developing working competence. The six outcomes, as described through the example of a Plumber, are:

1. Routine expertise
2. Resourcefulness
3. Functional literacy
4. Craftsmanship
5. Business like attitude
6. Industry skills

Let us understand the example

1. **Routine Expertise—**As the common gas boiler requires annual service. Now the plumber has the experience with the model and can understand the problem and also know how to fix that problem.
2. **Resourcefulness—**Now the gas boiler cut out within a minute of igniting and needs repair. He tried the most obvious solution, but the fault has not resolved, then he consider alternative causes and after some deliberation he investigates a blockage in the pipe that is causing water to overheat.
3. **Functional Literacy—**The client shows interest and asks questions regarding the repair and cause of the problem. Plumber adjusts his use of technical language to accommodate the experience and apparent comprehension of the client. He summarizes the problem and his actions in a way that make sense to the client, administrative colleagues and boss.
4. **Craftsmanship—**The plumber notices a separate problem in client's house. Like problem of sink blockage, he offers to carry out a simple maintenance operation. Although additional time is required, but he likes to see plumbing in good working order.

5. **Business Like Attitude—**The client is again facing the same problem, the plumber realize that he has been called him out for the same problem before. He returns at short notice for afree of charge assessment to minimize potential for complaint, and to ensure good relationship with client.
6. **Industry Skills—**Plumber has developed resilience and determination over time, refusing to give up. When in doubt he uses his resourcefulness and consults more experienced colleagues.

Theory of Vocational Pedagogy

Vocational education needs to be taught in the context of problem solving.

- The Best Vocational training involves hands on experience, practical, experiential, real world involving feedback, questioning, application and reflection when required, theoretical models and explanations.
- Various learning methods for skill training include watching, imitating, practicing (trial and error) then feedback through conversation.
- Quality vocational skills can be taught through real world problem solving, enquiring, thinking critically and producing knowledge by listening, remembering, drafting, sketching, reflecting through virtual environment, simulation, role playing and games.
- Vocational Teachers has a flexible approach in decision-making. The role of the teacher is facilitative and didactic. He/she can organize the time, space and activities as per the task. Teacher can be virtual or face of face.
- Role of learner should be self managing and directed.

Challenges Faced by Government to Impart Skill Training

There are various challenges faced by the government in imparting quality skill training which includes

- Increasing capacity and capability of the existing system to ensure equitable access for all.

- Maintaining quality and relevance.
- Creating effective convergence between school education and the government's skill development efforts.
- Creating institutional mechanism for research development quality assurance, examinations and certification, affiliations and accreditation.

Challenges of Existing Structure of Skill Development in India

- The existing institutional structure for skill development includes various agencies with overlapping and conflicting priorities. The government's own estimates reveal that currently, skill development efforts are spread across approximately 20 separate ministries, and 35 state governments and union territories. Given this complex institutional setup, the National Skill Development Agency was created last year to consolidate efforts in this domain. But it mainly has a coordination role, lacks any effective powers and remains significantly under-resourced.
- The training infrastructure for imparting technical and vocational skills is inadequate. In terms of current capacity, it is estimated that various publicly funded organizations produce 3.5 million trained personnel per annum against the 12.8 million new entrants into the workforce each year.
- The infrastructure in the skill development sector today is largely government-owned then also; private sector investment hasn't been incentivized.
- The focus of vocational training, offered in India, is not matching with the needs of casual workers who constitute 90% of the labour force, resulting in a shortage of skilled workers at the national level. Casual workers, such as construction workers, from rural areas with little or no education and need support and training.

Conclusion

Technical and vocational education in a broad sense lays down the foundation for innovation and know-how, resulting in a lower unemployment rate, subsequently boosting India's economic growth. The need of the hour is to synergize the efforts and resources at theory,

policy and practice levels to provide a feasible platform of knowledge, practice and attitudinal orientation for vocational education and skill development. The ideal way to move forward will be to seek partnerships that will strengthen the process of quality and inclusive education.

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3

Skill Based Education in Higher Learning and Employability
A Strategic Perspective

Ch. Ibohal Meitei*

Introduction

Today the world is emerging as a borderless society as the globalization process continues. In fact, the economic growth and development of a country is very much dependent on the quality and variety of education its people have. Things are changing very fast in every sphere of life especially in the domain of higher education. In India too, the higher education scenario has got attention for its development. According to Pandit Jawaharlal Nehru "A university stands for humanism, for tolerance, for reason, for the adventure of ideas and for the search of truth. It stands for the onward march of the human race towards even higher objectives. If the universities discharge their duties adequately, then it is well with the nation and the people". The transformation education gives to the individual drives the socio-economic growth of the nation. With the expansion of higher education facilities, people can have better access to higher education these days, however, only a

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few is readily employable even among the engineering graduates. According to McKinsey Global Institute survey results," India produces 360,000 engineering graduates, 600,000 graduates in arts/science/commerce." And only 25 per cent of engineering graduates and 10 per cent of other graduates are employable. Unemployment of educated youths has been increasing alarmingly day by day and hence, the employability attributes of these youths have to be examined well.

The education system is by and large following the traditional pattern. Of the total population of India, 15-26 years age group is more than 54%, that means larger portion of the population is the young group. The 65% of India's human resource pull is under the age of 35 years and about 12 million individuals are expected to join the work-force every year. As per the skill gap study conducted by NSDC in 2014, there is a net requirement of 11.92 crore skilled manpower by 2022 in twentyfour key sectors. It seems that there is a huge gap between the requirement and availability of skilled human resources. Vocationalisation in higher education and wide spread skill creation will help in reducing this gap. Skill capabilities of the people will help the country keep more competitive and developed. As skilled workforce is considered the most important human capital required for the development of a country, both vocational education and skill development are known as drivers for increasing productivity of individuals, profitability of employers and finally national growth. Propagating vocational education with special recognition will make our youths more employable and create for them opportunities for self-employment. Innovation and incubation of innovative ideas is to be channelized with the institutional support.

Skill and Vocational Education in India

According to Indian Labour Report, 2009, in India only 8% of the young labour force receives vocational education whereas South Korea has provided as high as 96%, Canada and Japan 80% each, Germany 75% and Mexico 24% vocational education to the youngsters. Even in the general education system, entrepreneurship development should be introduced as an add-on course so as to enable the youngsters inculcate the entrepreneurial skills for self-employment and generate more jobs in the society. Introducing locally relevant vocational courses at degree level should be introduced in the universities and colleges and it will

help in the economic development of the region or the state.

Of late, India too has started giving due importance to vocational and skill-based education through the establishment of National Skill Development Corporation in 2009. The curriculum in Indian universities is to be revised frequently as per the needs of the industry or the society and as such it will be at par with the global standards. Understanding the industry demand and also designing the courses as per their requirement will give a flip in the proper growth of the higher education and ultimately give benefits to the society at large. The gap between the theory and practice should be minimized.

The National Board of Accreditation has identified 12 Graduate Attributes (GA's) for measuring effectiveness of graduate programmes grouping into four major areas of skills such as Human Skills, Communication Skills, Professional Skills and Technical Skills. The human and communication skills are also known as soft skills for employability. Such soft skills development component is lacking in many general education except in a few professional courses. Soft skills development programmes should be introduced in the under-graduate and post-graduate levels so that these students can be employable once they pass out their degrees. While providing soft skills development we are to see the cross cultural skills as well. As the world is shrinking day by day, the employability should not be confined to the state or the country but to the whole world as well. Providing training for cross cultural skills along with certain foreign languages will give added advantage for the employability.

Coming to the job specific category/vocational courses, UGC has introduced industry-related skill based programmes through Community college/ B. Voc./KAUSHAL Kendra programmes and suggested the Choice Based Credit System in different levels of study. It is an appreciable reform in the Indian higher education system. It will encourage not only inter-disciplinary learning in the university/ colleges but also exchange programmes among the universities/ institutes within India or abroad. For this to happen, our curriculum has to be revised in tune with the global counterparts in a credit transferable pattern.

Challenges in Higher Education

The challenge the Indian higher education is facing has many folds.

The number of universities in India has grown considerably over the last 60 years and it has 634 universities and 33023 colleges in 2011. As per UGC report, out of 86% of students completing graduation only 12% go for post-graduate education and barely 1% take up research. In spite of the fact that India is having one of the largest higher education system in the world with English medium universities, it cannot earn global distinction, may be due to shortage of good faculty and inadequate infrastructure. The universities in India are generally public funded except a few private universities as such funding is still a major constraint and because of which universities cannot have ultra modern infrastructural facilities for teaching and research and it cannot attract global faculty. No Indian university/Institution is figured in the top 200 world university ranking, released in 2011. Indian higher education is far behind the global standard.

As for the skill education in higher learning standardization in the syllabi for the vocational courses is very much need of the hour. National occupation standards in line with the National Skill Qualification Framework at levels 5 to 7 for the B.Voc courses have been prepared so that there can be multiple exit facilities of the students during the course. However, the evaluation through Sector Skill Council has to be properly expedited in a timely manner. Registration of the students through Skill Development Management Systems run by NSDC is still becoming a tedious task.

Another aspect is the availability of competent faculty members for the vocational courses. It is not denying the fact that quality of teaching is one of the most important factors for producing good quality students. Besides good infrastructure and curriculum, good academicians are utmost important for imparting quality education with the use of modern pedagogy. Now, many universities and colleges are facing acute shortage of faculty members. According to UGC report in 2008, 53% post of lecturers in universities and 41% in colleges are lying vacant. Similar is the situation in the other teaching positions for the vocational courses. For better quality education first these vacant positions need to be filled up. At the same time handsome incentives and benefits are to be provided for attracting talented youngsters to join the teaching fraternity specially in vocational courses.

The vocation degrees should be treated at par with the normal degrees. Hence, B. Voc. Degrees should also have the eligibility for any

other avenues for employment in UPSC, SSC, State PCS and any other recruitment agencies where the general degrees can apply. Further, they should also have the opportunities for vertical and horizontal mobility in higher education.

Concluding Remark and Future Direction

Interdisciplinary and collaborative learning should be encouraged and as such student/faculty exchange programmes among the universities and colleges within India and abroad should be encouraged. Sometimes, universities can provide joint degrees etc for wider acceptability in the global work environment. Irrespective of the degrees/diploma entrepreneurship development should be introduced as a compulsory subject in higher education so that students should be trained to become more employable and provide avenues for self-employment.

Education and learning is a continuous process, thus, continuous improvement and training is very much needed. Educational innovation with more variety in knowledge and skills should be harnessed and at the same time attitude and behavior of the students should be taken into account while imparting education. Today, facing competition is becoming an inevitable task as such Indian universities need to focus on quality in their management of affairs and also benchmark with the top notch institution of the world only then we may be able to come up to the global standards. At the same time more autonomy should be provided for fairer competition and flexibility in their working.

India is poised to have a vibrant economy driven by knowledge and the challenges in higher education are no longer confined to the country only but to be comparable with best in the global arena as well. Academic reforms in terms of curriculum, pedagogy, evaluation, teaching-learning process, governance and management with innovative mindset is very much need of the hours. Mr N R Narayana Murthy said "By enabling a renewed, re-energized education sector, we have the potential to transform our country into a true knowledge power, and realize a future of prosperity and growth". Change as such is inevitable and reform in higher education is also very much essential in the light of global trends happening. However, quality should be the central when any kind of reform activity is taken up so that the society at large gets the optimal benefits.

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4

Skill Development
A Road Map for India

G. K. Kalkoti*

What is Skill Development?

Skill development refers to equipping an individual with marketable skills. Skills and knowledge are important factors for economic growth of the country. Skills are imparted through the process of 'learning by doing' and are 'done on the job'. The main aim of skill development is to support achieving rapid and inclusive growth.

Skill development also means developing abilities to add value for the organization and for one's own career development or continuously learning and developing one's skills requires identifying the skills needed for mobility.

Core Skills and Secondary Skills

Core skills refer to skills we absolutely need to have in order to perform our tasks. They are directly tied to the outcome. Without these skills, one cannot function properly in the task.

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Examples of Core Skills are Personal development, Problem solving, Writing, Coaching, Speaking, Presentation, Business management, Project management, People skills, Marketing, Promotion etc.

Secondary skills are skills which are nice-to-have and not needed-to-achieve the desired output.

Examples of Secondary Skills are Networking, Graphic design, (site design, name cards, etc) HTML, CSS, Programming (to manage my blog)

Skill Development Should Follow 70-20-10 Rule

70% of skill development should come from on-the-job activities and action learning.

This can include development experiences like managing a project, serving on a cross-functional team, taking on a new task, job shadowing, job rotation, etc.

20% of skill development should come from interactions with others.

This includes having a mentor, being a mentor, coaching, participating in communities of practice, serving as a leader in a staff organization, etc.

10% of skill development should come from training, including classes, seminars, webinars, podcasts, conferences, etc.

Various steps are being taken towards meeting the above objectives, such as, the formulation of the National Skills Development Policy, delivery of Modular Employable Schemes, upgradation of existing institutions through World Bank and Government of India funding, as well as upgradation of training institutes under Public Private Partnership mode, setting up of the National Skill Development Corporation, and the plan to establish 50,000 Skill Development Centres. Apart from these, several ministries/departments and state governments are engaged in skill development initiatives.

Given the significance of skill development as well as the quantum of funding involved, there is also the overarching need for quality structures to be in place, especially from the perspective of successful implementation. Such quality standards and processes are required at all segments of the 'skill development value chain'. This has to be complemented by linking funding to outcomes as well as incentivising good performance. Several international frameworks are available

which can serve as a reference point with appropriate and effective customisation to the Indian context.

Given the magnitude of the skill development challenge, implementing agencies are likely to face challenges right from mobilising trainees, developing standardised and scaleable content, ensuring the availability of trainers, making available appropriate infrastructure, and coordinating placement and industry linkages.

According to document which has been prepared by ICRA Management Consulting Services Limited (IMaCS) to serve as a background note for the 3rd Global Skill Summit of the Federation of Indian Chambers of Commerce and Industry (FICCI), to achieve the necessary 'scale' and 'speed', the following solutions could be the way ahead in providing a conducive environment for India to meet its skill development goals:

- Targeting skill development at all levels of the 'skill pyramid'
- Implementing vocational education in schools
- Creating a large talent pool through Modular Employable Skills
- Ensuring quality in delivery
- Employing technology to achieve scale
- Formulation of institutional mechanisms for content formation, delivery, and assessment
- Expediting the formulation of Sector Skill Councils
- Setting up of a National Human Resource Market Information System (a National Skill Exchange).

Top Ten Skills that Employers Want

Based on a number of surveys on the skills required by graduates undertaken by Microsoft, Target Jobs, the BBC, Prospects, NACE and AGR and other organisations, here is our summary of the skills which were most often deemed important.

1. Verbal Communication	Able to express your ideas clearly and confidently in speech.
2. Teamwork	Work confidently within a group.
3. Commercial Awareness	Understand the commercial realities affecting the organisation.
4. Analysing and Investigating	Gather information systematically to establish facts and principles.

	Problem solving.
5. Initiative/Self Motivation	Able to act on initiative, identify opportunities and proactive in putting forward ideas and solutions.
6. Drive	Determination to get things done. Make things happen and constantly looking for better ways of doing things.
7. Written Communication	Able to express yourself clearly in writing
8. Planning and Organising	Able to plan activities and carry them through effectively
9. Flexibility	Adapt successfully to changing Situations and Environments
10. Time Management	Manage time effectively, prioritising tasks and able to work to deadlines.

Some Other Skills that were also seen as important

1. Global Skills	Able to speak and understand other languages. Appreciation of other cultures. See ➢ Study and work placements outside the UK ➢ Working Abroad
2. Negotiating and Persuading	Able to influence and convince others, to discuss and reach agreement.
3. Leadership	Able to motivate and direct others
4. Numeracy	Multiply and divide accurately, calculate percentages, use statistics and a calculator, interpret graphs and tables.
5. Computing Skills	Word-processing, using databases, spreadsheets, the Internet and email, designing web pages etc.
6. Self Awareness	Awareness of achievements, abilities, values and weaknesses

	and what you want out of life.
7. Personal Impact/Confidence	Presents a strong, professional, positive image to others which inspires confidence and commands respect.
8. Lifelong Learning	Continues to learn throughout life. Develops the competencies needed for current and future roles.
9. Stress Tolerance	Maintains effective performance under pressure.
10. Integrity	Adheres to standards and procedures, maintains confidentiality and questions inappropriate behaviour.
11. Independence	Accepts responsibility for views and actions and able to work under their own direction and initiative.
12. Developing Professionalism	Pays care and attention to quality in all their work. Supports and empowers others.
13. Action Planning	Able to decide what steps are needed to achieve particular goals and then implement these.
14. Decision-Making	Determines the best course of action. Evaluates options based on logic and fact and presents solutions.
15. Interpersonal Sensitivity	Recognises and respects different perspectives. Open to the ideas and views of others.
16. Creativity	Generates and applying new ideas and solutions.

Implementation of Skill Development Training

According to Minister of State (Independent Charge) for Skill Development and Entrepreneurship Shri Rajiv Pratap Rudy "There are over 40 skill development schemes across various sectors implemented by over 18 Central Ministries/Departments to promote skilling of all

people including youth in the Country.

Funds under these schemes are provided by the concerned Ministries/Departments to the implementing agencies including states in accordance with the guidelines issued for the schemes."

Management Skills Pyramid

A successful manager requires a variety of skills, through this management skills pyramid, quickly you can identify the differing and level of difficulty of the skills required to master the management role. Adapting the **Kammy Hatnes'** pyramid structure you can easily see how these management skills build on each other to help you become a proficient manager.

The Management Skills Pyramid, Level 1

The fundamentals of the management role:

Plan – a detailed proposal for doing or achieving something

Organize – make arrangements or preparations for (an event or activity).

Direct – control the operations of; manage or govern

Control – determine the behaviour or supervise the running of.

The Management Skills Pyramid, Level 2

This tier of the pyramid focuses on the development of your staff. There are many specific skills required, and these are covered in Level 2 of the Management Skills Pyramid, but they are grouped into these categories:

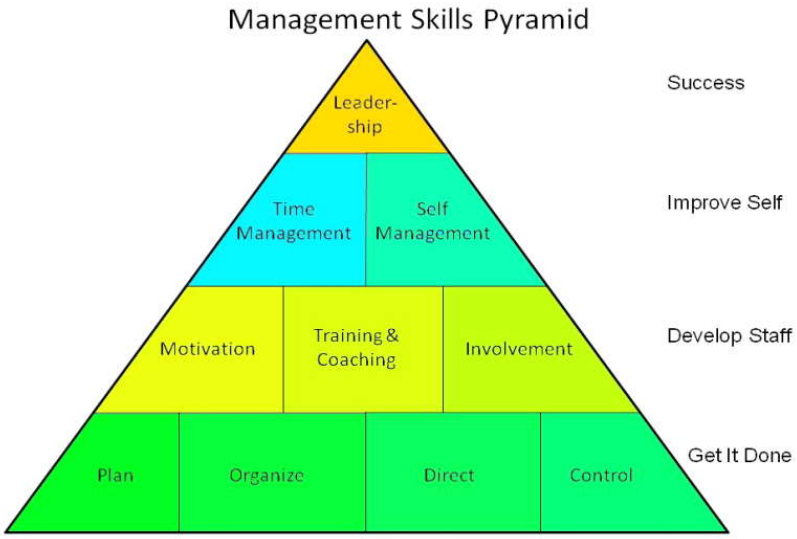
Motivation – a reason or reasons for acting or behaving in a particular way.

Training and Coaching – the action of teaching or showing a person a particular skill or type of behaviour.

Employee Involvement – the fact or condition of being involved with or participating in something.

The Management Skills Pyramid, Level 3

After becoming skilled in developing your staff you need to improve your own development.



Self-Management – management of or by oneself; the taking of responsibility for one's own behaviour and well-being.

Time Management –the ability to use one's time effectively or productively.

Time management gets its own category because it is so important to your success in all the other skills.

***The Management Skills Pyramid, Top Leve*l**

The top level of the Pyramid, the most important set of skills that set you apart in your management, is leadership. Developing your skill as a leader is entirely different from management and as you move from manager to leader, you achieve the success you truly want in your management career.

In a nutshell, the building blocks of any skills strategy must be solid foundation skills which is possible through:

- Stronger links between the worlds of education and work.
- Good-quality education in childhood.
- Good information on changes in demand for skills.
- Training Systems shall be Responsive to
- Structural Changes in Economy and Society
- Recognition of Skills and Competencies

- Ensuring Equity
- Accreditation, Assessment, Certification
- Mobilizing Adequate Funds for Training
- Tapping the untapped SKILLS

There are many opportunities in even the most academic courses to develop intellectual and practical skills that will carry over into work and life activities in a digital age, without corrupting the values or standards of academia. Even in vocational courses, students need opportunities to practice intellectual or conceptual skills such as problem-solving, communication skills, and collaborative learning. However, this won't happen merely through the delivery of content.

Faculties need to:

- think carefully about exactly what skills their students need;
- how this fits with the nature of the subject matter;
- the kind of activities that will allow students to develop and improve their intellectual skills;
- how to give feedback and to assess those skills, within the time and resources available.

Conclusion

To contribute to the growth of economy, we need to have skilled workforce which can be available by vocational education and training system. Skilled workers increase the efficiency and flexibility of the labour market and can be more easily absorbed into the economy. The global economy is expected to witness a skilled man power shortage to the extent of around 56 million by 2020. Hence there is an opportunity for India to meet the skilled manpower requirements in India as well as abroad. Thus skill building is necessary to improve the effectiveness of production.

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5

Skills for Virtual Learning through Understanding of MOOCs

Manas Ranjan Panigrahi*

Learning is a lifelong process for every individual. It can be accomplished through different educational resources. Traditionally, access to different educational resources, its recording and dissemination was difficult. However, Information and Communication Technology (ICT) is now playing an important role for the dissemination of sustainable quality learning resources worldwide (Pal and Panigrahi, 2013). ICT is defined as a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information. These technologies are computers, the Internet, broadcasting (radio and television), and telephone (Blurton, 2002). After the advent of ICT, the teaching and learning processes have virtually got revolutionized globally.

The idea of a MOOC originated from the Open Educational Resources Movement. The central idea was to make Open Educational Resources freely available and to run Massive Open Online Courses. The Massive Open Online Course (MOOC) is a new online medium for course delivery and learning. It enables thousands of learners to

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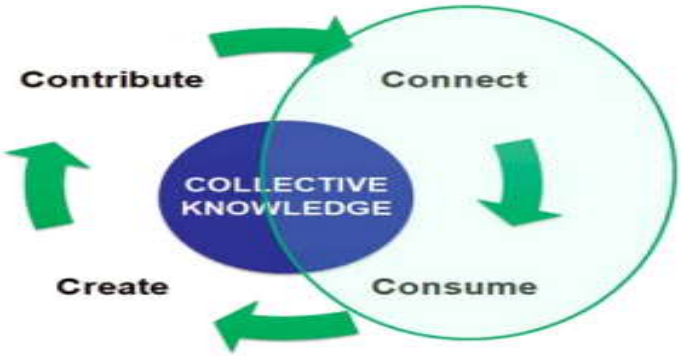
participate in the same course with high quality content and interactive tools for learning. On this scale, a MOOC can offer a better user experience as compared to a standard web-based course. Possibilities for rich mentor-learner and learner-learner interactions are unlimited. International media has been covering MOOC developments extensively. The *Economist Magazine* in an editorial (June 28, 2014) on the far reaching changes occurring in higher education, called MOOCs a key driver in the change. The well-known newspaper, *The Wall Street Journal*, has featured opinions on MOOCs as a practical medium for rapid diffusion of important skills and information.

MOOCs would encourage learners to use these materials, by connecting with OERs and with other people who were also learning (Daniel, 2012). The design of the MOOCs were based on an approach to networked learning, termed connectivism (Siemens, 2005). The term MOOCwas coined in 2008 during a course on"Connectivism and Connective Knowledge" run by Canadians George Siemens, Stephen Downes and Dave Cornier (CCK08, 2008; Downes, 2008). This course was designed and run for 25 fee-payingstudents, but 2300 others joined in the course for free, participating by using a range of social media tools they had chosen, including RSS feeds, blog posts, virtual worlds and synchronous online meetings. You can view the Connectivism and Connective Knowledge course athttp://cck11.mooc.ca/. You can also see the video on MOOCs which was presented in IGNOU conference by Dr. Sanjaya Mishra, COL at: https://www.youtube.com/watch?v=FIVCS23pGOk&feature=youtu.be&noredirect=1

Design of MOOCs

MOOCs attract a wide variety of learners with a range of backgrounds, previous experience and skill levels. Yet there is little empirical evidence on how to design a learning environment that a ccommodates diverse learner profiles. Generally MOOCs fall into two broad categories: the xMOOCand cMOOC. The first MOOC was established in 2008 and followed a 'connnectivist' pedagogy approach. However, most MOOCs are instructivist by design. xMOOCs follow an 'instructivist' online course design in which learning goals are predefined by an instructor, learning pathways structured by environment and learners have limited interactions with other learners. One example is the MOOC in Artificial Intelligence first offered in by Sebastian Thrun, a Professor of Computer

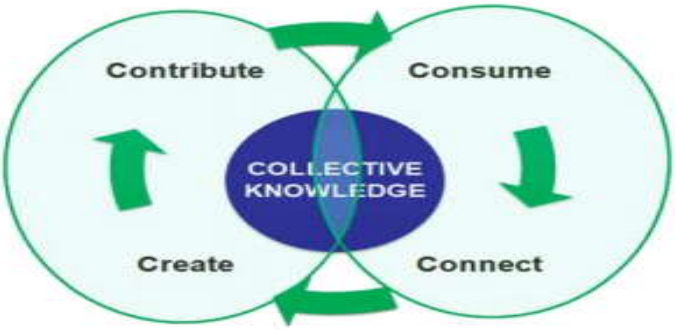
Science at Stanford University, a former Google executive (https://www.ai-class.com/).



xMOOCs

The MOOC followed a conventional design in which students who had signed up for the course went through a step-by-step process of watching video lectures, carrying out short tasks, completing computer marked assessments, progressing to the next stage. In some ways the course design is applicable to the subject area – Artificial Intelligence is a mathematically based subject with'right' and 'wrong' answers that can easily be marked through computer aided assessment. Students who completed the course were awarded a Stanford Certificate. Even though this certificate isnot viewed as equivalent to a campus-based Stanford qualification, the Stanford 'branding' helped to attract around 100,000 students to thefirst course. The success of the first AI MOOC motivated Sebastian Thrun to set up a commercial MOOC platform, Udacity (https://www.udacity.com).

In the year 2012 another commercial MOOC platform was opened, Coursera (https://www.coursera.org). cMOOCs have a different purpose and origin.These MOOCs are based on a different set of design principles, known as 'connectivist'. A basic premise of connectivism is that learners connect through digital networks to learn (Siemens, 2005). cMOOCs differ from xMOOCs in that learning goals tend to be defined by learner (rather than the teacher), learning pathways are open and ill-defined (rather than being set within a bounded environment) and interaction with others is cMOOCs expected but has to be initiated by the learner.



cMOOCs

The MOOC designs fit with a dichotomous view of adult learning, in which learning is viewed as either cognitive (individualistic) or social (participatory). A good description of this dichotomy is given in Sfard (1998) on the role of self inlearning through acquisition and inlearning through participation. Some educationalists believe cMOOCs represent a pedagogical approach ideally suited to the network age. However little known about how the learning experience afforded by a MOOC is suited to the diverse range of learners who participate in each course (Milligan, Littlejohn & Margaryan, 2013).

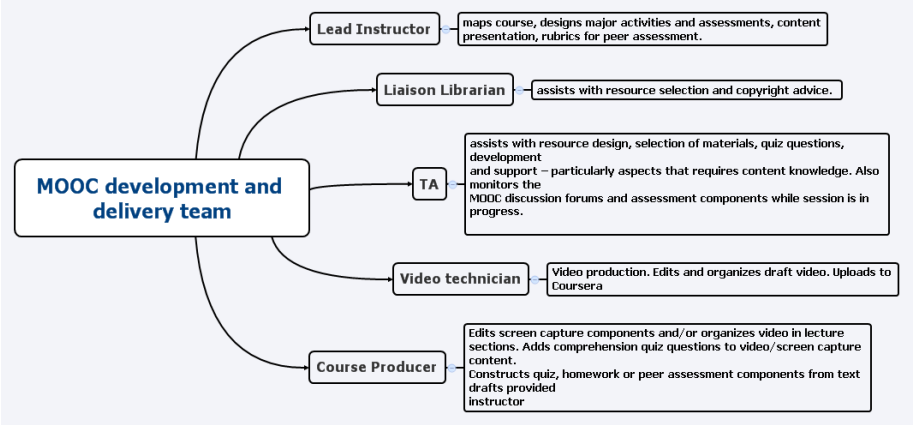
MOOCs and OER

Massive Open Online Courses (MOOCs) consist of lessons that are freely available to anyone on the Internet, and are accessed by large numbers of learners. They are generally not for credit and the majority of participants do not commit to the full course, but instead participate according to their personal needs and preferences. MOOCs have grown out of the online learning movement, but many are not quite so "open" and use closed licences. These closed xMOOCs are typically for-profit, venture-capital-backed and characterised by their focus on knowledge transmission (e.g. video lectures) rather than interaction. The original cMOOCs stress connectivity and rely on student discoveries, discussions and the shared creation of knowledge among participants. However, both types may or may not use both open and closed licensed content that is freely accessible on the Internet.

Design and Development of MOOC

The following well-established course design principles (Wiggins, G., 1998) should be applied to MOOCs to ensure courses are well designed from a pedagogical perspective.

1. Identify the intended learning outcomes for students (knowledge, skills, attitudes)
2. Ensure assessment strategy aligns with learning outcomes
3. Develop a progression of tasks and activities that will support learners in building the target knowledge, skills and attitudes
   - Present content that will support active learning; model activities/skills for students
   - Over duration of course, build upon foundational knowledge toward higher order skills such as application, integration and analysis.
4. Ensure a balance between instructor presence, social/peer interaction and cognitive challenge.



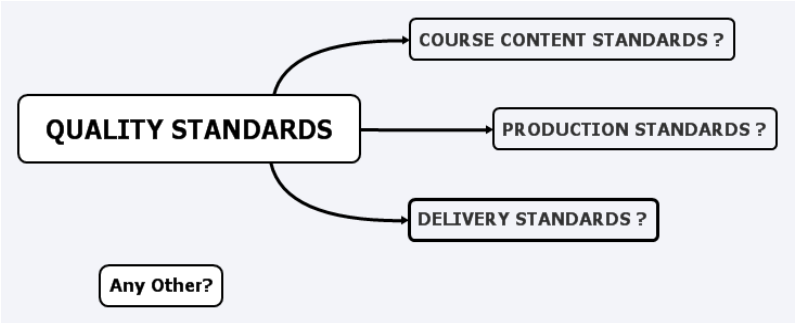
Recent MOOC model and platform design originates in the Computer Science discipline and is based on mastery learning, a pedagogy in which students have multiple opportunities to learn the content, practice and demonstrate their knowledge. This typically includes various problems, computations, programming assignments and other quiz questions or homework that can be assessed using automated methods. These methods are more common in science, technology, and math courses for example.

However, in many courses, learning assignments do not lend

themselves easily to automated grading by a computer. We are currently in an exploratory phase with regard to the potential of the MOOC model for delivery of arts, social science and humanities content. MOOCs may leverage peer assessment and crowd sourcing to address the needs of these discipline areas. In the course development guidelines below particular attention is given to suggesting activities to engage students in discipline areas that lend themselves to a more constructivist or socially situated context. In all cases we encourage faculty to consider principles of course design noted above to ensure a high quality online experience for the learners.

Quality Assurance and Control

Quality of MOOC can be described by the following interdependent issues: (i) Efficiently to achieve educational goals set,)ii) Relevance of education in addressing the needs of the community and the environment, (iii) Promote creativity and innovations. However, it can also describe quality in terms of: Technical efficiency (referring to teaching learning and pedagogical issues that focus on inputs, teaching skills/methodology, organization of school, curriculum content), and MOOC quality measures to be fulfilled continuously without interruption (ethical and professionally efficient teachers, curriculum (equitable, student centered, address country's need, maintain international standards), efficient organization and management system, availability of relevant educational support, adequate learning time).



The inherent problem with the enormous digital resources available in the world, is also applicable to develop MOOC. Consumers may be having great access to the digital world of information through this

mode, but still the problem of judging their quality and relevance is there. The issue of quality assurance is fundamental and cannot be treated at depth in this paper. Instead a few different approaches to deal with the issue are listed below.

Branding is one of the approaches. Before releasing the resources on to the web, through internal check the institutions make sure the quality. Users have confidence in the brand/the institution's prestige which will be at stake if quality is not there. However, this internal quality check is not open and hence the users may not follow it.

Yet another approach is ***peer review*** of the resources. This technique is one of the most used quality assurance processes in academia. Being a well-known and well understood routine, this may be an acceptable quality assurance for the consumers. There are also other arguments for using peer review schemes to guarantee the quality of a MOOC. Taylor (2002) argues, the process can be used to come to terms with the lack of a reward system by giving recognition and reward to the creator of a learning resource, as well as a dissemination method. Furthermore, there is a need for making the review decisions credible, and for that purpose an open peer review, according to agreed criteria, is well suited, Taylor claims.

Quality management approach is suggesting that, let individual users decide on whatever ground they like whether a learning resource and techniques used is of high quality, useful, or good in any other respect. User rating/ comment on the resource or describing how they have used it, or by showing the number of downloads for each resource on the website may generate a trust in the users. This is a bottom-up approach often used on Internet-based market places, music sites, etc., the validity of which is not dependable. However, such an approach would be justified in that quality is not an inherent part of a learning resource, but rather a contextual phenomenon that, the learning situation decides whether a resource is useful or not, and therefore it is the user who should be the judge.

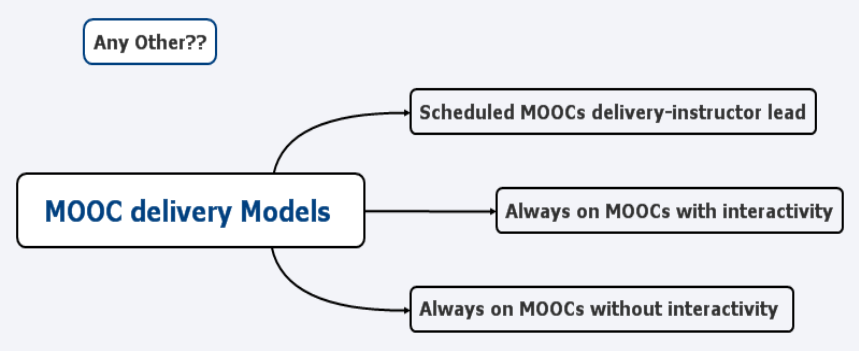
Delivery, Assessment and Certification

What all should be included in the assessment scheme for MOOC? If yes, we need to specify the Assessment structure like weather it will be Flexible assessment structure or defined assessment structure. It also needed to handle assessment of credited and non-credited MOOCs

differently. For example:

- Credited MOOCs Proctored exam (question type – MCQ, Subjective)
- Centrally *vs* Institution conducted exam.

It is advisable that the Assessment scheme guidelines for CBCS need to be followed for credited MOOCs also. However, there are various delivery models of MOOC, some suitable models may be adopted and follow the structure of assessment suggested if it is appropriate for your MOOC.



Assessment is one of the criteria to know what extent your MOOC is effective and how it gives quality platform for various learning opportunities for the learners. Successfully completion of the MOOC, the learner wants a certificate for the recognition in the society. The 'Institute' must ensure credentials and competence of the learner for certification.

There are various kinds of Certificates may be issued to the learners such as: Participation Certificate, based on Analytics; Competency Certificate, based on Assessment; Statement of Accomplishment, etc. The institution, individual and organisation assured the worth of their certificate referring to the following questions:

- Does it count as Credit in a University?
- Not equivalent to a University course?
- Do employers recognize it?

Certification is linked to Identity and Assessment and Analytics of any MOOC.

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6

Problem Based Learning as an Innovative Approach for Empowering the Creative and Critical Thinking Skills in Higher Education

Manoj Kumar Saxena* & Anu G. S.**

Introduction

The 21st century is characterized by the emergence of multi-culturalism due to the integration of industrialization, urbanization, liberalization, privatization, globalization and even googlization!. With the advent of technological advancement in the 21st century the life has become ever changing. Resultantly, the area of teaching had changed to a vast extent. Now, the focus is on how we learn and a determined drive has been on the move to develop an educational system that helps children learn more effectively for life. This would include students developing an understanding of their own learning profile and how to use it to raise achievement and develop their full potential. Teachers, students and

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parents need to understand their learning styles and how to engage their brains. The methodological revolution from traditional product based learning is changed into the process based new constructive paradigm. Here in this context the role of Problem-Based Learning is crucial.

Problem –Based Learning as a Six-dimensional Approach to Higher Education

The classical definition of problem-based learning is "the learning that results from the process of working towards the understanding of a resolution of a problem. The problem is encountered first in the learning process (Barrows & Tamblyn, 1980)". Problem-based learning always focuses on students' learning, not on teachers' teaching. It has often been defined as *a total approach*, not just as a teaching technique or tool. Six key dimensions of problem-based learning are explained below.

Dimension 1:PBL Problem Design

Many teachers use problems to stimulate learning. However a key characteristic of problem-based learning is that problems are presented to the students at the start of the learning process rather than after a range of curriculum inputs. The PBL problem can be *a scenario, a case, a challenge, a visual prompt, a dilemma, a design brief, a puzzling phenomenon, or some other trigger* designed to mobilize learning. The three key roles of problems in PBL curricula are (i) increasing levels of curiosity in domains of study (ii) experiencing relevance of the curriculum as problems are perceived as pertinent to future profession and (iii) integrating learning from all curriculum components, e.g. PBL tutorials, practice placements, lectures and skill training. It is important for PBL practitioners to continually find new ideas for selecting or designing relevant motivating, challenging, interesting, multi-faceted and up-to-date problems for our students.

Dimension 2: PBL Tutorials in Small Teams

At the heart of PBL initiatives are small team of students with tutors working on problems in tutorials. Often, there are about five to eight students in a tutorial team with one tutor. Where there are fewer resources, one teacher can act as a roaming tutor between two or three teams. Teams usually work together around a table with some way of

capturing group discussion. In the PBL tutorial, *knowledge is not a process of reception, but rather a process of construction*, where students generate knowledge together as they link prior learning and experience to new learning (Ausbel, 1968).

Three major principles of social constructivism that connect learning theories to problem-based learning are:

1. Elaboration of knowledge at the time of learning enhances subsequent recall (Norman & Schmidt, 1992).
2. Students can learn more with capable peers than on their own (Vygotsky, 1978)
3. Learning is a dialogical process based on thought-language (Freire, 1972).

***Dimension3:* PBL Compatible Assessments**

Assessment drives student learning. As well as designing challenging problems and facilitating effective tutorials, assessments need to be designed in such a way that they align with:

- Learning outcomes;
- The development of student capabilities; and
- The problem-based learning process.

***Dimension 4:* PBL Curriculum Development**

The core of a PBL curriculum is students working on PBL problems in tutorial teams. Other curriculum inputs, e.g. lectures, resource sessions, practice placements, research seminars, and skills training need to be planned and sequenced in the curriculum in order to create an integrated PBL curriculum.

***Dimension 5:* Developing Knowledge and Capabilities**

Problem-based learning aims to develop the students' knowledge and capabilities. In PBL curricula, students construct their knowledge of key concepts in their discipline/ profession by working on problems designed around these concepts. Together, they construct their knowledge of these concepts through their dialogue in PBL tutorials, which includes sharing their independent study and together elaborating their concepts and ideas in PBL tutorials. The practioners regularly highlights the importance of key skills like communications,

teamwork, information literacy, critical and creative thinking, and problem-solving, together with self-awareness, self-assessment, ethical behavior, reflection, and responsibility for continuous development.

Dimension 6: **The Philosophy of Problem-based Learning**

By exploring various dimensions of PBL, also address a range of underlying philosophical questions that are useful for all teachers to explore, which includes:

- What is the purpose of the higher education?
- What is learning?
- What is teaching?
- What does it mean to practice as a professional?
- What ethical issues do we want our students to address?
- How can higher education promote critical and creative thinking?
- What is the nature of problems in PBL curricula?
- What is the purpose of PBL tutorial?
- How can problem-based learning be re-energised and re-invented?

In this context it is useful for us to think deeply and widely about the purposes of higher education and about the potential of BPL. One of the ways that PBL can integrate the purposes of higher education is through its potential to link teaching, learning, and research. In problem-based learning, students engage in research in order to explore and tackle the problems they work on. The students have to identify and articulate the features of the problem themselves and then clarify what they know already and what they do not know and need to research. They also have to engage in independent research in finding, reviewing, evaluating, and applying new information to the problem. In PBL tutorials, the students need to marshal evidence for their arguments and discuss counter-arguments. Seeing PBL students as researchers may be one of the ways in which institutions can transcend different activities and functions in higher education.

The PBL Tutorial Process in Practice

The PBL tutorial process is central to problem-based learning. In this type of tutorial, the role of the tutor is to facilitate a challenging learning

process, not to give content knowledge. The students all contribute to the discussion of the problem and the work of the tutorial and some students also take on an additional role such as chairperson, scribe, reader, timekeeper, or observer. In different contexts there may be particular emphases in terms of the role of the tutorial. In some contexts, for instance, special student roles are decided by the students, e.g. presentation co-ordinator, photographer.

Tutor and Student Roles in the PBL Process

The role of the ***tutor*** is to:

- Encourage a welcoming and challenging learning climate;
- Facilitate the PBL process, not give a mini-lecture;
- Listen very attentively and actively to what students are saying and observe the learning, difficulties, and fun that are taking place in the team;
- Intervene, where appropriate, with process interventions based on this listening and observation;
- Ask questions that encourage critical and creative thinking;
- Ask students to provide the evidence for their statements and to evaluate the resources that they used;
- Challenge students to link theory and practice;
- Stimulate debate about major issues;
- Expect students to be responsible to complete high-quality independent learning;
- Facilitate students to reflect on their learning, the development of key skills, and the performance of the team;
- Facilitate the review section of the tutorial.

The role of the ***chairperson*** is to:

- Encourage the participation of all team members;
- Facilitate the team to make and work within agreed ground rules;
- Stop one person dominating the team and encourage quiet team members to contribute;
- Not necessarily talk first and certainly not to talk at length;
- Encourage discussion of different viewpoints;
- Use the PBL process guide as a scaffold for the team to work on the problem;
- Ensure that someone summarises at the end of a tutorial;

- Check that everyone is clear what learning issues the team has decided to work on;
- Ensure that the team have a clear action plan;
- Co-ordinate the team to complete their action plan and the production of any products required for the work on the problem.

The role of the ***scribe / recorder*** is to:

- Record the ideas of the team on the whiteboard so that this information can be used as a shared learning environment;
- Write down clearly the learning issues that the team decide to work on;
- Work both verbally and visually on the whiteboard and invite other team members to write on the whiteboard if they want to illustrate a point;
- Summarise and synthesise the learning from the problem on the whiteboard as all team members contribute to this synthesis;
- Co-ordinate electronic team communications.

The role of the **reader** is to:

- Read the problem aloud at the start of the tutorial;
- Re-read the problem again when the team and/or the reader decides that this would be useful;
- Continue to read the problem by drawing the team's attention to key elements of the problem.

The role of the ***timekeeper*** is to:

- Help the team to manage the time in tutorials;
- Remind the team at key stages about how much time is left in the tutorial;
- Make suggestions to the team about time management.

The role of the ***observer*** is to:

- Observe the workings of the team in terms of the learning process and team dynamics;
- Feedback these observations to the team;
- Make suggestions based on these observations.

Problem Design in PBL Curricula

Designing high-quality problems is a key success factor for problem-based learning (PBL) curricula (Gijselaers & Schmidt, 1990) as the problem is the starting point and the driving force for learning. The role of the problem designer is to construct or select the presenting problem to be given to the students at the beginning of the learning process. It is then the students role to define the kernel of the problem. As problem-based learning practitioners, we have benefited from much advice from the literature that tells us that quality problems should be:

- Engaging and motivating;
- Authentic, real-world, from professional and social life;
- Ill-structured, open to multiple ideas/hypotheses, sustaining discussion;
- Multidimensional with physical, cognitive, social, emotional, ethical, and other dimensions;
- A stimulus for the generation of a web of collaborative enquiry;
- Challenging students to achieve learning outcomes, gain an understanding of key concepts, and acquire an ability to work on common practice problems;

Range of Media that can be used in Problem Design

In PBL, the idea is that problems will be based on the experiences that students will meet in professional practice and experiences that challenge them to understand key concepts, the different media formats for problem design can be classified into three major categories. (a) lived experiences (b) simulated experiences and (c) digitized experiences

The five-step approach to the practical design of problem in a variety of media is shown below.

Step 1: Brain storming and Storyboarding: The first crucial stage is the brainstorming and storyboarding session. By the end of this stage, you should have completed a detailed paper based-design of your problem and identified the range of factors that will need to be assessed in order to develop and implement the problem.

Step 2: Sourcing Existing Resources: By the time you have completed your story board, you should have a very clear ideas of the resources you require for your trigger. You should try, as far as possible,

to locate existing resources, rather than investing in the development of new materials–keep in mind that multimedia development, in particular, can be a time consuming task. Reusing or repurposing existing content could save your large amount of time and effort.

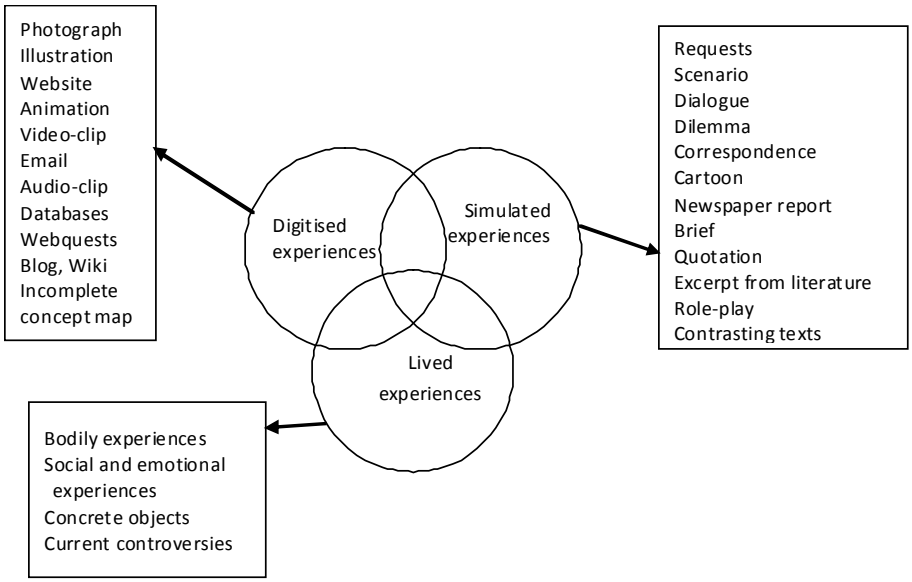

***Figure* 1: Using different media formats to present experiences to students**

Step 3: Copyright Checking: Copyright protects the intellectual rights of a variety of works including creative and artistic works. With the wide availability of material on the internet there is a common misperception that this content can be reused without due acknowledgement or permission granted by the original author. The principles of plagiarism apply in this regard and it is not acceptable to take credit for other people's work.

Step 4a: Reusing Resources: If you have found existing resources and ensured that you have copyright clearance for reuse, the next stage is to incorporate the resources into a usable format that can be delivered to your students.

Step 4b: Developing Your Own Resources: If you have been unsuccessful in locating a previously developed resource, you will have to consider creating your own resources at this stage. You have a range of options, from traditional methods that rely on "pen and paper" and the other common art materials, to readily available objects, or using

digital media. Again this is dependent on the needs identified in your storyboard.

Step 5: Implementing Your Problem: After you have worked out the practical and logical issues, the problem can be implemented. You should evaluate the problem in order to continuously develop in PBL initiative.

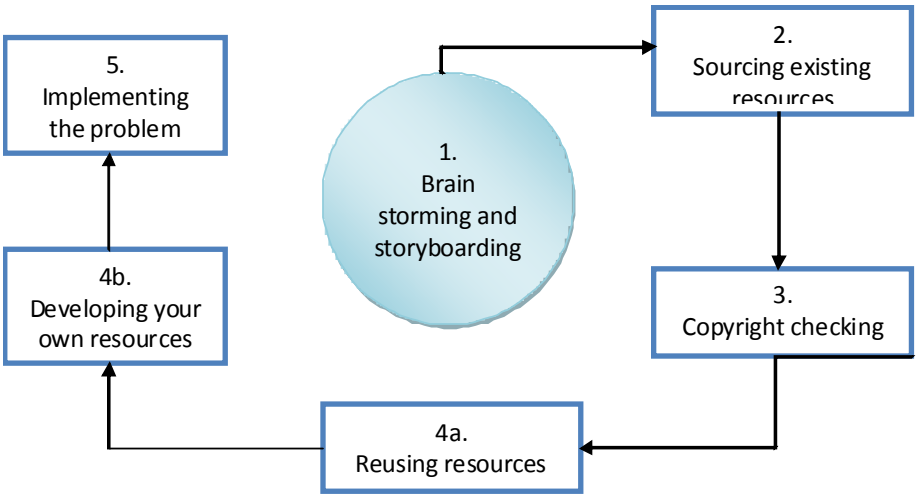

Figure **2: A five-step approach to developing problems in different media**

Conclusion

Problem Based Learning is a pedagogical approach that has the capacity to create vibrant and active learning environments in higher education. The hidden methodology behind the PBL exercise is heuristic learning. If we plan, design and implement the curricular dimensions of PBL it will result in the critical and creative thinking of the learner and they become discover of new concepts. PBL curriculum empowers the learner to excel in academic research and extension goal of higher education.

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7

Green School Buildings
Enhancing Students' Performance

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Need for Integrated Design

When a child comes out from the protected environment of home and steps into a school to connect with the world outside, the environment there has a lasting impact. The proportions, colours, texture, greenery, sounds, sensory experience all directly influence the nature and behaviour and also the cognitive ability of students. It is widely acknowledged that buildings designed by architects are aesthetically pleasing and 'spacious'. Beautiful buildings just like any other art form are no doubt important as they are able to provide instant gratification and a sense of delight for viewers. Nevertheless the buildings must go beyond visual aesthetics and create an ambiance that contributes to human productivity and enhanced performance of users. Quite often the desire to create a unique visual experience overpowers the functional and operational nuances. A school building is no good where a teacher has to shout to teach and if the student has to make an extra effort to listen and comprehend the lesson. The true victory of an architect would

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be when those buildings would be good to be in and help users to perform better. Instead of designing primarily for eyes, all senses should be taken into account. Acoustics, air-quality, thermal comfort all become critical while education is considered. Thorough attentiveness can only be attained if body is calm to concentrate completely solely on learning. If any of our sensory organs are uncomfortable, then one part of our brain would be working hard to get that at ease.

School campus design has vastly been focussed to design of buildings which house classrooms, laboratories etc and a playground. The nitty-gritties for the detailing of various spaces within the school such as library, lab, classroom, interaction pockets, playground, hall etc. are seldom looked at. Modularity becomes the governing factor for spatial organisation. Moreover, in the race of creating 'high tech' schools mechanical and electrical systems overpower. Parent feel privileged to send their children to such glass façade schools where classes are completely air-conditioned, and surveillance camera monitor the child. In the contemporary trends, the classrooms are in the air-conditioned buildings with doubly loaded corridors, quite similar to any hotel or hospital.

Classrooms however are spaces much more complex than that. Not only is an instructor teaching in the classrooms, there are also many students trying to learn. While designing the classrooms the cognitive ability of the students also needs to be looked at. A student shouldn't need to put any sort of strain while trying to learn as it diverts the mind from focussing to adapting for the uncomfortable surroundings. They are the places for interaction, observation and concentration. Architecture must take an integrated approach to design and blend technology with traditional wisdom and principles of sustainable development.

Design Focus for Enhanced Student Performance

Design, since inception, should be done for all senses. In schools, where we have young children whose senses and body is under development stage, it becomes vital that they experience the best they can. This would evolve them with an inherent empathy. Moreover, in a building if all the five senses are at parity with a soothing experience, a feeling of content is established within that place.

In order to create classroom with a stress-free environment for the

body as a whole, design should take care of the experience that a student undergoes in the class. If one is listening, one shouldn't be putting any extra stress to hear, for walking no extra caution should be required, ample of fresh air should be there to ensure comfortable breathing and everything should be comfortably visible to everyone.

Acoustics

In Broadway, it is commonly said that if one doesn't see your face but can hear you completely, one can understand your expression, however, if one can't hear but see then it gets worthless. Similarly, acoustics plays a very important role in classrooms also. In the inter-noise conference in Lisbon, it was established that listening capabilities of children are much more delicate than adults. Stress for listening can cause long lasting effects in their hearing competences (Smaldino, 2012). Moreover, they also found out that our current classrooms world over don't fit the needs of proper acoustics for a classroom environment. Quoting from the paper, "it was discovered that the children from classrooms with poor acoustics performed worse in a phonological processing task assessing auditory-verbal precursors of reading, reported a higher burden of indoor noise in the classrooms, and judged their relationships to their peers and teachers less positively than children from classrooms with good acoustics. Furthermore, one in every eight students regularly suffers from diseases says as hay fever, asthma, ear-infection etc. where hearing ability is compromised (Klatte & Hellbruck, 2010).

Effective classroom speech communication is necessary for acquisition of academic skills along with social and cultural abilities. In research it has been found that perception of spoken language is the foundation for the aptitude to read and write and more than 85% of classroom learning involves spoken exchanges between students' and teacher. Moreover, in order to enhance legibility and voice volumes, teachers have to put extra strain for the student which leads to higher absenteeism. This can be directly overcome by putting an extra effort in working out the classroom acoustics at design stage itself.

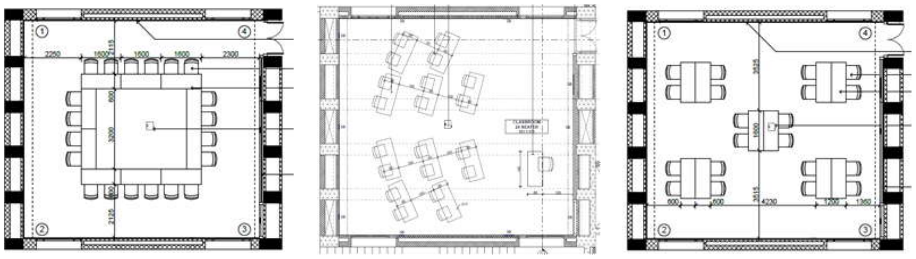
NRC values and Reverberation time should be looked into by the architects while designing these rooms. Sound absorbent materials such as glass wool, cork-board, cow-dung panels etc. should be used to enhance listening. It should be ensured that hard surfaced walls don't face each other. It is a well-known fact that boys don't hear as well as

girls since listening to instructions activates only one side of the male brain. Therefore, it should be made sure that audibility is sufficient for all (Gurian, Stevens, & Daniels, 2010). Moreover, when an instructor has to teach loudly one gets more impatient and easily fatigued and teaching is then compromised (American Speech Language Hearing Association). It is also possible that teachers used to speaking with raised voices may start speaking loud permanently. Annoyance level of both children and faculties under poor acoustics increases. This, thus surely affects students' language and reading acquisition.

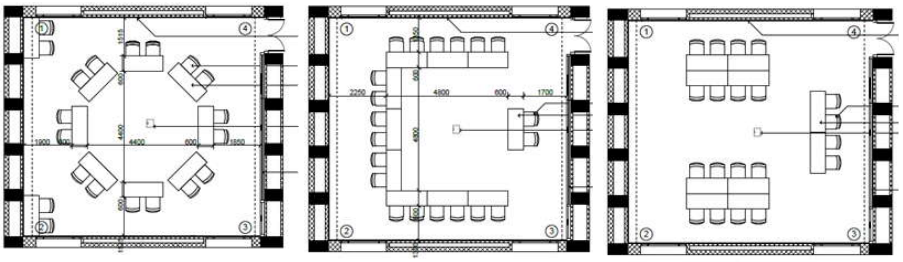
Classroom Layouts

Teaching as a medium to transmit knowledge has always existed since the dawn of civilization. As read in our scriptures, the system of teaching surpasses the time immemorial, be it listed in legendary texts of *Ramayana* and *Mahabharata* or in the ancient texts of Panini and *Kalpasutra*. Though very different from the current mode of education, the system of *Ashramashiksha* (apprentice training) had created its own share of legends in the history.

This mode of teaching revolved around an intense system of togetherness wherein students lived with their mentor, the teacher, the *rishi* which became their family. Classes there used to conduct under a tree wherein the sage or the teacher would deliver his lesson/lecture to the group of students directly. These classes used to happen under a tree or a courtyard in an informal seating but ensuring a lot of interaction of the students with teachers.



This was surpassed then by the classroom teaching which started in confined setting. There the format of a teacher teaching a group of students sustained but the seating got formalized to an arrayed arrangement, wherein the focus is not on teacher but board, which promotes the significance of board than teacher and hence influences



students to memorize than learn. This simple example demonstrates the importance of classroom layout in teaching.

In order to substantiate the argument if we consider different classroom layouts and their impacts, we can consider an engineering college, an architecture school and a management institute. Engineering and management institutes requires formal classroom setups whereas architecture schools can manage in unceremonious settings also. Engineering schools mostly have a seating layout (either semi-circular or arrayed) with focus at board wherein students directly concentrate at board. A substantial component of the teaching in these schools also happens in the laboratories and thus those who manage to see and observe details, hear and listen lecture and grasp and do experiments continue as engineers post-graduation and rest leave it for other studies. These trends clearly demonstrate how classroom layouts can influence the learning and interest mechanism of students.

The management schools successfully have disclosed a classroom layout which leads to successful teaching making it the most effective and priced education course. They have a horse-shoe type of an arrangement wherein focus is solely on the interaction. All the students are enabled to look at each other leading to enhanced interaction and thus improved learning wherein they are able to discuss their cases, interpretations and discourses.

This analysis helps us establish the importance of a classroom layout for different teaching techniques and courses. Unlike a standardized arrangement for all the classes, effective systems and layouts need to be explored for fruitful teaching and learning alike.

Lighting

Light is known to directly affect blood pressure, pulse and respiration rates, brain activity etc. Thus natural daylight enhances the young minds

and thereby their performances. (University of Liege, 2014). Ambient natural light is comfortable and good to look in, it has also been claimed that natural light is nutritious. (Hathaway, Hargreaves, Thompson & Novitsky, 1992). The colour and reflectance is at its best in the natural lit conditions. This enriches seeing experience and students tend to remember things more (to the tunes of 33-39%) seen in natural lit conditions (The Green Market Oracle, 2010). In a school building study done by Mohane group, it was identified that test scores were 17-26% higher in the classrooms with plentiful natural lights than others. Thus, the natural light has a direct effect on learning abilities. In addition to it, growth rate on the performance of students sitting beside the windows has been found better to the tunes of 20-28% than others in the class (McCreery & Hill, 2008).

However, under certain circumstances such as cloudy days and evening lectures use of artificial lighting becomes inevitable. Proper and design planning should be done while creating the lighting plan for the classes. In the research, it has been found that students under sodium vapour lighting had the slowest growth rate in height and academic performance. (Hathaway, Hargreaves, Thompson & Novitsky, 1992). A general objective while doing the lighting systems is to achieve highest possible lumens/watt ratio, however while doing the lighting plan for classrooms comfortable visibility for all should be ensured. In a study done by NREL (US) it has been found that attendance and achievement rates of both students and teachers have increased in the natural lit classrooms. In a study where artificial lit environment was converted to a day lit room, performance of students in test score increased to a range of 9-15% (Edwards & Torcellini, 2002). Moreover the study concluded that there is reduction in fatigue and improvement in general health of the occupants in these environments (Edwards & Torcellini, 2002).

Thermal Comfort, Air-conditioning and Indoor Air Quality

The level of discomfort rises if the temperature of the air around and the surfaces we touch, is not similar. Moreover, it has been found that it causes headaches and fatigue. If thermal comfort is aimed to achieve with mechanical means then the temperature variance in different surfaces and air couldn't be matched. This will create constant interference where it will impact students' attention span. Therefore,

thermal comfort should be aimed to achieve by building insulation and passive means singularly. Shaded surfaces and lattice work enhances the insulation and thereby increases thermal comfort in the classrooms (Department of Chemical Engineering, 2010).

The air-conditioning in the classrooms lowers the level of fresh air per student and thus reducing the well-being. Brain starts working towards making the body processes normal in these alien conditions. Moreover, the temperature sensitivity is different for every student. In the artificial setting of air-conditioning, a range desirable for a few becomes overbearing for the rest and vice versa. The absence of fresh and quality air in the room leads to the sick building syndrome.

Oxygen levels in surroundings directly impact the blood activity which is directly reflecting on the body processes. Since the minds have to think, absorb and process during the teaching sessions and the occupancy rates are higher in the classes, they require at least 8 (eight) times more fresh air than a typical house (BRANZ Ltd.). In a generic air-conditioned room, the level of oxygen continuously deteriorates and with closed windows the air-quality wanes which is not realised by the occupants. People who come into these rooms from a well ventilated space can immediately realise the difference. Stuffiness and build-up of Carbon dioxide leads to drowsiness and induces fatigue. In addition to this, in these closed classrooms odour of dampness, chalks, students, and other accumulated smells get accumulated and doesn't easily eliminates (Chao, 2013.)Under an absence of continuous air-exchanges, all contaminants keep getting accumulated in the room which result in more sick days and higher absenteeism (Department of Chemical Engineering, 2010) Students in various surveys have submitted that rooms well ventilated help them concentrate.

Cross ventilation can significantly enhance the fresh air changes within the room. A study done by students in Tulsa University has showed that for an increase of every unit (1 l/s per person) ventilation rate, the proportion of students passing standard Maths test is expected to increase by 2.7% (Department of Chemical Engineering, 2010). This can also be achieved by mechanical air-conditioning means but these air conditioners throw a blast of air which gets extremely uncomfortable for the person sitting close and it doesn't reach the other end. These dispensers moreover create a continuous sound which distracts the students. A study done by Lawrence Berkely National Laboratory has

revealed that in elementary school level, poor ventilation in the classroom leads to an increased rate of illness in students. Increased illness leads to absenteeism thus both health and education suffers (Britplas). Hence, ample ventilation should be ensured in classrooms using passive means which increases comfort level, concentration level and better education.

Courtyards and Green Spaces

Courtyards have been an element of focus in Indian traditional architecture forms. Courtyards in our conditions create the stack effect, where warm air rises pushing air upwards. Cooler air is drawn in to replace the air going out of the top, which supplies fresh air and air movement simultaneously improving thermal comfort and heat removal. Not only they generate an all-inclusive open space for interaction, but also are climatologically comfortable with a little bit of planning. A Sciography analysis can quickly tell the designer the performance of courtyard in various seasons. Direct light in winters and shadows in summer make courtyards among the most desirable open spaces. Spaces become more desirable when naturally lit. Moreover, with the stack effect continual ventilation is automatically ensured. They maintain the air-circulation round the clock because of the temperature gradient with adjoining spaces. In an environment of school, security and safety are critical aspects. Monitoring becomes extremely easy in an all enclosed courtyards. These can also be associated with individual classrooms for achieving a combination of closed-open space for enhancing the learning experience of students (Edwards & Torcellini, 2002).

With the courtyard planning, a school by design is allied with the site; generating a design intrinsic with the site and local context. With time, our eyes have best adapted to the light entering in the room filtering through the courtyard. This ambient light is comfortable and students don't have to put any type of stress for reading. It has been scientifically proven that day-light also reflects the colours at its best. Vibrant colours and ample daylight would create dynamic students who hold the baton of life at earth.

Green pockets in the learning spaces help rejuvenating the stress experienced during the classrooms. A tree oxygenates the blood circulation and flowers, shrubs, fresh breeze and rustling leaves help

soothing the senses. The fields should be complemented with these for proper functioning in the school environment. Any playground devoid of these would be tiring and instead of refreshing would be exhausting. The variety of leaves, flowers, seeds, shrubs, stems—all play a very important role in the overall development of students where these become the identity elements for them.

In the sudden wave of urbanisation, our urban pockets are devoid of vegetation. School gardens are thus a way where young people increasingly devoid of land and plantation can develop their understanding of their environment. Trees remove carbon dioxide thereby improving air quality and also produce oxygen. As described above, ample quantity of it is vital for proper functioning in school. They create soothing breeze which enriches ventilation quality. Trees purify the air and absorb excess heat, thus they create a soothing microclimate. The views offered by the vegetation also create a calming effect on young minds which improves their productivity (Green Schools Ireland, 2012).

Aesthetics

Following the design trend seen in other commercial buildings, the contemporary schools are also loaded with materials such as glass, metal and exposed concrete, very alien to the little child who enters the school from cosy home environment. The scale of the building is kept monumental like lobbies in a hotel where a person gets into awe one enters. This may impress the parents and guardians who aspire to give everything to their children that they missed. However, they forget to realise that schools are second home to students. Therefore, schools should have a very homely feel to them so that there is a comfort level for the students. Any intimidating impression like exceedingly large spaces (in terms of area and height) for classrooms would hamper the performance as they won't be able to concentrate on what is being taught. Architecture should help the students to focus their attention, make them feel at ease and not awestruck.

In a survey, 96% of the faculties have suggested that colours make a classroom alive. They brighten up the environment in the class and students in such rooms are more perceptive and attentive. They respond faster and are more active and vibrant in schools (Wagner, 2013). There have been shades of Red, Orange and Yellow identified which are

known to encourage attention to detail, improve concentration and evoke enthusiasm and excitement. There have also been identified a few shades of Blue, Green and Violet which could lower blood pressure and heart rate creating a tranquil learning environment. Thus, shades of colour should be appropriately chosen in the classrooms considering the overall requirement (Clayton, 2013). Furniture in the classrooms should be aptly designed for the students considering their respective age-groups. An uncomfortable chair can cause a lot of discomposure where one would lose all the will to concentrate. Proportions in the classrooms should be kept the age-group of students in mind.

Importance of Sustainable Architecture in Government Educational Institutes

Sustainability Directly Impacts the Cost and Functioning

Public Institutes are the centres of excellence where students not only study but live an integral part of their life, the part where they are also maturing as adults. This phase of their life has a long lasting impact on them as humans and influences their perceptual behaviour. Hence, if they start understanding the importance of sustainability during this phase, as responsible adults they would influence the surroundings and in turn raise the general awareness level. Therefore, it is of paramount importance that the campus they are living in is sustainable and energy efficient (CPWD, 2012), (Central Pollution Control Board, 2013) (Pandey, 2013).

The sustainable and energy efficient buildings in turn are comfortable to reside in and also it has been scientifically proven that humans perform best in sustainable and natural environment (BRANZ Ltd.). Moreover, not only the overall cost of the development of campus but also the operation expenses are significantly reduced in sustainable development (CPWD, 2012). These buildings need to be carefully planned and hence there are very less chances of incorrect detailing going in, thereby reducing the chances of unnecessary cost overruns (GRIHA, 2011) (Godschalk & Howes, 2012) (The Green Market Oracle, 2010).

Increased Comfort Level

The sustainable buildings have imbibed in them the traditional wisdom

of architecture and planning with which they ensure optimum level of oxygen and daylight at all times which also enhances the performance of students (Pandey, 2013) (BRANZ Ltd.). Usage of friendly and sustainable materials also increases the friendliness with the surrounding which influences the perceptibility and leads to proliferation of the feeling of well-being (The Green Market Oracle, 2010) (Sahoo & Sastry, 2010).

In addition to it, the sustainable buildings have optimum services design, natural landscape etc. The careful considerations in waste management, water management etc. are involved with the policy decisions of the institute and are quite visible to the students (ERAG, 2013) (Central Pollution Control Board, 2013).

Funds and Costs

The public institutes are built and developed with the public/tax payers' money hence there lies a responsibility with the Principal Client and the main decision-makers to ensure that this money is judiciously used while giving the best facilities to the students. Thus, while developing the campus, the knowledge of cost-efficient design at the clients' end needs to be given paramount importance as with this, they will be able to appreciate their requirements and judge the quality of design solutions provided. While the development plan of the government institutes is being made, careful considerations should be made while selecting the designs. (Bose, Ramji, Dholakia, & Singh, 2012).

These government institutes are managed under government set-up wherein profit-making is not the goal; hence under limited student fee, they are dependent on government funds for their regular functioning. Therefore, it should be looked into it that these are maintenance free and have lowest possible operating expenses. The design tweaks should be done to reduce the upkeep costs (CVC, 2012).

Sustainable buildings are inherently cost effective and energy efficient, thereby reducing both the capital expenditure and pperation expense (GRIHA, 2010) (PWD Architecture Wing, 2010) (CPWD, 2012). An overall sustainable campus has got the optimum design considerations in services which ensure best in class technology is used in a judicious manner, i.e., there is overdesign done in the name of great design and there is no profligate expenditure incurred due to lack of knowledge of efficient systems. Hence, these become the best choice

for development of any government institute.

Case Study – IIM, Udaipur

As a premiere step in propagating the inherent ways of leadership while initiating development at IIM, Udaipur the aim has been to create leaders who appreciate sustainability, social responsibility and have a sense of environmental consciousness. Embedded with the principles as stated above, it was believed that campus could be that winning factor for the success of this goal. It was realised that the environment of the campus needs to be realigned for a soothing setting for the present students. The construction system proposed while expanding the present temporary campus, stressed on encouraging waste, local and energy efficient materials. The project was thus aimed to be an asset, an example standing upright for the permanent campus.

This sustainable design has brightened the classes wherein the highlighted delightful interiors create playful spaces with which students are able to communicate with. This communication with spaces leads to enhanced performance. Moreover, addition to water fountain at entrance leads to enhanced sensory performance in classrooms wherein the minds are able to concentrate better, as explained by students. They said that the sound of trickling water and vision of nature prior to entering the class refreshes the mind which helps them in concentrating better.

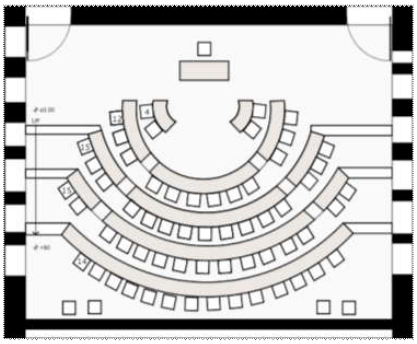
Interactive Classrooms

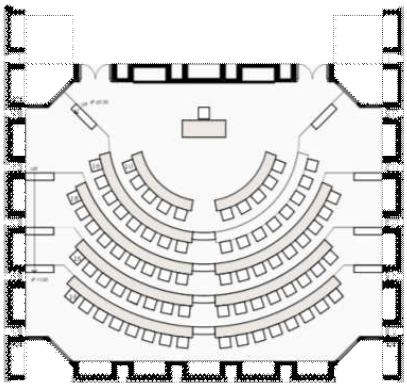
The classroom design also influences the classroom environment and learner comportment to a large extent. It has been observed that interactive environment engages students into discussion which enhances the overall learning experience, which we can observe in few

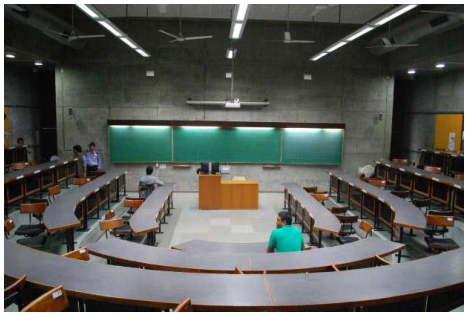
of the most reputed institutes of our nation like IIMA, IIMB, Flame etc.

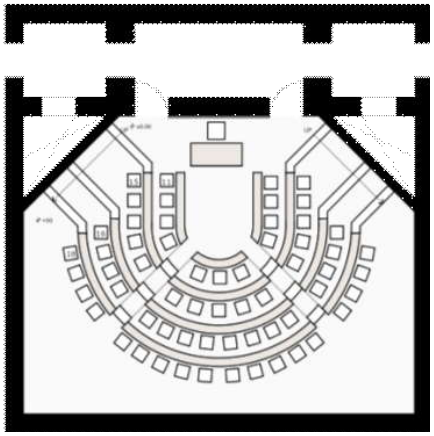
Thus Green Buildings for Schools

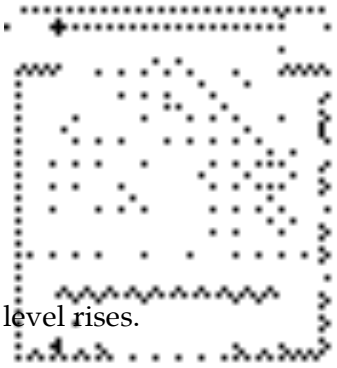
Schools designed and operated keeping sustainability in mind, function more efficiently, creating better learning environment for all (Langdon, 2012). Sustainable Architecture does not cost more; it simply requires a vision and concern for the environment and human health. If a building is able to enhance human productivity, it would pay for the extra cost, if any, many times over its lifespan. Green buildings that save energy through various passive and active design means would not cost more than a conventional school design if done proficiently and their operating costs would always be lower. The schools with ample daylight, well ventilation, good acoustics perform better and enhance student performance. As per a survey 70% of the building executives have said that the Green schools enhance student performance directly (GreenBiz Admin, 2005). In addition to this, they have numerous other advantages also. A few of them being - ability to attract and retain teachers (74%), reduced student absenteeism (72%) and improved student performance (71%). These schools increase teacher retention as the overall environment is more desirable and thus their satisfaction











level rises.

Considering this, it becomes the responsibility of client/school committee to ensure that their school entails these principles which are not only vital for students, but also would aid in proper functioning of the school. These small principles can all be singularly achieved by a good blend of vernacular systems, traditional planning principles and modern technology. These would be low-cost, eco-friendly measures which would enhance performance of building as a school. These principles, imbibed in the school itself, would create future citizens more sensitive and responsible who will in turn create this world a better place to live in.

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8

Skill Development
The Strength of Emerging India

Prem Shanker Ram* & Shikha Sonkar**

Introduction

"Skill Development" is a very common theme in today's scenario. But are we aware the meaning of skill development ? The real meaning of skill development is to increase, rectify or to enhance person's ability or competencies in any work field. The work or function may be of any type but the skill development means to gain maximum output from minimum investment. One can say that skill development may be a economical term, in which maximum utilization of human ability is done to increase the productivity, besides scarcity in resources.

The work of skill development plays the vital role in educational field. As the teacher produces a large number of children for the bright future. Here the teacher is a human skill which produces human capital in the form of students to shape the future of the nation. So the skill development is a very necessary for the teacher as well as the pupil.

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Teacher produces a large amount of human capital in the form of students. For example, today's childrens become doctor, engineering, I.A.S., scientist, artist, painter, clerks, manager etc to contribute in the development of country. And if all these workers performs good and excellent in their work, then india soon become a developed country. And it is a teacher who made students skilled in their work. Thus, the skill is learning to carry out the task with predetermind result often within a given amount of time, energy or both. The time management, communication skill, team work, leadership and motivation etc are all these the example of skill development.

Historical Background

The concept of skill development is not new. It is the fruit of the experiences of our dearest ancestors. Mahatma Gandhi was the great propounder of the skill development. He, at that time knows the importance of skill development and gives emphasis on the skill development. So he conveyed a conference at WARDHA on "Oct 22 and 23 1937" for considering the importance and suitability of skill development and named this scheme "Basic Education Scheme".

In this scheme Mahatma Ghandhi talks about Education Through Handicraft. The aim of this education scheme was to make a student self reliant by enabiling him to use acquired knowledge and skill in practical affairs of life.

So in the basic education scheme an attempt has been made to establish a direct relationship between knowledge and life. According to Mahatma Ghandhi, for a happy life, it is necessary for individual to have ability to earn for his own. So he gave emphasis to handicraft, that is handmade product. Thus in the curriculum of basic education he gave emphasis on

- Spinning and weaving
- Carpentary, pottery
- Agriculture
- Leather work
- Horticulture
- Painting etc.

This is the form of skill development at the time of Mahatma Gandhi, or one can say that the foundation or the deep-root of skill

development was sown by our Father of the Nation "Mahatma Gandhi".

But now a days the shape of skill development has been changed. There are so many multinational companies has been opened in our country as well as in abroad. And the basic aim of these companies are to produce maximum output from minimum input. So these multinational companies trained their employees. And these training are commonaly known as vocational training such as ITI (industrial training institute). The question comes in our mind, what is ITI ? The ITI is the industrial training development institute and industrial training centers are post-secondary school in India, which are constituted under the entrepreneurship of union government to provide training in various trade.

These ITI centers provide training in many field such as information technology, plumbering, mechanical work and electrical work etc. The purpose of these training centers are to enhance the ability of the human to earn his own livelihood.

Objectives of the Skill Development

The main goal is to create opportunities, space and scope for the development of the talent of the Indian youth and to develop more of those sectors which have already been put under skill development for the last so many years and also to identify new sectors for skill development. The new programme aims at proving training and skill development to 500 million youth of our country by 2020, covering each and every village. Various schemes are also proposed to achieve this objectives. The other moto of skill development is given below.

- To provide employment to each and every youth of the India, this mission plays insignificant role as it is not possible to provide every person a government job.
- The other main objective of this mission to provide equal opportunities to every member of the society to enhance his / her living standards.
- To improve talent and creativity, this mission proves a mile stone for the society.

Present Scenario of Skill Development

Prime Minister Narendra Modi on March 2015 launched his project

"Skill India" campaign in New Delhi on the occasion of the first ever world youth skill day. He also launche the National Skill Development Mission and unveiled the new National Policy for Skill Development and Entrepreneurship, 2015.

"Through a policy driven approach we have waged a war against poverty and we have to win this war. India's youth is not happy simply asking for things. He or she wants to live with pride and dignity. I belive Indian youth has immense talent, they just want opportunities"—— Modi

The prime minister also said that each poor underprivileged youth was a soldiers in this war. *"The mission is not limited to skill, we have linked entrepreneurship to it "*—— Modi

The National Skill Development Mission will provide a strong institutional framework at the centers and states for implementation of skilling activities in the country. The mission will have a three–tiered, high powered decision making structure. At its apex the mission's governing council, chaired by a minister will provide overall guidance and policy direction. The steering committee, chaired by minister in-charge of skill development, will review the mission's activity in line with the direction set by the governing council. And the mission directorate, with secrctory, will ensure implementation, coordination and coverage of skill activities across central ministery/department and state government.

Significance of Skill Development

According to PM Modi, skill India won't be just a programme but a movement. To youth who are jobless, college and school dropouts, along with the educated ones, from rural and urban areas, all should be given value addition. All these member of society should be included under the skill development of India. The motive of skill development is to raise confidence, improve productivity and give direction through proper skill development. Skill development will enable the youth to get blue collar job. Development of skill at young age, right at the school level, is very essential to shape them for proper job opportunities. There should be balanced growth in all sectors and all jobs should be given equal importance. Every job aspirant would be given training in soft skill to lead a proper and decent life. Skill development would reach the rural and remote areas also, corporate educational institution, non-government organization, government, academics institution and

society would help in the development of skill of the youth so that the better results could be achieved in shortest time possible.

It is also the time now, measures should be taken to improve the physical and mental development of the youths of the country so that none of them remains unemployed and the country's unemployment problem also reduced. It is the time to open up the avenues by which the youth accept responsibility and no one remains idle because an idle youth is a burden to the economy.

Types of Skill Development

There are so many types of skill development, popularly known as :

- Labour skill
- Life skill
- People skill
- Social skill
- Soft skill
- Hard skill
- Mastering skill
- Human potential approach to skill

Labour Skill: Skilled workers have long and historical importance such as electricians, masons, carpenters, blacksmiths, painters and other occupation that are economically productive.

Life Skilll: Life skills are problem-solving behaviours that are used appropriately and responsibly in the management of personal affairs, and used to handle problem and questions encountered in daily human life.

People Skill: People skill means the ability to communicate easily and effectively with people, building relationship of trust, respect and productive interaction.

Social Skill: Soft skill is a emotional intelligence quotient having the cluster of personality traits, social grace, communication, language, relationship with other people. These are the occupational requirements of a job and many other activities.

Hard Skill: Hard skill, any skill relating to a specific task or situation. Hard skill and soft skill both are complimentary to each other.

Mastering Skill: Mastering pertains to perfecting a particular skill set. It literally means to gain mastery over a piece of works.

Human Potential Approach to Skills: Human potential skill is to support the process of becoming fully functioning individuals, developing personal potential in any field such as sports, arts, science and others.

Educational Implications

- Under skill India campaign the emphasis is given to skill of the youth in such a way that they get employment and also improve entrepreneurship.
- It also provide training, support and guidance for all the occupation that were of traditional type like carpenters, cobblers, welders, blacksmith, tailor and nurses.
- Under this programme more emphasis is given on new areas like real state, gems industry, construction, transportation, textile, jewellary design, banking, tourism and various other sectors, where skill development is inadequate and nil.
- The course methodology of "skill India" would be innovative, which would include games, group discussions, brainstorming sessions, practical experiences and case studies etc.
- Tailor made need based programme would be initiated for specific age group which can be like language and communication skill, life and positive thinking skill, management skill, behavioural skill including job and employment skill.
- The training programme under this compaign would be on the line of international level of that the youth of our country can not only meet the domestic demand like US, China, Japan, Germany, Russia etc. It provide international plateform for our youngsters.

Thus, the purpose of these programme are to enhance the ability of the human to earn his own livelihood. This is good for those person who could not aspire higher education and wanted to earn their livelihood at early age. Sometime skill development in the form of vocational education helps students as "Earn While Learn" to earn their daily income with pursuing education as well.

Conclusion

The person without skill is like a disable. Disability is not seems to be physical or mental handicapped but the person without any skill or capability to produce new idea, new product or new things is life less. For example, the person having many talents and capability but has no communication skill is of no use.

Thus, the concept of skill development is very important for even secondary or higher secondary education curriculum. The Kothary Commission (1964-1966) also give emphasis on the vocational education along with higher education. Even the NEP 1968 & 1986 both admire the theme of vocational eduction. NEP discarded the bookish knowledge and says that bookish knowledge should not be given undue importance but the eduction should be patterned according to the existing social needs. And same goes with our prime minister Narendra Modi, whose extraordinary efforts are to promote skill India campaign by which India will become a developed country in coming decades.

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9

Skill Enhancement Practices through New Web Technologies

Ram Pravesh Rai*

Accompanying the rapid growth of Web2.0, e-learning is evolving toward a new trend: e-learning2.0 (Downes, 2005). Learners share their knowledge, search for the knowledge they need, and decide learning content by themselves through social software platforms.[1] It's very clear that e-learning2.0 is totally based on the concept of web 2.0. With the advent of web2.0 the concept of using internet and ICT has been changed. Now the internet is not only information provider where content is generated by others but end user has the option to generate, edit and share the content also. To participate in content generation and sharing in the USP of web2.0 and this provides base for many innovative concept like Politics2.0, e-democracy etc. RSS, Bookmaking, Alert, Location sharing, Real time sharing etc. In the meanwhile cloud computing bestowed a great value on web2.0. Now sharing big files and even HD videos are easy task.

Web2.0:

Web2.0 is the current state of online technology as it compares to the

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early days of the Web; that state is characterized by greater user interactivity and enhanced communication channels.[2] It was popularized by Tim O'Reilly at the O'Reilly Media Web 2.0 conference in late 2004. Rather than technology web2.0 is also a social and democratic occurrence. The earlier tagline 'Connecting People' of Nokia mobile is pertinent in this context. The web 2.0 is indeed about connecting people, sharing information, publishing ideas, commenting and reviewing on ideas, likes and synchronous as well as asynchronous chats. With the advent of this new technology the web services has gradually moved from mere downloadable information to participatory medium where people can join others, collaborate and opine.

The idea of web2.0 depicts web sites that use technology beyond the static pages of earlier web sites. Web2.0 sites allow users to interact and collaborate with each other in a social media, dialogue as creators of user-generated content in a virtual community, in contrast to websites where people are limited to the passive viewing of content. Web 2.0 technology encompasses social networking sites, blogs, wikis, folksonomies, video sharing sites, hosted services, mashups etc. Some vital web2.0 services are:

1. Folksonomy made easier to work in online platforms as an informal documentation/book reading. We are familiar with the term bookmarking which is being used to mark last read or frequent read pages in a book. Similarly we frequently visit some website and also find some desirable online services which we want to bookmark. Folksonomy provides an augmented online bookmarking facility where user can tag, comment and share web services among groups. Folksonomy is a method of classification to annotate and categorize the online service and content, this is also known as collaborative tagging. It is a user-generated catalogue of online resources. Users get tool bar option for bookmarking, tagging and comment to their browser bar after setting up an account with a folksonomy service. In nineties blogs became popular for providing user centred content and metadata service. In late 2003 an online bookmark manager "delicious" was introduced. The facility to add tags was appended in early 2004 and an augmented bookmarking manager and tagging service ascended as folksonomy in late 2004. Thomas Vander Wal coined the term folksonomy which is a portmanteau of folk and taxonomy.

Despite its name this service should not considered as a synonym

for taxonomy. Taxonomy is the process used within subject-based classification. Folksonomy became popular as a part of social applications like social bookmarking and tagging which accord users to collectively classify and find information on the web. Some popular websites as to this are Diigo.com, Reddit.com etc.

2. RSS is known as Rich Site Summary and also called Really Simple Syndication. This application uses web feed formats to bring out frequently updated information like news updates, service information, blog entries, shared audio and video updates etc. The updates arrive on RSS application is known as feed. The RSS feed includes full or summarized text, and metadata, i.e., publishing date and author's name etc. and enable publishers to syndicate data/information automatically. A standard XML file format, which is generally used for RSS service, ensures compatibility with different device and platforms. It is very expedient to those users who want to receive well-timed updates from their favourite websites or to congeries information from various websites. After subscribing a website's RSS service, user need not to manually check the website for updates because browser persistently scrutinize the concerned website automatically. To avail this service user has to download any of the web-based, desktop-based, or mobile-device-based software applications, termed as "RSS reader", "Aggregator", "Feed reader" etc., The information in RSS can be seen by clicking on the browser's feed icon and if the automatic download function is enabled it will download the updates and keep the same in desired folder.

3. Mashupsare web applications which present blended data from multiple existing sources. This technology extends over a continuum from aggregations of websites to rich internet applications combining diverse sets of data. We can take an example of salad where vegetables are kindred from different sources. Here the salad represents a more complex mashup, where the sources are combined in interesting ways to create something entirely new and interesting. Examples are: Google maps, TheTracktor.com (tracks price changes and alerts you when a product drops below your chosen threshold), SongDNA (provides search for individual songs, it pulls up an abundance of information about that specific tune while simply entering the name of a musician and a song title) etc.

4. Podcast is an online platform where an episodic series of audio,

digital radio, PDF, or ePub files are available to subscribe and download/upload through web syndication or streamed online to a computer or mobile device. The word is a neologism and portmanteau derived from "broadcast" and "pod" from the success of the iPod, as audio podcasts are often listened to on portable media players. Merriam Webster defines Podcast: a program (as of music or talk) made available in digital format for automatic download over the Internet.

Online Learning Platforms

Online learning is online learning environment which provide easy access to intended learners to meet their desire of learning sitting in his/her own comfortable zone. It never restrict the learner to come to in physical environment and on specific time. This kind of setup is not only the merger of some web pages but also provide social interaction about or around the information which are found in conventional universities. This includes synchronous (chat, video conferencing) and asynchronous (e-mail, forums etc.) communication, text, audio and video, animations and power point slides. In this system learners are inside the knowledge space and see a representation of themselves and/or others in the space which also substantiates the idea of e-learning2.0.

An online/virtual learning environment also integrates a variety of tools supporting information, communication, collaboration, learning and management as web2.0 technology has increased technical integration. The vital role of online/virtual learning environment is to provide option to learn in many ways using multimedia aid like text, lecture, presentations, animations, audios etc on 24*7 basis. The only thing required is computing device with multimedia and internet connection with good speed.

There are many online learning facilitators available and are also utilized by face to face teaching practitioners. Some online facilitators are taken for the study on the basis of their popularity in India. Some of them are as follows:

Moodle

Moodle is a software package for producing Internet-based courses and websites. It is a global development project designed to support a social

constructionist framework of education. The acronym *Moodle* stands for *Modular Object-Oriented Dynamic Learning Environment* (in the early years the "M" stood for "Martin's", named after Martin Dougiamas, the original developer). It's also a verb that describes the process of lazily meandering through something, doing things as it occurs to you to do them, an enjoyable tinkering that often leads to insight and creativity. As such it applies both to the way Moodle was developed, and to the way a student or teacher might approach studying or teaching an online course. Anyone who uses Moodle is a Moodler. Martin Dougiamas, who has graduate degrees in computer science and education, wrote the first version of Moodle. Dougiamas started a Ph.D. to examine the use of Open Source software to support a social constructionist epistemology of teaching and learning within Internet-based communities of reflective inquiry. Although how exactly social constructionism makes Moodle different from other eLearning platforms is difficult to show, it has been cited as an important factor by Moodle adopters. Other Moodle adopters, such as the Open University in the UK, have pointed out that Learning Management Systems can equally be seen as "relatively pedagogy-neutral". Moodle has several features considered typical of an e-learning platform, plus some original innovations (like its filtering system). Moodle can be used in many types of environments such as in education, training and development, and business settings[3].

Online Learning Consortium

The Online Learning Consortium (OLC) is the leading professional organization, devoted to advancing quality online learning by providing professional development, instruction, best practice publications and guidance to educators, online learning professionals and organizations around the world. OLC is a key factor in the transformation of the e-Education field. Through our conferences, quality learning opportunities, and tools for individual and institutional success we have been a part of this swift growth.

Source: http://onlinelearningconsortium.org/

The real value of belonging to OLC is being part of a global community. Membership in OLC means belonging to a community of hundreds of institutions and corporations in over 14 countries, dedicated toward advancing best practices in online learning. Specifically, membership in the organization provides institutions and corporations with faculty training, improvement of institutional ROI, leadership development, and access to subject matter experts (SMEs). Individuals can benefit from recognized leader affiliation, training by industry experts, networking with community and colleagues, access to scholarly information, and professional development. The Online Learning Consortium, Inc. is a non-profit organization.[4]

Khan Academy

The Khan Academy started with Khan remotely tutoring one of his cousins interactively using Yahoo Doodle images. Based on feedback from his cousin, additional cousins began to take advantage of the interactive, remote tutoring. In order to make better use of his and their time, Khan transitioned to making YouTube video tutorials. Drawings are now made with a Wacom tablet and the free natural drawing application SmoothDraw, and recorded with screen capture software from Camtasia Studio.

All videos (hosted via YouTube) are available through Khan Academy's own website, which also contains many other features such as progress tracking, practice exercises, and a variety of tools for teachers in public schools. Logging into the site can be done via a Google or

a Facebook account for those who do not want to create a separate Khan Academy account. The material can also be accessed through Khan Academy's own mobile applications, which can be found free of charge in App Store and Windows Store.

Source: https://www.khanacademy.org/?gclid=Cj0KEQjw18-rBRDogrTg4Lusuu0BEiQACs8YQi7PAHiqf19wOLE6mSFKNT1sh3DPPPRx4mm4HJvx7mkaAr0F8P8HAQ

Khan chose to avoid the standard format of a person standing by a whiteboard, deciding instead to present the learning concepts as if "popping out of a darkened universe and into one's mind with a voice out of nowhere" in a way akin to sitting next to someone and working out a problem on a sheet of paper: Khan Academy also provides a web-based exercise system that generates problems for students based on skill level and performance. The exercise software is available as open source under the MIT license. Khan believes his academy points an opportunity to overhaul the traditional classroom by using software to create tests, grade assignments, highlight the challenges of certain students, and encourage those doing well to help struggling classmates. The tutorials are touted as helpful because, among other factors, they can be paused by students, while a classroom lecture cannot.[5]

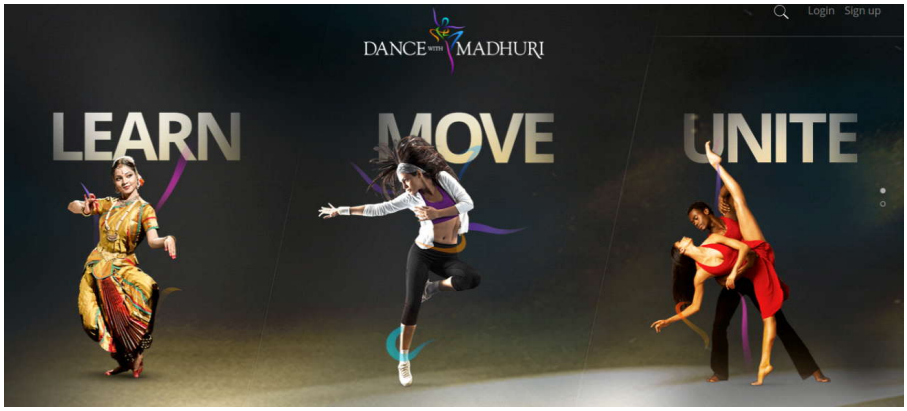
Dance with Madhuri

This is an online dance academy started in 2013 by famous bollywood actress Madhuri Dixit.Madhuri launched her own dance academy through an online website which is called "Dance with Madhuri." The

academy is accessible to 200 countries and has more than 200,000 frequent users. As well as Madhuri, other well-known dancing gurus have been teaching on "Dance with Madhuri" such as the National award winning choreographer Saroj Khan, Pandit Birju Maharaj, Remo D'souza and many more. The dance academy teaches all types of dance forms such as Bollywood, Waltz, Samba, Dandia, etc. Madhuri also teaches one-on-one special classes, teaching her students some of her most memorable dance numbers such as Ek Do Teen, Mayi Ne Mayi, Aaja Nachle, Ghagra and Badi Mushkil.[6] Madhuri Dixit's online dance academy will now have a new module 'Dancercise'.

It's a combination of dance and exercise and a fun way of staying in shape. It further goes on to say "Madhuri Dixit wanted to share her secrets of staying in shape through a special Dancercise workout on her site through which anyone can get fit and have fun doing it.

For Madhuri Dixit, 'Dancing is all about the body, mind and soul.' "The website is a decent effort and starts off with a tour which takes a user via the process of taking up a class. There is also a competition going on which invites people to sign up and have a chance to win iPads. Dance is a rather interesting space wherein other startups can innovate on the net, because there are a lot of youngsters checking out YouTube videos to learn dance. Such initiatives can usher in a new wave, for now.[7]



Source: http://www.dancewithmadhuri.com/index.html#/

Wiki

On March 25, 1995 Ward Cunningham developed the WikiWikiWeb in Portland and installed it on the Internet domain c2.com.Wiki is a piece

of server software that allows users to freely create and edit web page content using any web browser. Wiki supports hyperlinks and has simple text syntax for creating new pages and crosslinks between internal pages on the fly. Wiki is unusual among group communication mechanisms in that it allows the organization of contributions to be edited in addition to the content itself. Like many simple concepts, "open editing" has some profound and subtle effects on Wiki usage. Allowing everyday users to create and edit any page in a Website is exciting in that it encourages democratic use of the Web and promotes content composition by non-technical users.[8] Wikis have also been used in the academic community for sharing and dissemination of information across institutional and international boundaries. In those settings, they have been found useful for collaboration on grant writing, strategic planning, departmental documentation, and committee work. In the mid-2000s, the increasing trend amongst industries toward collaboration was placing a heavier impetus upon educators to make students proficient in collaborative work, inspiring even greater interest in wikis being used in the classroom.[9] WikiNodes are pages on wikis that describe related wikis. They are usually organized as neighbors and delegates. A *neighbor* wiki is simply a wiki that may discuss similar content or may otherwise be of interest. A *delegate* wiki is a wiki that agrees to have certain content delegated to that wiki. One way of finding a wiki on a specific subject is to follow the wiki-node network from wiki to wiki; another is to take a Wiki "bus tour", for example: Wikipedia's Tour Bus Stop. Domain names containing "wiki" are growing in popularity to support specific niches.[10]

Conclusion and Discussion

The major impediment of conventional type of education system is almost one-way communication between teachers and taught, students have to come to the campus to get academic and physical environment for learning and developing their skills and they have to combat some crucial constraints like- (a) reach out to those who were left out and could not continue their education beyond secondary stage, dropped out to join job-market or family occupations, intended to upgrade knowledge and skills, lived in geographically isolated areas having peculiar climatic conditions and belonged to socially and economically weaker sections of the society including women; (b) there is no

participation of students in planning of course structure and teaching methodology; (c) very less importance to learner's feedback; (d) normally there is no space for private learning; (e) very less flexibility in the system i.e. compulsory 75% attendance, no on demand examination, mostly use of boring chalk and talk methods, fixed timing for classes, same fixed time frame for all kinds of learners to complete the course, evaluation on the basis of writing skills only etc.[11] To cope up these constraints and to cater the needs of learners new web technologies provide a structural framework towards learners' equal participation and decentralization of the resources. This is a cost-effective proposition for learners and knowledge providers, the model of wiki highly substantiate this thought. The government policy supporting ICT in education, networking of universities through leased line, website updation, providing economical internet connectivity through BSNL are effectively facilitating the development of online/ virtual learning environment which will facilitate the idea of skill India. The infrastructural facilities, i.e. teachers, library, building, equipments, computers and other technological infrastructures of traditional universities and colleges may also be used effectively to expand this convenient learning environment and also may incorporate the idea of blended learning.

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10

Innovative Pedagogies for Skill Development in Higher Education

Tamanna Kaushal*

Introduction

Education is the single most important instrument for social and economic transformation. A well-educated population, adequately equipped with knowledge and skill is not only essential to support economic growth, but is also a pre-condition for growth to be inclusive since it is the educated and skilled people who stand to benefit most from the employment opportunities which growth provides. Skills and knowledge are the driving forces of economic growth and social development for any country. Countries with higher and better levels of skills adjust more effectively to the challenges and opportunities of world of work. As India moves progressively towards becoming a 'knowledge economy' it becomes increasingly important that the country should focus on advancement of skills and these skills have to be relevant to the emerging economic environment. India, at present, is recognized as one of the youngest nations of the world with over 50% of population under the age of 30 years. It is estimated that by

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2025, India will have 25% of the world's total workforce. In order to harness the full demographic dividend, India needs high quality educational system which is affordable, flexible and relevant to the individuals, as well as to the needs of the society as a whole. Today, the country faces a demand-supply mismatch as the economy needs more 'skilled' workforce as also the managers and entrepreneurs than produced annually.

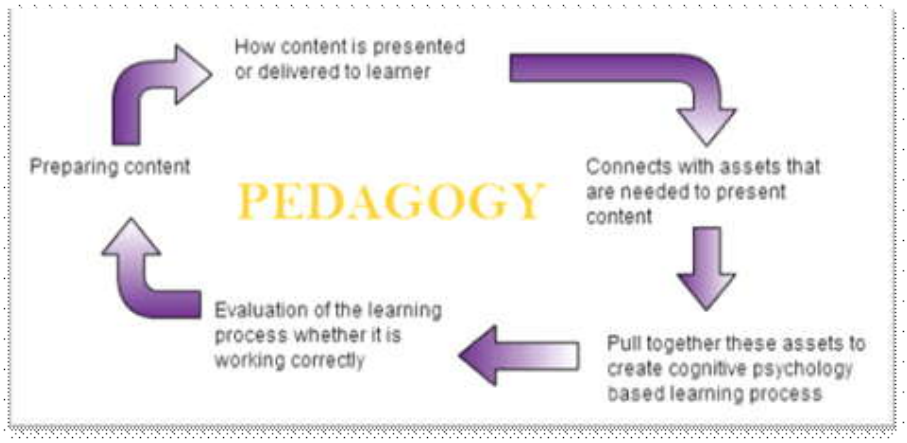
Need for Skill Development Pedagogy

The effectiveness of all education systems depends critically on the quality of teaching and learning in the classrooms, workshops, laboratories and other spaces in which the education takes place. While outstanding teachers (including lecturers, trainers, tutors, and coaches), engaged students, well-designed courses, facilities which are fit for purpose, and a good level of resources are necessary if any kind of educational provision is to be excellent, they alone are not sufficient. The real answers to improving outcomes from skill development education lie in the 'classroom'. Especially we need to understand more precisely how you best engage particular kinds of learners to undertake the particular kind of learning on which they are embarked to achieve whatever skill outcomes are desired. This is the essence of what we understand by 'skill development pedagogy' and what we will be exploring in this paper.

Skill Development Pedagogy

Skill development is an ability and capacity acquired through deliberate, systematic and sustained effort to smoothly and adaptively carry out complex activities or job functions involving ideas (cognitive skills), things (technical skills), and/or people (interpersonal skills).

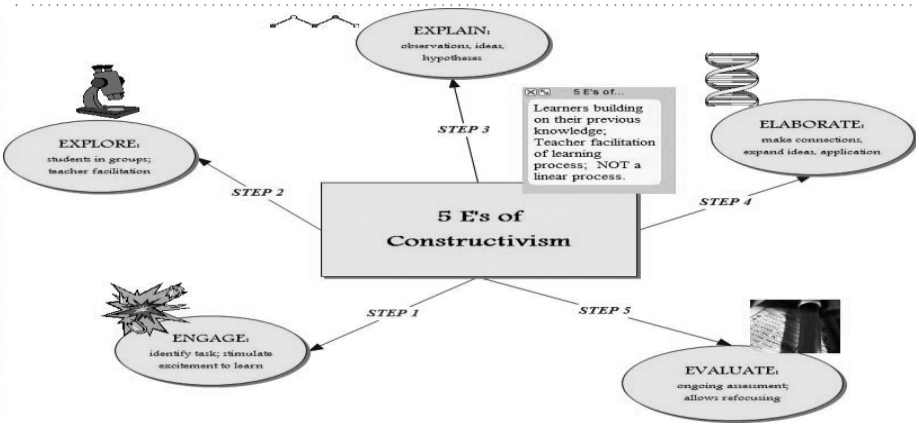
Pedagogy is the science, art, and craft of teaching. Pedagogy also fundamentally includes the decisions which are taken in the creation of the broader learning culture in which the teaching takes place, and the values which inform all interactions. Thus, it is an educator belief about how students learn, what they should or must learn the depth and pace of their learning, and the tools students need to be effective in 21st century classroom when technology is used as ubiquitous one to one learning tools and resources. The following pedagogies are used for skill development teaching learning process are—



(i) Constructivism
(ii) Design Thinking Process

Constructivism

Constructivism, the link between theory and practice, suffers from the breadth of its theoretical underpinnings. Many theorists and practitioners have generated constructivism pedagogies with an array of results. While these pedagogies share a set of core design principles, the peripheral principles tend to vary greatly. The general theoretical and practical constructivist consensus, however, across all three types of constructivism, indicates that eight factors are essential in



constructivist pedagogy. It should be noted, though, before the discussion of these principles begins, that these principles are not solely constructivist in nature. Indeed, all of these principles have been proposed by other theories/theorists in other times. What makes this list "constructivist" is the assemblage of these specific principles and the basis/rationale for their inclusion.

Essential Factors of Constructivism

a) Learning should take place in authentic and real-world environments.
b) Learning should involve social negotiation and mediation.
c) Content and skills should be made relevant to the learner.
d) Content and skills should be understood within the framework of the learner's prior knowledge.
e) Students should be assessed formatively, serving to inform future learning experiences.
f) Students should be encouraged to become self-regulatory, self-mediated, and self-aware.
g) Teachers serve primarily as guides and facilitators of learning, not instructors.
h) Teachers should provide for and encourage multiple perspectives and representations of content.

These eight principles provide the essence of constructivist pedagogy, emphasizing the student's role in knowledge acquisition through experience, puzzlement, reflection, and construction. Pedagogy is based on the dynamic interplay of mind and culture, knowledge and meaning, and reality and experience.

Design Thinking Process

Design Thinking is a methodology used by designers to solve complex problems, and find desirable solutions for clients. Design Thinking draws upon logic, imagination, intuition, and systemic reasoning, to explore possibilities of what could be, and to create desired outcomes that benefit the end-user (the customer).

Steps in a Design Thinking Process

Understand

Understanding is the first phase of the design thinking process. During this phase, students immerse themselves in learning. They talk to experts and conduct research. The goal is to develop background knowledge through these experiences. They use their developing understandings as a springboard as they begin to address design challenges.

Observe

Students become keen people watchers in the observation phase of the design thinking process. They watch how people behave and interact and they observe physical spaces and places. They talk to people about what they are doing, ask questions and reflect on what they see. The understanding and observation phases of design thinking help students develop a sense of empathy.

Define

In this phase of design thinking, students' focus is on becoming aware of peoples' needs and developing insights. The phrase "How might we...." is often used to define a point of view, which is a statement of the:

user + need + insight

This statement ends with a suggestion about how to make changes that will have an impact on peoples' experiences.

Ideate

Ideating is a critical component of design thinking. Students are challenged to brainstorm a myriad of ideas and to suspend judgment. No idea is to far-fetched and no one's ideas are rejected. Ideating is all about creativity and fun. In the ideation phase, quantity is encouraged. Students may be asked to generate a hundred ideas in a single session. They become silly, savvy, risk takers, wishful thinkers and dreamers of the impossible...and the possible.

Prototype

Prototyping is a rough and rapid portion of the design process. A prototype can be a sketch, model, or a cardboard box. It is a way to convey an idea quickly. Students learn that it is better to fail early and often as they create prototypes.

Test

Testing is part of an iterative process that provides students with feedback. The purpose of testing is to learn what works and what doesn't, and then iterate. This means going back to your prototype and modifying it, based on feedback. Testing ensures that students learn what works and what doesn't work for their users.

Conclusion

What shape 'Skill India' will take and what it will do only time can tell. But no doubt it seems to be a good initiative – providing skills to people, especially because India is one of the few countries all across the world whose working age population will be very high, few years down the line, going by its ever-increasing growth of population, as per the World Bank. It is also high time now measures are taken to improve the physical and mental development of the youths of the country so that none of them remains unemployed and the country's unemployment problem also gets reduced. It is time to open up avenues by which the youth accepts responsibility and no one remains idle because an idle youth is a burden to the economy. The economy should concentrate on job creation and social security schemes. With this new approach towards skill development, India can definitely move forward towards its targeted results.

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11

Micro Teaching
Planning and Implementation

Arun Joy Thapar* & Deepa Sikand Kauts**

Introduction

Micro-teaching was first introduced at Stanford University, USA in 1963. The Stanford teacher education program staff members sought to identify isolate and build training programmes for critical teaching skills. There are general teaching skills that can be applied at many levels, for teaching many different subjects. Microteaching, has since then, been refined and applied not only in teacher training but also business, nursing and the army. Research in India and other developing countries have shown that conventional micro teaching methods help to improve teaching competencies.

Theory and Practice

This section will describe the microteaching in more detail and provide the theoretical framework for the discussion and we draw together three

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interrelated concepts: reflection on practice, reflexivity and peer observation of teaching. The format of the microteaching sessions was presented early to participants; there would be two sessions per module, each of three hours in duration. Both were to be filmed and transferred to streaming video, which was subsequently integrated with the virtual learning environment, supporting the programme. Streaming video is a sequence of "moving images" that are sent in compressed form over the Internet and displayed by the participant as they arrive. Participants can view their microteaching sessions on high quality, streaming video on their computers at home or in the workplace. Gross-Davis (1993) advocated that the use of videotape to view and listen to one s teaching performance from the students perspective' is a very valuable experience because by *analyzing a recording of the dynamics of your classroom, you can check the accuracy of your perceptions of how well you teach, identify those techniques that work and those that need revamping* (p. 34).

Moore et al. (2007) believe that "undertaking to look at yourself through other people's eyes is a revealing and sometimes disturbing exercise" (p. 15). In the immediate confines of the microteaching session, observing oneself on video involves experiencing self-consciousness and uncertainty. However, the benefits extend far beyond this by furnishing you with perspectives that support you in building upon strengths, exploring weaknesses and providing greater understanding of classroom interactions. The tutors have a clear role in establishing the right climate conducive for the exchange of ideas and commentary on teaching performance. However, the tutor is not an expert who alone will make comment on the teaching but rather the tutor will facilitate a dialogue so that practitioners gain special insights and create new knowledge. Each lecturer is an active agent in the construction of professional knowledge and the focus is on improving professional practice through inquiry. However, participants find it difficult to engage in meaningful dialogue about teaching without the benefit of structured models for self-analysis. Drawing on Loughran (1996) participants are asked to think about reflection as involving anticipatory reflection, contemporaneous reflection and retrospective reflection. Time is given at the start of the session for participants to write down their thoughts and reflections and during the session each individual is encouraged to record their thoughts. Finally, time is set aside at the end for each individual to reflect on the experience and to capture in

writing their feelings and thoughts about their own self within the practice of teaching.

A great affordance of the technology is allowing the participant to review their video over and over again, thus building up a tolerance for seeing themselves in action and allowing a more detached stance to be taken with regard to their performance. Coupled with this are the benefits accrued by peer conversation about the microteaching session. Teaching strategies and styles become the focus for discussion amongst the participants.

Rationale for Micro Teaching

The teacher in the classroom uses several techniques and procedures to bring about effective learning in his /her students, these activities include introducing, demonstrating, explaining or questioning. The teacher could make use of non-verbal behaviours such as smiling, gesturing and nodding. These group of activities are called teaching skills. The teacher trainee is introduced to a wide range of teaching skills. Microteaching allows the teacher trainee to practice any one skill on his/her own, and then combine it with others when it has been mastered.

Definitions

Microteaching has been defined in several ways. Allen D.W and Eve, A.N. (1968) defined microteaching as "a system of controlled practice that makes it possible to concentrate on specific teaching behaviour and to practice teaching under controlled conditions."

Allen, D.W (1966) defined microteaching as "a scaled down teaching encounter in class size and class time."

Buch, M.B (1968) has given a comprehensive definition of microteaching as a "teacher education technique which allows teachers to apply clearly defined teaching skills to carefully prepared lessons in planned series of 5 to 10 minutes. It encounters with a small group of real students, often with an opportunity to observe the results on videotape."

Passi, B.K. (1976) writes that "the most important point in microteaching is that teaching is practiced in terms of definable, observable, measurable and controllable teaching skills."

A composite definition of microteaching technique would thus be—Microteaching is a teacher training technique involving a specific teaching behaviour/skill for short duration of 5 to 6 minutes for a small class comprising 5 or 6 fellow teacher trainees/peer group on a single concept of subject matter.

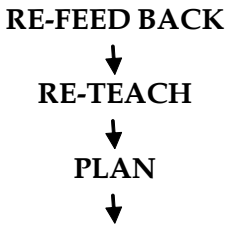
Some Characteristics of Micro Teaching

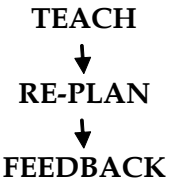
1. In microteaching the trainee can concentrate on practicing a specific, well-defined skill.
2. Microteaching provides for pinpointed immediate feedback.
3. As microteaching is scaled down teaching, there is no problem of discipline.
4. Less administrative problems arise as teaching sessions are organized with peers.
5. Microteaching provides an opportunity to undertake research studies with better control over conditions and situations.
6. Microteaching can be used as an integral part of teacher training in India as sophisticated gadgetry is not a must.

Meaning of Micro Teaching

Microteaching is a method which enables teacher trainees to practice a skill by teaching a short lesson to a small number of pupils. Usually a micro lesson of 5 to10 minutes is taught to four or five fellow students. A supervisor, using an appraisal guide, usually rates the lesson and then discusses it with the teacher trainee, where closed circuit television (cctv) is available the appraisal guide may be redundant. The teacher trainee may alter his/her approach, if necessary, and later re-teaches the lesson to another group of pupils. This lesson is also rated by the supervisor and then analysed and discussed with the teacher- trainee.

Micro Teaching Cycle





The steps in a microteaching session are

1. Planning

This involves selection of the skill to be practiced, awareness of components of the skill, selection of a suitable concept, writing of micro-lesson with specific objectives.

2. Teaching

The following setting is suggested for the microteaching technique.

Time:	5 minutes
Students:	peer group-5 or so in number
Supervisors:	1or 2

If possible, use of CCTV facility could be made to enable the teacher-trainee to get a first hand look at his weaknesses.

3. Feedback

This is a vital aspect of the microteaching cycle. To be effective, it must be clearly related to the model of the teaching skill used. Appraisal guides add to the comments of the supervisor and fellow students, they focus the feedback on to specific behaviours and can be used for the analysis session or be just given to the teacher-trainee with a written comment or rating of his/her skill performance.

4. Replan

Keeping in mind the feedback received from the supervisor the teacher-trainee replans his/her micro-lesson, writing another microlesson plan or editing the existing one.

5. Reteach

The teacher trainee reteaches, incorporating the suggested changes with the same students or another group of 5 students. Supervisor checks to

see whether there is any improvement in skill attainment.

6. Refeedback

The supervisor assesses the lesson again, pointing out the improvements and lapses.

Indian Model of Micro Teaching

The Indian model of microteaching has the following salient features:

1. The microlesson is taught /demonstrated under normal conditions with minimum electronic gadgetry; available infrastructure (space, material and equipments) is used as the microteaching laboratory.
2. Immediate feedback is provided to the trainee teacher by the observers.
3. The duration of the microteaching cycle is as follows :

Teaching	6 minutes
Feedback	6 minutes
Replan	12 minutes
Reteach	6 minutes
Refeedback	6 minutes
	36 minutes

The Indian model has been successfully tried out and is used in many of the teacher training institutions in India.

Micro Teaching Skills

The major premise underlying the concept of microteaching is that the complex teaching act can be split into component skills; each simple, well-defined and limited. These skills can be identified, practiced, evaluated, controlled and acquired through training.

A teaching skill has been defined in various ways. A few definitions will clarify the meaning of the term.

McIntyre, et al (1977) define teaching skill as "asset of related teaching behaviour which is specified types of classroom interaction situations tend to facilitate the achievement of specified types of educational objectives."

Characteristics of a Teaching Skill

1. A teaching skill is a set of strictly overt or observable behaviours.
2. Purely cognitive skills such as problem-solving is not considered as teaching skill.
3. Teaching skills have three basic components, viz perception, cognition, and action.
4. Teaching skills have three dimensions :

   (i) Non-verbal behaviour
   (ii) Openness, and
   (iii) Nature of moves in teaching to which the skill belongs.

A large number of skills have been identified. The first effort made by Allen and Ryan resulted in identifying fourteen skills. Singh, L.C. (1979) makes reference to twenty-two general teaching skills. Menon, et al. (1983) have suggested a list of seventy-four skills. These skills have been chosen as they foster teacher-pupil interaction, particularly as they belong to the four areas of motivation, presentation, recapitulation and questioning. These are the skills of set induction, demonstration, blackboard writing, explaining, stimulus variation, questioning and reinforcement.

Advantages of Micro Teaching

- Micro Teaching is useful for developing teaching efficiency in pre-service and in-service teacher education programmes.
- Micro-teaching can be either in real classroom conditions or in simulated conditions.
- The knowledge and practice of teaching skills can be given by the use of micro Teaching.
- Microteaching is a training device for improving teaching practice and prepares effective teachers.
- It focuses attention on teaching behaviour to modify and improve in the desired direction.
- Micro Teaching is an effective feedback device for the modification of teacher behaviour.
- Micro Teaching minimizes the complexities of the normal classroom teaching by scaled down teaching.

- Microteaching permits increased control and regulates teaching practice.
- The demonstrations of model lessons in microteaching are possible through video-lessons and short films.

Drawbacks (limitations) of Micro Teaching

- Microteaching tends to reduce creativity of teachers.
- Its application to new teaching practices is limited.
- It requires competent and suitably trained teacher educators for its successful implementation.
- Microteaching alone may not be adequate. It needs to be supplemented and integrated with other teaching techniques.
- Microteaching is very time consuming technique.
- The list of skills is not exhaustive and does not apply to all subjects.
- Too much fragmentation of skills is not considered convention or practical for training.
- Some skills tend to overlap each other.
- Different skills are required for different stages and for different subjects which are difficult to formulate and achieve. Only a few basic skills such as questioning, explaining, stimulus variation, management of class are common and can be developed.

Skill of Stimulus Variation

- The skill of stimulus variation covers the activities the teacher can introduce to vary the presentation methods used in a lesson. This skill is concerned with three main areas of teaching, they are:

  1. The manner, voice and teaching style of the teacher,
  2. The media and materials used during teaching,
  3. The teacher/ pupil relationship during the class.

Components

1. Movement
2. Gestures
3. Voice modulation

4. Focussing
5. Change in interaction style
6. Pausing
7. Oral-visual switching

Skill of Reinforcement

- Reinforcement skill can increase student's involvement in their lessons in a number of positive ways. The skill is being used when the teacher reinforces good behaviour with a smile, when the teacher praises a good answer, or encourages a slow learner. Such positive reinforcement strengthens desirable behaviour, increases student participation. Negative reinforcement, on the other hand weakens undesirable behaviour.

Components

1. Positive verbal
2. Positive non-verbal
3. Negative verbal
4. Negative non-verbal
5. Wrong use of reinforcement
6. Inappropriate of reinforcement

Skill of Explaining

- Explaining can be defined as an activity to bring about a concept, principle, etc. It is an activity to fill up a gap in someone's understanding. The skill of explaining aims at making sure that the explanation is understood. All teachers should strive to perfect the skill of explaining accurately and effectively.

Components

- **Desirable behaviour**
  1. Beginning statement
  2. Explaining
     - Clarity
     - Fluency
     - Planned repetition
  3. Concluding statement

4. Questions to test pupils understanding

- **Undesirable behaviour**
  1. Irrelevant statement
  2. Lacking in continuity
  3. Inappropriate vocabulary
  4. Lacking in fluency
  5. Vague words and phrases

Skill of Probing Questions

- Probing is used when the students reply is correct but insufficient, because it lacks depth. Asking a number of questions about the response given to the first question. Such techniques, that deal with pupil responses to your question, are included in the skill of probing questioning.

The five components of the skill of probing questioning are:

1. **Prompting Technique :** Prompting is a technique of probing or going deep into the pupil's initial response and leading him from no response to the expected response. This involves the teacher to give clues or hints to the pupil and ask leading questions.
2. **Seeking Further Information:** It consists of asking the pupil to supply the additional information to bring initial response to the criterion level or the expected level.
3. **Refocussing** : This technique consists of enabling the pupil to view his response in relation to other similar situations. It requires the pupil to relate a completely acceptable answer to other topics already studied by him.
4. **Redirection Technique:** Redirection technique involves putting or directing the same question to several pupils for response. This is mostly used for the purpose of probing and for increasing pupil participation.
5. **Increasing Critical Awareness Technique:** This technique mainly involves asking "how" and "why" of a completely correct or expected response. It is used to elicit a rationale for the answer.

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12

Towards Holistic Student Development
An Overview & Perspectives of Mentoring Activity

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Introduction

Education is the most important single factor in achieving rapid economic development and technological progress and in creating a social order founded on the values of freedom, social justice and equal opportunity. Programs of education lie at the base of the effort to forge the bonds of common citizenship, to harness the energies of the people, and to develop the natural and human resources of the country. Sustainable empowerment of society can be achieved only through dissemination of knowledge and education. Hence, education is an indispensable tool of human enhancement. It follows that periodic quality upgradation of education is an imperative exercise. The present stance in this value addition scenario is the approach of holistic development in students as they tackle academics in a constricted, often suffocating competitive environment.

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The pertinent aim of Educational fortification in the higher echelons of academics has always been a complete congruence of lasting knowledge and honing of professional skills. However, the main objective of this exercise is not to churn out innumerable clones of mindless, robotic clones, but to "humanize" the human resources at the end of the scholaristic tenure. Generally, raising educational standards in the teaching and learning process has always been high on the agenda but it was only recently that more academics began exploring the role of emotions in enhancing the teaching and learning process**.** The singular objective is to strengthen work-based learning at the Tertiary level so as to prepare students for a fulfilling and rewarding employment, entrepreneurship and creativity. The significance of this aim is to nonetheless achieve the same without in anyway diminishing the zest for further scholarship and lifelong learning. Theorists in human resource management have emphasized that its aim is to improve the world's general culture as well as to further the empathic and emotional profile of the graduating student. The most current definition states that literacy includes individuals' ability to effectively participate in their communities as workers, parents, and citizens.

Graduation is regarded even today as one of the most coveted turning points of life. Many as the benchmark of "haves versus have-nots" view it. Understandably the student at the threshold of such a significant event is in a tremendous emotional and psychosomatic turmoil and looks out for timely help and support.

Experience forges wisdom and wisdom leads to effective living. Parents, teachers, peers and the society at large play a pivotal role in providing a comfort zone which, unfortunately is sometimes too precarious for his sense of well-being. He looks consciously and unknowingly for individuals who have as a vocation oriented, trained, coached, and introduced people to new and greater professional opportunities. In short, he looks for a 'Mentor'. In recognition of that role this article explores the concept and practice of mentoring in the world of higher education. Focus will be limited to a brief overview of the concept, an exploration of its various expressions, and identification of facilitative measures which have been actualise in our department where teachers have conscious donned the role of "people who have walked the road ahead of us and offered guidance and encouragement". The exercise has been reviewed after conductance and has been so

emphatically lauded by the students that the effort feels richly rewarded.

Performance-Based / Competency-Based Learning and Assessment

The present system of tertiary education is clichéd enough to undermine the vast plethora of potential and talent present ubiquitously in our students. A subculture of unhealthy competition generates a sense of undue stress and pressure in the lives of our students and serves to subjugate scholarship. Added to this syllabi implementation can often diminish the use of imagination, visualization skills and creativity. Moreover, academic pursuits within the Performa of University education are noticeably delinked to job opportunities. The singular end result of this constricted and encapsulated framework is that increasingly, students tend to experience psychological pressures pertaining to their own academic performance, bridging the gap between their own profiles and those expected by their parents, peer pressure and the general feeling of cynicism and frustration.

The Mentoring Activity: A Fulfilling Experiment

In order to bring about a much desired metamorphosis in higher learning systems in this Department, in 2004, the Head of the Department, Dr. Jyoti D. Vora initiated a very innovative exercise, aptly termed Mentor Activity, for the undergraduate students in the Department of Biochemistry and Food Science and Quality Control to provide a personalized and structured interactive platform between Teacher and taught with a greater emphasis on Entrepreneurship, Self Reliance and Employment-linked strategies. The exercise by the Department percolated to all the students and was extremely well received by both students and parents.

Ramnarain Ruia College: Raison d'être

Ramnarain Ruia College, Mumbai, India is one of the finest Institutes of higher learning in the country, known for its pioneering efforts in imparting excellent education and offering uncompromising standards of curricular, co-curricular and extra curricular activities. It has scaled unparalleled heights in scholastic achievements since its inception in 1937. In keeping with its path breaking rationale, Ramnarain Ruia

College was the first college in the University of Mumbai to offer Food Science and Quality Control to its undergraduate students.

To extend long-term and sustainable advantage to its students and to offer limitless vistas of both academic and job choices, this subject is being offered in conjunct with the three most compatible areas of science namely Biochemistry, Chemistry and Microbiology. Thus, a student offers Biochemistry-Chemistry- Microbiology in first year, Biochemistry-Chemistry in second year and Biochemistry (Single Major) in third year with Applied Component as Biotechnology, studying alongside Food Science and Quality control – Certificate, Diploma and Advanced Diploma. It follows that the academic proficiency as well as the aspirational quotient of the students in the Department is tremendous and the three-year undergraduate tenure of the student is well strategised in order to achieve a desired end result. In order to nurture the tremendous potential of the students of the Department, a continuous effort is being made to actively facilitate their extramural development. It is with this objective that a group mentor activity was initiated for the students of T.Y.B.Sc. Biochemistry since the academic year 2004–2005 to date.

Definitions of Mentoring

The term *mentor* stems from Greek mythology in which Odysseus entrusted the care and education of his child to a friend named Mentor while the father was away on his adventures and travels. Mentoring has come to be used for a variety of relationships. Some of its synonyms include *role model*, *coach*, *guide*, *sponsor*, *friend*, and *adviser*.

Elements of Mentoring

The elements of a mentoring relationship have numerous permutations.

1. Initiation
2. Time frame
3. Formality
4. Intensity
5. Reciprocity
6. Agenda
7. Medium

Benefits of Mentoring

Benefits of mentoring include the following:

For the Mentor

Enrichment through seeing someone else grow and succeed. Creativity generated by issues and ideas generated by someone younger and newer.

For the Mentee

Speedier adaptation to a new role and/or organization and reduced likelihood of frustration and failure. Increased exposure to ideas and connections.

For the Organization

Stronger individuals offering higher quality performance. Increased connectivity and caring**.** People enjoy working in caring and connected workplaces. Creating a network of good relationships among faculty raises the general relational climate in an organization and is of overall benefit. Support to formal employee orientation and development programs. Greater sense of well-being for students and the organization.

USP of the Mentoring activity

The essence of the Mentoring Activity is to offer to the student innumerable opportunity for creative and holistic development within the purview of a challenging syllabus. This is being more than realized at Ramnarain Ruia College.

Agenda of the Activity

The class of 40 students was divided into groups of 10 and was assigned a staff member of the department as a mentor. The Head of the Department coordinated each mentor group. Meeting for each group was scheduled with suitable notification to the concerned students and the meeting lasted 45 minutes.

The following issues were discussed in each mentor group:

- Student's performance in prelim-practical examination.
- Student's performance in prelim-theory examination.
- Any difficulties in ensuing University Examination; group as well as personal.
- Aspiration for the entrance exams and further education.
- Any other points on a personal front (2 mins per student).

Mentoring Activity Programme: Viewed holistically for its overall features, this programme has three salient features:

- To enable students to discuss in a personalized manner the intricacies of their academic profile.
- To instill in students the right kind of work attitude and professionalism through interaction with their peers under the supervision of their teachers so as to hone their interpersonal skills for their future roles in the professional and social context.
- To enable students to acquire intangible attributes such as working in a team, recognizing and rectifying shortcomings in their emotional and mental makeup and tackling personal and career-related problems with a sense of astuteness and maturity.

Future Perspectives in Facilitating Mentoring

Mentoring appears to be one of those good, win-win ideas we affirm but have difficulty in implementing. Mentoring is good for the mentor, the mentee, and the organization. How might this good idea be more widely adopted and practiced?

- Administrators support the program.
- Mentoring is part of a more comprehensive faculty development program.
- Participation is voluntary on the part of both mentor and mentee.
- There is a screening process to check on the readiness and fit of both parties.
- Orientation to the mentoring process is provided.
- Participants are given freedom to shape their mentoring relationship.
- A monitoring system is in place to determine progress and satisfaction.
- The program is run by a specific person.
- Mentees are given a voice in selecting their mentor.
- Some recognition is provided to mentors, whether financial or work load.

Secondary Analysis

Using quantitative output of the data, statistical hypothesis H_o was tested using the tool ANOVA. The null hypothesis was defined as 'Mentor

Activity did not substantially or otherwise affect the profile of the students.' The result showed F-ratio as 71.88. Hence null hypothesis was rejected. Thus **'Mentor Activity substantially or otherwise affect the profile of the students.'**

Conclusion

Much of such successful facilitating requires not only the transmission of information but also the care and encouragement of persons. To the extent we are able to do this well, we will achieve the end goal of education.

A case study of Ruia College strengthens the nascent belief that a first person exposure to this self- enhancement activity is significantly conducive to the personal and academic growth of an undergraduate student.

Summing up, this academic endeavor has achieved undoubted success as Tables shows the results and Department of Biochemistry and Food Science and Quality Control, Ramnarain Ruia College present today a synergy fit to be emulated. It's a Role Model beyond doubt.

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13

Environmental Ethics – A Forgotten Principle
Necessity and our Responsibility

Subhankar Chatterjee*

Introduction

Ethics—A Combination of Moral Values

In today's world where resource demand is very high as population density is continuously increasing around the globe, it is important for us to use our environmental resources sensibly. ''To be sensible'' human beings need to follow some moral principles in their life. The combination of such moral principles of a particular human being is called ''Ethics''of that individual. Ethics are a broad way of thinking about what constitutes a good life and how to live one. They address questions of right and wrong, making good decisions, and the character or attributes necessary to live a successful and a good life. Applied ethics address these issues with a special emphasis on how practically they can be lived out.

Environment—A Collection of Living and Non-Living Things

Before discussing the environmental ethics it is essential to know about

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our environment. By definition, environment is a complete ecological unit that functions as natural systems without substantial civilized human intrusion, including all vegetation, microorganisms, soil, rocks, atmosphere, and natural phenomena that occur within their periphery. It not only encompasses the interaction of all living species but also includes climate, weather, and natural resources that affect human survival and economic activity. We humans are mostly depended on the natural resources coming from this environment. Increasing consumption of natural resources degraded our planet's ability to provide the services we humans need. The consumption of resources is going at a faster rate than they can naturally replenish.

Environmental Ethics

The definition of environment itself sought for the concept of environmental ethics as one has to follow some basic principles before they utilize the resources from the environment. The field of environmental ethics concerns human beings' ethical relationship with the natural environment. Environmental ethics believe that humans are one of the parts of environment/society like other living creatures, which includes plants and animals. These items are a very important part of the nature and are believed to be a functional part of human life. Thus, it is essential that every human being should give respect and honor this and use morals and ethics when dealing with these entities. This moral principle was defined by the Nature.com as "Environmental ethics is a branch of applied philosophy that studies the conceptual foundations of environmental values as well as more concrete issues surrounding societal attitudes, actions, and policies to protect and sustain biodiversity and ecological systems." There are many definitions with different perspective as scientists, philosophers and environmentalists define this term in their own way; but in general environmental ethics is defined as the use of environment by following some moral principles and those practices should help to protect environmental degradation.

Origin of the Concept

In the most general sense, environmental ethics is consist of three key propositions: (a) the Earth and its creatures have moral status, in other sense, are worthy of our ethical concern; (b) the Earth and its creatures

have intrinsic value, meaning that they have moral value merely because they exist, not only because they meet human needs; (c) drawing from the idea of an ecosystem, human beings should consider "wholes" that include other forms of life and the environment. Numerous philosophers have written on this topic throughout history, but only in the 1970s, the concept of environmental ethics had developed into a specific philosophical discipline. During 1960s the awareness among the people had emerged as the negative effects of the technology, industry as well as economic expansion and population growth were noticed which directly had impact on the environment. The development of such awareness was aided by the publication of two important books at this time. Rachel Carson's *Silent Spring*, first published in 1962, alerted readers to how the widespread use of chemical pesticides was posing a serious threat to public health and leading to the destruction of wildlife. Of similar significance was Paul Ehrlich's 1968 book, *The Population Bomb*, which warned of the devastating effects the spiraling human population has on the planet's resources. Pollution and the depletion of natural resources certainly have not been the only environmental concerns since that time: deteriorating plant and animal biodiversity, the loss of wilderness, the degradation of ecosystems, and climate change are all part of a raft of "green" issues that have implanted themselves into both public consciousness and public policy over subsequent years. The job of environmental ethics is to outline our moral obligations in the face of such concerns. More importantly, the two fundamental questions that environmental ethics must address are: what duties do humans have with respect to the environment, and why? The latter question usually needs to be considered prior to the former. In order to tackle just what our obligations are, it is usually thought necessary to consider first *why* we have them. For example, do we have environmental obligations for the sake of human beings living in the world today, for humans living in the future, or for the sake of entities within the environment itself, irrespective of any human benefits? Different philosophers have given quite different answers to this fundamental question which, as we shall see, has led to the emergence of quite different environmental ethics.

Extrapolation of Moral Standing

If the answers to the above mentioned queries are only restricted

towards our (human) own survival and benefit then that ethic is considered to be "anthropocentric." Anthropocentrism literally means "human-centeredness," and in one sense all ethics must be considered anthropocentric. It is customary to say that only human beings can reason about and reflect upon ethical matters, thus giving all moral debate a definite "human-centeredness." However, within environmental ethics anthropocentrism usually means something more than this. It usually refers to an ethical framework that grants "moral standing" solely to human beings. Thus, an anthropocentric ethic claims that only human beings are morally considerable in their own right, meaning that all the direct moral obligations we possess, including those we have with regard to the environment, are owed to our fellow human beings.

Necessity and Importance

If someone ask the question, why is it necessary to follow environmental ethics, then in most occasion the answer will be, (a) to understand the essential features of moral or ethical thinking; (b) to learn about the important and distinguishing characteristics in environmental ethics; (c) to develop the skills to recognize and deploy moral discourse for leadership in environmental fields. In addition to these philosophical considerations, one should also be focused on the global environmental issues to answer this question. Global warming, global climate change, deforestation, desertification, pollution, resource degradation, threat of extinction are few of the issues from which our planet is suffering in recent time. Industrialization during 1950's has led to severe environmental pollutionand ecological imbalancein and around first world countries and later on in many third world countries when this industrialization expands its wings. Uncontrolled and unnoticed release of lots of green house gases and CO_2 slowly changed the quality of different environmental compartments. Along with this, engineering developments are also resulted in resource depletion and environmental destruction. There are several otherenvironmental issues including industrial and household waste, acid rain, ozone layer depletion, urban sprawl, genetic engineering, and overpopulationthat have created havoc on our environment and human life. These environmental issues have taken toll on our environment and we've already started seeing some disastrous effects in the form of human health problems, rise in sea level, depletion of non-renewable resources, melting of glaciers,

extinction of species, polluted landfills, toxic dust, decreasing soil fertility, rise in air and water pollution and many more. If ignored today, these ill effects are sure to curb human existence in the near future. So this is the high time we should react and restrict our own ill-practices. If we are only considering the anthropocentrism, then also it is obligatory to respond positively and using the environment sensibly because we need to protect the environment not only for our children and grand-children (and of course for many future generations) but also for our fellow human beings.There are thousands of literatures and documents which in daily basis informed us about the environmental degradation by various means but we merely react! Lots of disasters have already been done and therefore we have to figure out our responsibilities as soon as possible.

Responsibilities and Course of Action

Environmental ethics builds on scientific understanding by bringing human values, moral principles, and improved decision making into conversation with science. It was *Earth Day* in 1970 that helped to develop environmental ethics in the US, and soon thereafter the same ethics were developed in other countries including Canada and North America. Moral reasoning is not a substitute for science, but it provides a powerful complement to scientific knowledge about the earth. Science does not teach us to care. Scientific knowledge does not, by itself, provide reasons for environmental protection. Science and economics informed us about new observation and proof behind this. With the help of this information Environmental ethics ask: how then, should we live? Why should we care? Often, the simple question, "What is the right thing for us to do?" can open up fresh perspectives on environmental problems. Thinking ethically about the environment has the potential to help anyone contribute to creating environmental solutions.

To respond ethically towards the environment we have to introspect first and ask few questions to ourselves. Regarding our obligations towards the natural environment, what responsibilities do we have to wild species and ecosystems and to present and future generations of humans dependent on critical ecological services? How does the recognition of rapid, global environmental change challenge our traditional understandings of these obligations? What does it mean to be "sustainable" and why do many believe that achieving

sustainability is an ethical imperative for science and society in this century? What ethical perspective should inform environmental policy making in areas such as climate change and biodiversity? What is the value of a humanly restored environment compared with the originally natural environment? It is often said to be morally wrong for human beings to pollute and destroy parts of the natural environment and to consume a huge proportion of the planet's natural resources. If that is wrong, is it simply because a sustainable environment is essential to (present and future) human well-being? Is such behavior also wrong because the natural environment and/or its various contents have certain values in their own right so that these values ought to be respected and protected in any case? [Ref, http://www.iep.utm.edu/envi-eth/].If we can answer these questions, then it may possible for us to be ethical and act accordingly. The great American environmentalist Aldo Leopold stated that "we can be ethical only in relation to something that we can see, feel, understand, love, or otherwise have faith in". Ethics is a matter of connecting head and heart. But too often ethical reasoning becomes detached from our experience, emotions, feelings, and unacknowledged commitments. Therefore we have to understand first about our relationship with the earth;then only we can realized why we value the natural world as we do. By reflecting on these deeper commitments of the heart, we can better refine our ethical reasoning about the environment.

Conclusion

It is essential that we individually should do our part to keep the environment protected and free from danger. It is not as difficult to do as we may think so long as we're willing to make a few simple and easy changes. According to the basic concept of ecology, land is a community, but that land is to be loved and respected as an extension of ethics. (Leopold, A., 1949. A Sand County Almanac, Oxford: Oxford University Press.)

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Skill India—2022
Status and Challenges Ahead !

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Need for Skills

Skills and knowledge are the driving forces of any economy, whether developed or developing, and pivotal for economic growth and social development for any country. The required skills for any economy is not free from hurdles. With better level of skills any country can mitigate these challenges effectively and contribute to the world of work. As India, moves progressively towards becoming a *'knowledge economy'* it becomes increasingly important that the country should focus on advancement of skills and these skills have to be relevant to the emerging skill India. In order to achieve the twin targets of economic growth and inclusive development, India's Gross Domestic Product (GDP) has to grow consistently at 8% to 9% per annum. This requires significant progress in several areas, including infrastructure development, agricultural growth coupled with productivity improvements, financial sector growth, a healthy business environment, ably supported by a skilled workforce. As per NSSO, published in Economic Survey, 2009-

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10, the agriculture sector accounts for about 20% of the economy. The secondary and tertiary sectors account for about 25% and 55% respectively. For the economy to grow at 8% to 9%, it is required that the secondary and tertiary sectors grow at 10% to 11%, assuming agriculture grows at 4%.

In such a scenario, it is obvious that a large portion of the workforce would migrate from the primary sector (agriculture) to the secondary and tertiary sectors. However, the skill sets that are required in the manufacturing and service sectors are quite different from those in the agriculture sector. This implies that there is/will be a large skill gap when such a migration occurs, as evidenced by a shrinking employment in the agriculture sector. This scenario necessitates skill development in the workforce. Out of the current workforce of about 450 million, only about 8% to 9% are engaged in the organised/formal sector. In India, only about 5% of the workforce has marketable skills, as compared to 50% to 60% in other countries. The magnitude of the challenge is further evident from the fact that about 12 million persons are expected to join the workforce every year.

Low labor-cost and a rich talent pool are distinct advantages available to India, clearly powering its global competiveness as a knowledge-based society. *Education and training* are both strategic necessities, which will deliver employment-enhancing skills, in turn increasing productivity and accelerating the future economic growth of the country. To further strengthen India's position of being a dominant service economy, it is imperative for the government to invest in skilling and training the available human capital, especially to provide for the knowledge intensive sectors.

Prime Minister, in his Independence Day speech, spoke of his Skill India Mission to promote holistic development, showing very intent on placing renewed emphasis on skill development in the services and manufacturing sectors. Skill development plays a-vital role in improving labour market outcomes and economic growth. World leaders understand the emergent need of skilled development. At the G20 Summit in Brisbane, ILO Director-General Guy, Ryder, urged G20 leaders to focus on policies that drive growth through more and better jobs.

Indian pattern of employment and productivity reveals important mismatches. Ninety-three per cent of the workforce in India is in

informal employment, which suffers from sub-scale enterprises and overall low productivity. Fifty-eight per cent of the workforce is in agricultural employment that contributes only 15per cent of GDP. It has become a big challenge ahead as it is estimated that only 4.69 per cent (NSS, 2012) of the total workforce in India has undergone formal skill training as compared to 68 per cent in UK, 75 per cent in Germany, 52 per cent in USA, 80 per cent in Japan and 96 per cent in South Korea (UNESCO, 2012).

Initiative of the Government—Mission India: 2022

In recent times, there being a renewed push on existing schemes by the central and state governments, skill development has become a key policy issue, and more importantly, the National Skill Development Mission taking on the ambitious target of skilling and upskilling 500 million people by 2022 in India. To create skill environment, the government announced a National Policy on Skill Development in March 2009 with the framework within which it wanted skills-related training to be conducted and this policy is further succeeded by National Policy for Skill Development and Entrepreneurship 2015. Finance Minister, in his 2015 Budget speech, announced the creation of separate *Ministry for Skill Development* with fund allocation to the tune of Rs 1,543 crore for the financial year 2015-16 that aims to provide an umbrella framework to all skilling activities being carried out within the country, to align them to common standards and link the skilling with demand centers as highlighted in the table below:

- Aspiration and Advocacy
- Capacity
- Quality
- Synergy
- Mobilization and Engagement
- Global Partnerships
- Outreach
- ICT Enablement
- Trainers and Assessors
- Inclusivity

Aim and Objectives of the Policy

To create an ecosystem of empowerment by skilling on a large scale at speed with high standards so as to ensure sustainable livelihoods for all citizens and to place India in the comity of front ranking entrepreneurial and innovative nations.

Mission: Govt. has decided to launch and implement this mission

in mission mode, with following aims:

- Create a demand for skilling across the country;
- Correct and align the skilling with required competencies;
- Connect the supply of skilled human resources with sectoral demands;
- Certify and assess in alignment with global and national standards; and
- Catalyse an eco-system wherein opportunity based and innovative entrepreneurship germinates, sustains and grows leading to creation of a more dynamic entrepreneurial economy.

Objectives

The core objective of the Policy is to empower the individual, by enabling her/him to realize their full potential through a process of lifelong learning (enabling her/him to accumulate competencies throughout their lifetime as time and circumstances permit) through instruments such as valid certifications, accumulation of credits, etc. They will be allowed and facilitated to grow into more important and rewarding roles. As they grow, the organization she happens to be working for, and the society and the nation of which she is a part, will also benefit from her productivity and growth. This will involve:

i. Make quality vocational training aspirational for youth through the simultaneous shift in the mind-set by making skill training a matter of choice, and in the mind-set of employers that skilled manpower will lead to increased productivity and will involve a payment of premium.
ii. Focus on an outcome-based approach towards quality skilling that results in increased employability of individuals to avail job opportunities.
iii. Increase the capacity and quality of training infrastructure and trainers to ensure equitable and easy access for every citizen.
iv. Address the human resource needs by aligning supply and composition of skilled workers with the requirements of the industry and the country's strategic priorities including flagship programmes.
v. Establish an IT-based information system for aggregating demand and supply of skills to help align efforts towards

bridging the existing and expected skill gaps.

vi. Promote National standards in the skilling space through active involvement of the employers in creating curriculum, providing standards and paying skill premiums to workers.
vii. Operationalize a well-defined quality assurance framework, aligned with global standards to facilitate mobility of labour.
viii. Leverage modern technology to ensure scale, access and outreach, in addition to ease of delivering content and monitoring results.
ix. Recognise the value of on-the-job training, by making apprenticeships in actual work environments an integral part of all skill development trainings.
x. Ensure that the skilling needs of the socially and geographically disadvantaged and marginalized groups (like the SCs, STs, OBCs, minorities, women and differently abled persons) are appropriately taken care of.
xi. Promote commitment and ownership of all stakeholders towards skill development and create an effective coordination mechanism.

Create an ecosystem for entrepreneurship development that would include:

i. Encourage both self-employment and entrepreneurship as a viable career option through advocacy.
ii. Enhance support for entrepreneurs through mentorship, networks, provision of information, ease of doing business.
iii. Integrate entrepreneurship education in the formal education system.
iv. Foster innovation-driven and social entrepreneurship to address the needs of the population at the 'bottom of the pyramid.'
v. Facilitate access to finance through credit and market linkages.
vi. Broaden the base of entrepreneurial supply by meeting specific needs of both socially and geographically disadvantaged sections of the society.

Status, Aspiration and Advocacy

The annual skill imparting capacity in the country was estimated at

around 7 million in 2014. In the current landscape capacity is being created by private sector training, private and public organizations, industry in house training, government and private Industrial Training Institutes (ITIs), Advanced Training Institutes (ATIs), and in schools, colleges and polytechnics. There is a need for upgrading all existing skill imparting institutions and add new ones. There is urgent need of inculcating skills among Indian children and youth and government of India is working in that direction. Government of India is offering training courses for school drop-outs through a network of more than 5000 Industrial Training Institutes (ITIs), located all over the country. The duration of the training varies from trade to trade and time period ranges from 6 months to 3 years. About 0.75 million training seats are available at the ITIs throughout the country. Over 46,000 seats are exclusively created for the women. Reservation provision for SC/STs, disabled, OBCs, quotas for ex-servicemen, etc. has been created as per Govt. directives received from time to time. Apart from these, at least 25 per cent of all existing institutions of higher education would also offer add-on career oriented courses with specialized skills at an appropriate National Skills Qualifications Framework (NSQF) level within the next five years.

Quality of Skill Development and it's Linkage with the Emerging Market

In the era of globalized economy, quality of training must be in line of global standards for sustaining the international competitiveness on one hand, as well as improving an individual access to decent employment on the other. 'One Nation One Standard' should be the new mantra to ensure that national standards and quality for skilling are globally aligned and Indian youth can aspire towards securing local, national and international job opportunities. There is need to enhance the quality of trainer by adopting recruiting the experienced and, trained as craft persons and there must be special efforts to improve the gender balance among trainers. Following parameters have been identified for improving quality:

Parameters

- Quality assurance framework embedded in NSQF
- Marker relevant training programts

- Recognition of prior learning
- Curriculum alignment
- National certification framework
- Employability skills
- Placements

Ministry is working as an umbrella for all skill development programs of various ministries, and has been coordinating skill development efforts in the country, notifying common norms for rationalization of Central Government Schemes on Skill Development. Though, different ministries will be free to frame schemes at their discretion to meet local/sectoral needs while adhering to common norms. Government will also set up a *National Labour Market Information System (LMIS)* which will provide a socio-economic database and will provide:

- Supply side skilled labour force statistics
- Demand of skilled/unskilled labour

Marker trends like wage structures and distribution, economic growth trends across sectors, focus areas for skilled manpower, occupational shortages etc.

Global Partnerships

Through global partnership, we leverage best practices from the world and enrich our domestic training programs to improve the quality of trainees and trainers. India enjoys the demographic advantage and with the prospect of global shortage of skills as the world population ages, means that country could be supplying skills to the world. As per US Census Bureau estimate, by 2022, countries like USA, UK and China will fall short of skilled labour by 17 million, 2 million and 10 million respectively while India will have surplus skilled workforce of almost 47 million in the age group of 19-59 years.

Outreach of Skilled Manpower with ICT

Skill Development Initiative needs considerable amount of expansion of capacity and innovative delivery approaches, and Public Private Partnerships (PPP), KVKs and LMIS will play a pivotal role in identifying local employment opportunities and providing adequate training and post-training support according to needs of local areas

such as migration support for skilled workers along with their certified skill levels that can help some of them to move to organized sector. Under the Apprenticeship Training Scheme, around 23,800 establishments are covered and imparting training to 2.58 lakh apprentices and there is an urgent need to revisit the existing Apprentices Act, 1961 to meet the desired target. Information and Communication Technology (ICT) has great potential in connecting people and increasing efficiency. If the skilling process is amalgamated with the tools of ICT, then it can offer twin benefits that are on one side capacity building and capacity enhancing and on the other, leveraging in monitoring of government schemes related to skill development. Entire ecosystem—from the Government agencies to the training provider and to the last man, that is trainee, can be connected. Financial transactions can be made possible at click of button and benefits distributed without delay. With the asset of approximately 900 million cell phone users in the country, of which 120 million use smartphones. The government aims to promote matching online/mobile platform for connecting supply and demand of skilled workers. Private sector will be encouraged to develop mobile applications (apps) for aggregating informal sector workers such as plumbers, carpenters etc. for household services, through innovative commercial models.

Challenges to Skill Development in India By 2022

Govt. is trying a lot to make this mission successful and three government institutions namely National Skill Development Agency (NSDA), National Skill Development Corporation (NSDC) and Directorate General of Training (DGT) are working with national mission of skill development to facilitate smooth functioning of the national institutional mechanism, but still following challenges are on the way to its successful completion. India will have the maximum number of working-age population in the world. The FICCI-KPMG Global Skills Report has noted that if properly skilled, they can contribute to economic growth. But there are many challenges to skilling in India. Some of them are:

Problem in Mobilization

Student mobilization to get trained, has been a major concern due to the traditional mindset, low willingness to migrate, low salaries at entry level.

Issues in Employers' Buy-in

The employer does not distinguish whether an employee has picked up skills on the job or he has acquired them through formal training.

Problems in Scalability

Scaling up aspirations to current jobs as well as getting the right kind of training partners and effective stakeholder management are important.

Mismatch between youth aspirations and jobs

Finding students to fill the classrooms and getting people to accept new kind of jobs have been difficult.

Ensuring Minimum Wages

At present, wages are linked with categorization of 'skilled', 'semi-skilled' or 'unskilled', but these have to be aligned with skill levels defined as per National Skill Qualification Framework (NSQF) and recognition of higher level of skills in terms of minimum wages is noted.

What can be done?

To achieve the massive target of skilling in next couple of years, it is of utmost importance to have quality trainers who are capable of training people in several fields. Similarly, quality assessors in sufficient numbers are also required to ensure consistent outcomes of assessment and certification process. Setting up of Centers of Excellence under the proposed National Skills Universities would also ensure continuous supply of quality trainers in each sector. Special training programs would be developed for training of trainers meant for overseas employment, including language training in collaboration with the concerned country. This could be clubbed together with exchange programs, industry visits and simulated training. MSDE is also planning to provide future livelihood opportunities to the retired government officials, specially in defense sector where 50,000 armed forces retire every year with retired personnels' age ranging from 35-45. This labour force is a valuable resource and can be utilized as trainer and assessors.

With just about 2% of the country's labour force having formal skill certification, government and industry must create pull factors to attract workers to get vocational training. For this, there is a need to

create the macro-and micro-policies to encourage workers.

- The government should include a minimum percentage of certified skilled workforces in the tendering process of every manpower intensive project and increase the minimum percentage every year.
- At a local level, the industry can enforce it by ensuring that ancillary service providers like drivers, housekeeping and security staff have skill certification.
- Minimum wages need to be re-looked and aligned to the levels defined in the National Skills Qualification Framework.

Special Focuses on Marginal Segments

Government can keep a watch on the implementation of reservation policies and gender composition to promote skill development initiatives that will ensure inclusivity irrespective of gender, location, caste, sector etc. One of the key objectives is to safeguard the skilling needs of marginalized groups viz. women, SCs, STs, OBCs, minorities, and differently abled persons, as well as those living in difficult geographical pockets. Special attention needs to be given to youth residing in Northeastern states, J&K, and the hilly forested areas of central and eastern India regions to address their needs for employment and employability. The government must promote the institutes for entrepreneurship such as Rural Development & Self-employment Training Institutes (RUDSETI).

The need for skill development / vocational training in various trades, ranging from traditional to modern skills, to absorb the drop-outs. Given the majority engagement of ST workers in agro-based activities, there is a need to find innovative solutions to make agriculture sustainable activity. Ministry of Tribal Affair, Government of India launched the Vanbandhu Kalyan Yojana (VKY), on 28th October 2014, mainly focuses on bridging infrastructural gaps and gap in human development indices between schedule tribes and other social groups. Through VKY, vocational education and formal technical education are promoted in tribal area and at least 50% of such activities to be oriented for women, such as computer training, office management, hospitality, paramedics, Ayurveda and tribal medicines & medical practices, modern skills etc. through the digital India program, government

encourage tribal people to be a part for their skill up gradation and vocational trainings. Through convergence from concerned Ministries / Departments, it is proposed to set up-vocational training centre in 206 EMRS and 4477 Ashram Schools, and skill development of 5 lakh beneficiaries per year.

Scheduled Castes

The National Scheduled Castes Finance & Development Corporation (NSFDC) was setup with the objective of financing income generating activities of SC beneficiaries living below double the poverty line limits (presently annual family income Rs. 81,000/- for rural areas and Rs. 1,03,000/- for Urban Areas). NSFDC assist the target group by way of loans, skill training, Entrepreneurship Development Programs and Providing Marketing Support through State Channelizing Agencies (SCAs), RRBs, Public Sector Bank & Other Institutions.

NSFDC has an important role to play in skilling people from schedule caste and with consorted efforts along with government, non-government players and industry, there can be remarkable contribution even from the most marginalized. There exists Dalit Indian Chamber of Commerce and Industry which promotes businesses by the people belonging to Scheduled Caste. Being the people engaged in arts and crafts, they are valuable source of traditional knowledge which can be exchanged, assimilated and propagated for maximized returns.

Targeted Areas: The Marginalized Groups

Nobel laureate Peter Diamond's work on search costs in labour markets is very important in the context of emerging economies like India where matching labour demand and supply become difficult because most employment is in the informal sector, largely in agriculture, and the labour force has low levels of education and skills. Diamond points out that just as measured unemployment does not fully reflect the availability of workers to be hired, so too the measured level of vacancies does not fully reflect the availability of jobs (Diamond, 2011). The challenges for matching are broad and deep in India.

Thus, we can say that the informal sector, school drop outs youths and adult and seasonal labour force in agriculture are the main target groups for skill development mission. The informal sector in India consists of workers in microenterprises, unpaid family members, casual

labouroers, home-based workers, migrant laborers, school dropouts, domestic workers, street vendors, etc. with limited professional skill, low income and low productivity. As per the 66th round of NSS survey (2009-10), approximately 92.8 per cent of the total workforce in 2009-10 constituted of informal workers. To strengthen the informal sector government is committed for developing new money-making job skills, through education and training. Thus, it is important to train this group to increase their productivity and contribute sustainable economic growth.

School dropout is a global phenomenon of education system among the developing countries. India is also facing the same problem across all the socio-economic class of population. Schedule caste (SC) and schedule tribes (ST) are vulnerable section of the societies, dropout among SC and ST are above the national average. Table 1.1, depict the tribals' dropout rates which are still very high at 35.6 per cent in Classes I to V; 55 per cent in Classes I to VIII; and 70.9 per cent in Classes I to X in 2010-11 and significantly higher than the all India figures.

Table 1: Showing Comparative Dropouts Rates

Class	*Boys*		*Girls*		*Total*		
	ST	*All*	*ST*	*All*	*ST*	*All*	*Gap*
Class I-V	37.2	33.7	33.9	25.1	35.6	27.0	8.6
Class I- VIII	54.7	40.3	55.4	41.0	55.0	40.6	14.4
Class I-X	70.6	50.4	71.3	47.9	70.9	49.3	21.6

Source: Statistics of School Education, 2010-2011

As depicted in table 1, it is worth of observing the alarming drop-out and the question is being addressed under Mission India: 2022 and govt. is trying to cope the situation, other it would be very difficult to cope it in coming years. In order to reduce wastage and improve the efficiency of education system, the educational planners need to understand and identify the social groups that are more susceptible to dropout and the reasons for their dropping out. Within the Millennium Development Goals (MDGs) framework, education and training policies play a crucial role in reducing poverty and ensuring an equitable distribution of economic resources.

Parameter	*Number of People*	*Percentage*
Overall		
Population of India (in age group 15–59 years)	711,109,338	100.00
Potential learners (in age group 15–59 years)	363,546,589	51.12
Classification by age group		
Learners in the age group (15–18 years)	39,876,844	10.96
Learners in the age group (19–23 years)	87,208,589	23.98
Learners in the age group (24–59 years)	236,461,156	65.04
No. of SC/ST learners		
Learners in the age group (15–18 years)	10,275,360	25.76
Learners in the age group (19–23 years)	22,562,933	25.87
Learners in the age group (24–59 years)	69,313,759	29.31

Source: Ministry of HRD, 2009–10.

About one-quarter of all children of primary school age live in urban areas and the remaining three quarters in rural areas (Hueber, 2007). Absence of skill development courses and lack of employability with present school education has been observed among the poor people quite often. It becomes the ultimate goal of the government to strengthen education system to reduce the school dropout and revisit the school syllabus to make them job-oriented by introducing short-term, market-oriented, demand-driven programs suited to the characteristics and circumstances of the target group.

Recommendations:

Recommendation	*Players responsible*	*Target learner*	*What it means for the learner?*
Provide voucher-based support to the learner to pursue skill training	Government	XIIth class pass or below XIIth	Continued financial support to facilitate the learner's employability skills
Collaborate with NGOs/panchayats to inform women and their families regarding VET	Government and private	Women	Increase women participation in VET, in turn increasing economic status of women
Introduce regional career and counselling windows	Government	All groups of learners	Informed decision-making at the learner level

Provide learner-centric training	Government and private	All groups of learners	Customized training programs to meet long-term aspirational needs of the learner

The need of the hour is to synergize the efforts and resources to provide a feasible platform for vocational education and skill development. The ideal way forward will be to seek partnerships that will strengthen the process of quality and inclusive education. More than 50% of the total population in the age group of 15–59 years are potential learners and require some type of skill training. The need of the hour is to synergize the efforts and resources to provide a feasible platform for vocational education and skill development.

Conclusion

Government is committed for the skill enhancement program through 'Skill India Mission' in order to provide better quality of skill training and reduction in supply demand mismatch by 2022 to achieve the target of skilled workforce. MSDE gives umbrella for programs, run by different ministries for the promotion of skill development; through the Digital India people of hill area and marginalized section of society are connected to upgrade their skill.

Success of this mission depends on three main factors:

1. Inclusion of marginalized groups as discussed above;
2. Inculcating marketable skills. By marketing skills it not only means emergent domestic market but also the high standards of global market for better contribution to national economy.
3. Creating channels for connecting market and human resource. That includes building on strengths and weeding out weaknesses. These channels would be helpful in imparting market viable skilling, employability of skilled worker (Human Resource) development of marketable products and services and marketing produced products and services.

The channels need to be responsive which can foster tailor-made solutions for changing employment market for maximum returns. This can only happen at behest of government agencies and private players where other actors such as civil society, NGOs, independent institutes

and even independent actors are connected.

Market has its own dynamics and imparted skills must cater to that. Now that market is dynamic and keeps evolving, it is important to keep pace with times, this can happen only through proper policy vision. Government of India seems to be committed in that direction and is showing its commitment through various policies and programs.

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15

Developing Learning Resources and Model Curricula for Skill Development

Vijayata Chaudhary * & Gurmeet Singh**

Introduction

The idea is to raise confidence, improve productivity and give direction through proper skill development. Skill development will enable the youths to get blue-collar jobs. Development of skills at an young age, right at the school level, is very essential to channelise them for proper job opportunities. There should be a balanced growth in all the sectors and all jobs should be given equal importance. Every job aspirant should be given training in soft skills to lead a proper and decent life. Skill development would reach the rural and remote areas also. Corporate educational institutions, non-government organizations, government, academic institutions, and society would help in the development of skills of the youths so that better results can be achieved in the shortest time possible. Education, job training skills, and an ability to learn and adapt quickly are fast becoming requirements for workers. These skills help workers both survive and thrive. So introduction of skill

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development learning resources in curricula will help the youth in employment and to build the nation powerful also.

Skill development brings returns to the individual, the employing enterprise and the economy as a whole. Therefore, all stakeholders, the government–both at centre and state levels, the enterprise (public and private) and the individual should share the burden of mobilizing financial or in-kind resources for skill development.

Skill Development

Skills and knowledge are the driving forces of economic growth and social development of any country. They have become even more important given the increasing pace of globalization and technological changes taking place in the world. India has the lowest proportion of trained youth in the world. The quantitative dimension of India's skill development challenge is that 80 per cent of new entrants to the workforce have no opportunity for skill training. Against 12.8 million per annum new entrants to the workforce, the existing training capacity is only 3.1 million per annum. The Prime Minister's National Council on Skill Development has endorsed a Vision to create 500 million skilled people by 2022, whereas, at present only about 2 per cent of the workforce has formal training (plus another 8 per cent with informal training) as against 96 per cent in Korea, 75 per cent in Germany, 80 per cent in Japan and 68 per cent in the United Kingdom. This clearly highlights the gaps in the skill development system and the need for adequate resources and resource funds to fill these gaps.

Meaning of Curriculum

The meaning of curriculum is that total learning experience provided by a school. It includes the content of courses (the syllabus), the methods employed (strategies), and other aspects, like norms and values, which relate to the way the school is organized. Curriculum can refer to the entire program provided by a classroom, school, district, state, or country. A classroom is assigned sections of the curriculum as defined by the school. So Curriculum refers to the means and materials with which students will interact for the purpose of achieving identified educational outcomes.

Meaning of Skill

A skill is the learned ability to carry out a task with pre-determined results often within a given amount of time, energy, or both. In other words, the abilities that one possesses. Skills can often be divided into domain general and domain-specific skills. For example, in the domain of work, some general skills would include time management, teamwork and leadership, self-motivation and others, whereas domain-specific skills would be useful only for a certain job. Skill usually requires certain environmental stimuli and situations to assess the level of skill being shown and used.

The Current Status of Skill Development in India

Vocational Education

Formal VE in India is implemented at senior secondary school level, and funded by the Ministry of Human Resource Development (MHRD), Government of India. There are 9,583 schools offering 150 vocational courses of two-year duration in broad areas of primary, secondary, and tertiary sectors of the economy. In addition, National Institute of Open Schooling (NIOS) also imparts VE in 80 courses. Total enrollment in VE courses of all these schools is roughly 6,00,000. Vocational education in India suffers from a number of constraints and structural deficiencies:

- Merely 8 per cent of all Senior Secondary Schools in India impart VE.
- Only 3 per cent of the students are under the ambit of VE against the target of 25 per cent of all Grade 11-12 students.
- Absence of linkage with changing market needs – dominance of supply-side factors;
- Qualitative aspects – poor infrastructure, absence of qualified staff, obsolescence;
- Low-esteem for VE – low priority, lack vertical mobility
- Absence of private sector in strengthening VE

International Models of Vocational Education

Vocational education has taken different forms in different countries depending upon their historical, social and political milieu. There are basically three types of vocational systems – the American, the French and the German systems. In the American system, general high schools

keep all students in the same school till the end of secondary level irrespective of their aptitudes, and add vocational programmes to the academic curriculum differentiating their learning paths. According to Gasskov (2000), more than 60 per cent of high school students in the United States enrol in at least one vocational subject. Variants of this system are in vogue in other countries like Sweden and the United Kingdom. The French system consists of separate vocational and technical schools along with general education schools separating the students in the lower classes into the two streams depending on their aptitudes. The 'dual system'operating in Germany combines training in industry with part-time instruction in vocational schools and is promoted by employers. Again, different countries have opted for variants of vocational education and training systems involving combinations of these three systems.

Conclusion

From the above discussion we can say that institutional higher education capacities in India are unevenly distributed across the country. There is also a clear dominance of pure science, arts and commerce subjects. While 56 per cent of the higher education institutes are devoted to arts, science and commerce, medical colleges, engineering and technology colleges and polytechnics comprise ten per cent, seven per cent and six per cent of total institutes respectively. The dominance of arts, science and commerce in higher education has prevented the bulk of the pass-outs from the system from acquiring skills required by the manufacturing and service industries.

Skill building can be viewed as an instrument to improve the effectiveness and contribution of labor to the overall production. It is an important ingredient to push the production possibility frontier outward and to take growth rate of the economy to a higher trajectory. Skill building could also be seen as an instrument to empower the individual and improve his/her social acceptance or value.

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16

Skill Development in Higher Education Pedagogy for Skill Development (SD)

Sangeeta*

The Asia-Pacific region is home to 45% of the world's unemployed youth of 15-24 years old. The purpose of technical and vocational education is to promote and support the development of the individual, society and in large the country by facilitating transition from school to work for lakhs of school leavers. It will also address the current key problem of developing country–the poverty. It will help us to find out the current key issues like–how can we train the poor to make a living and be self-sufficient?

Technical and vocational education will provide the relevant skills to a great variety of people of different sectors, either they are employed, self-employed, or unemployed. Technical and vocation education will facilitate transition from school to work and will protect school leavers from unemployment and provide some skills to disadvantaged groups, so as to allow them to earn a more decent income. But question is where is it best organized–in schools, college, vocational centres, or enterprises?

Most developing countries, technical and vocational education is delivered by multiple entities – different government ministries, NGOs

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and private sectors. These organization gives training at various level:

Pre-employment Training

Ministries of education	–	School and college based skills development training
Ministries of Labor	–	Vocation training centers
Private for profit	–	School, college and vocational training centers
Private non-profit	–	School, college and vocational training centers

Non-formal Skills Trainings

Enterprise-based (on the job) training
Formal private enterprise-based training
Informal private enterprise-based training

The lack of coordination in many skills providers leads to only brake links between skill provision and skill demands, but also to fragmentation of other critical areas, e.g. government strategies, policies and development plans; government programs, government committees, legislative frameworks, certification and qualification frameworks, information and monitoring systems and financing. This often results in parallel or contradictory policies which leads to the absence of a coordinated strategy for technical and vocational education.

Decisions on administration, staffing, financing and courses offered are often determined at the national level rather than institute level. This frequently results mismatch between training content to the market demand. How can KaushalKendras ensure that available skills are used productively? To answer these questions, countries must consider various facets of skills policies in concert. KaushalKendras should adopt a systematic and comprehensive approach to skills policies that can:

Help to Prioritise Investment of Scarce Resources

It is costly to develop a population's skills; therefore skills policies need to be designed so that these investments reap the greatest social and economic benefits. An approach to skills policies that considers how demand for activation of and the effective use of skills influence each other can improve efficiency in spending.

Strengthen the Case for Lifelong Learning

By seeing skills as a tool to be honed over an individual's lifetime, the Skills Strategy allows countries to assess the relative impact of different institutional and informal settings for skills development – from early childhood education through formal schooling to formal and informal learning throughout a lifetime – with the aim of balancing the allocation of resources to maximize outcomes.

Foster A Whole of Government Approach

If skills are to be developed over a lifetime, then a broad range of policy fields are implicated, including education, science and technology, family, employment, industrial and economic development, migration and integration, social welfare, and public finance. Creating linkages between different policy fields is essential for ensuring efficiency and avoiding duplication of effort. A coordinated approach to skills policies allows policy-makers to detect policy trade-offs, such as between immigration and labour-market integration, or between spending on early education or investing in welfare programmes later on.

Combine Short-term and Long-term Considerations

Skills policies cover both ad hoc policy responses to emerging or cyclical challenges, such as rapidly rising numbers of unemployed people when economies contract, or acute skills shortages when sectors boom, and longer-term strategic planning for how an economy and society should evolve and the structural changes that might be required. The strategic view offered by the Skills Strategy can help countries to maintain a long-term vision while becoming more responsive to immediate challenges at the same time.

Include all Relevant Stakeholders

Designing effective skills policies requires more than co-ordinating different sectors of public administration and aligning different levels of government: a broad range of non-governmental actors, including employers, professional and industry associations and chambers of commerce, sector councils, trade unions, education and training institutions and, of course, individuals must also be involved.

Provide a Global Perspective

Given the growing interdependence among countries' economies, a global perspective on how the talent pool of skills is developing and deployed, is essential. Strategy that helps countries to identify the strengths and weaknesses of their national skills systems, benchmark them internationally, and develop policies that can transform better skills into better jobs, economic growth and social inclusion. To this end, it addresses three inter-related policy levers:

1. Developing Relevant Skills

Ensuring that the supply of skills is sufficient in both quantity and quality to meet current and emerging needs, is a central goal of skills policies. Supply can be ensured by developing the right mix of skills through education and training, and influencing the flow of skills by attracting and retaining talent. Supply is not only responsive to demand, it can also have an important influence on demand.

2. Activating Skills Supply

People may have skills, but for a variety of reasons may decide not to offer them to the labour market. Many individuals are out of the labour force by choice, because of their personal/family circumstances, or because there are financial disincentives to work. Integrating under-represented groups into the labour force can increase the skills base in an economy. However, this requires identifying inactive individuals, possibly re-training them, ensuring that the benefit system offers them financial incentives to enter or return to the labour market, and removing demand-side barriers to hiring.

3. Putting Skills to Effective Use

Investing in skills is just the first step; successful skills policies also need to ensure that available skills are used effectively so that no investment is wasted. Moreover, the match between the skills demanded in a job and the skills of the person doing the job, has an impact on further skills development: unused skills tend to atrophy, while new skills are, to a large extent, developed informally, often through work experience.

Design Efficient and Effective Education and Training Systems

Consider both National Aspirations and Local Needs

Education and training systems need to have adequate access to information on the demand for skills and the drivers of changes in skills demand. There is generally no "right" proportion of certain education qualifications in specific occupations. What is "right" depends on a range of context-specific factors, the structure and skills needs of the economy, and the country's overall aspirations. And it can change over time. Changes in earnings differentials, and the private and public rate of return associated with different education programmes, provide some indication as to the extent to which additional investments in education are warranted. At the same time, it is widely recognised that education also serves a consumption function in the sense that individuals seek to develop skills beyond those that they use in the workplace even if those skills are not associated with immediate earnings advantages, they may be related to significant social benefits.

All skills needs have to be identified, articulated and translated into up-to-date curricula and relevant programmes; and systems need to allow individuals to move flexibly between pathways, including between vocational and academic tracks and other non-formal learning pathways. KaushalKendras, especially those of emerging countries whose skills needs are changing particularly fast, can reach national aspirations through targeted education programmes.

A strategic approach to skills policies also needs to take into consideration the local differences, particularly in emerging economies where these differences can be large. National policy goals can be better achieved by allowing greater differentiation locally. Collaboration among KaushalKendras, employers and economic-development officials should be supported to ensure that the training provided meets the needs of the economy as a whole and of different local labour markets in particular.

Green vocational education and training programmes are just emerging, while knowledge-intensive green activities are more frequently used by firms to help their workers to acquire the knowledge they need and to upgrade their skills. Workers already trained in, say, carpentry, can easily learn the new green skills, they will require,

provided that they have access to the right types of "top-up" training but firms are often not sufficiently aware of the need for green skills for the future, and their investment in green training or green knowledge-intensive activities is often limited, as is their awareness of the impact of regulations on their industry.

In some countries, university training is skewed away from technical subjects that are needed for the economy. For example, despite high unemployment rates among college-educated workers, firms in Egypt identified inadequate skills and education as among the top five constraints to business. Although educational reforms and incentives to study technical subjects are needed, these kinds of policies have limited support because a humanities or law degree are important credentials for securing a government job.[1]

Provide an appropriate mix of general and occupation-specific skills are expected from education and training systems. For any education and training programme, decisions need to be taken about the right mix of knowledge, skills and even behaviour, attitudes and values that it should impart to serve desired economic and social outcomes. Since skills requirements change and people need to adapt and learn new skills over their working lives to ensure occupational mobility, compulsory education is where people should master foundation skills and where they should develop the general desire and capacity to engage in learning over an entire lifetime.

Adapting to 21st century needs means revisiting each dimension and how they interact: knowledge – relevance required: Students' lack of motivation, and often disengagement, reflects the inability of education systems to connect content to real-world experience. This is also critically important to economic and social needs, not only students' wishes. There is a profound need to rethink the significance and applicability of what is taught, and to strike a far better balance between the conceptual and the practical. Questions that should be answered include:

- Should engineering become a standard part of the curriculum?
- Should trigonometry be replaced by more statistics?
- Is long division by hand necessary?
- What is significant and relevant in history?
- Should personal finance be taught to everyone - and starting in which grade?

- Should entrepreneurship be mandatory?
- Should ethics be re-valued?
- What is the role of the arts – and can they be used to foster creativity in all disciplines?

Yet the curriculum is already overburdened with content, which makes it much harder for students to acquire (and teachers to teach) skills via deep dives into projects. There is a reasonable global consensus on what the skills are, and how teaching methods via projects can affect skills acquisition, but there is little time available during the school year, given the overwhelming amount of content to be covered. There is also little in terms of teacher expertise in combining knowledge and skills in a coherent ensemble, with guiding materials, and assessments.

Beyond compulsory education, an effective way to ensure that young people are well-prepared to enter the labour market, is to use the workplace as a place of learning, particularly for vocational education and training, but also for more academically oriented university programmes. Both work and studying may have a positive effect on the acquisition of skills. When employers are involved in designing curricula and delivering education programmes, students seem to have a smoother transition from education into the labour market. Compared to purely school-based systems, learning in the workplace offers several advantages: it allows trainees to develop "hard" skills on modern equipment, and "soft" skills, such as teamwork, communication and negotiation, through real-world experience. Hands-on workplace training can also help to motivate disengaged youth to stay in or re-engage with the education system. Workplace training also facilitates recruitment by allowing employers and potential employees to get to know each other, while trainees contribute to the output of the training firm. Workplace learning opportunities are also a direct expression of employers' needs, as employers will be ready to offer opportunities in areas where there is a skills shortage.

Use Funding Instruments that Help to Steer Skills Development

A central objective of skills policies should be to ensure that the costs of effective and equitable education and training are shared among individuals, employers and government in accordance with the expected benefits. The appropriate balance between the costs borne by individuals

(in the form of tuition fees, but also living expenses and foregone earnings), by employers (by providing or funding workplace training) and those borne by the public budget. However, effective funding instruments exist that address objectives of efficiency and equity.

Policy-makers need to evaluate the extent to which their funding systems are sustainable and which factors might influence the cost of skills development in the future. These could include demographic changes, whether participation in education is likely to grow or decline, and the likelihood of whether the unit cost of higher education will rise. Maintaining a longer-term perspective can help countries to adopt reforms that may not have immediate impact. For example, even in tight fiscal and recovery economic conditions, governments tend to emphasis policies that support job creation and protection, rather than skills supply. However, cutting investment in skills in times of crisis and fiscal consolidation, is inefficient in the long-term. Rather, governments should ensure that fiscal-stimulus packages leverage benefits for skills development and demand for skills, as well as achieving other objectives. When governments do have to cut budgets, they should do so in a way that minimises the impact on future skills supply, and on vulnerable groups within this system.

Remove Barriers to Investing in Further Learning

Preparing young people for their entry into the labour market with up-front education and training, is only one facet of skills development; working-age adults also need to develop their skills so that they can progress in their careers and meet the changing demands of the labour market. A wide spectrum of full- or part-time adult-learning activities is offered by a variety of providers to cater to different learning needs. These activities range from work-related employee training, formal education for adults, second-chance courses to obtain a minimum qualification or basic literacy and numeracy skills, language training for immigrants, and labour-market training programmes for job-seekers, to learning activities for self-improvement or leisure.

When asked, what would help people to overcome obstacles to training, the most common responses were: flexible working hours, individualized programmes of study, and access to good information and advice. These need to be addressed in conjunction with other policy interventions. There are numbers of policy approaches that can help to

dismantle some of these barriers.

These include:

- *Greater transparency*: Making the returns on adult education and training more, transparent helps to increase the motivation of users to invest in adult education and training.
- *Information and guidance for potential learners:* Less-educated individuals tend to be less aware of education and training opportunities or may find the available information confusing. A combination of easily searchable, up-to-date online information and personal guidance and counselling services to help individuals define their own training needs and identify the appropriate programmes is needed, as is information about possible funding sources.
- *Recognising learning outcomes*: Clear certification of learning outcomes and recognition of informal learning are also incentives for training. Transparent standards, embedded in a framework of national qualifications, should be developed alongside reliable assessment procedures.
- *Flexible delivery of relevant programmes*: It is essential to ensure that programmes are relevant to users and are flexible enough, both in content and in how they are delivered (part-time, flexible hours) to adapt to adults' needs. A number of countries have recently introduced one-stop-shop arrangements, with different services offered in the same institution. This approach is particularly cost-effective as it consolidates infrastructure and teaching personnel and makes continuing education and training more convenient.

All firms, need to overcome various obstacles by investing in employee training. These obstacles include lack of time, workload pressures, resources and cost; complicated paperwork/red tape; lack of enterprise/managers' skills, experience, data and support; an operational culture that does not include training; learning needs that are not met by the training offered; lack of awareness; and market position.

Raise the Quality of Education

Governments need to raise the quality of education and training at all levels so that investment in skills development is effective and people

leave education not only with a qualification/diploma, but also with the corresponding skills. Teachers need to be well-versed in the subjects they teach in order to be adept at using different methods and, if necessary, changing their approaches to optimise learning. They also need a rich repertoire of teaching strategies, the ability to combine approaches, and the knowledge of how and when to use certain methods and strategies. Teachers have to be able to work collaboratively with other teachers and professionals or para-professionals within the same organisation, or with those in other organisations, in networks of professional communities and in different partnership arrangements, including mentoring other teachers. They also need to acquire strong technology skills and the skills to use technology both as teaching tools and as information-management systems to track student learning.

Many education systems face a daunting challenge in recruiting the teachers needed to ensure that participation in education leads to the desired learning outcomes, particularly in shortage areas, and retaining them once they are hired. The issue of teacher demand and supply is both complex and multi-dimensional, as it reflects several challenges:

How to expand the pool of qualified teachers?
How to address shortages in specific subjects?
How to recruit teachers to the places where they are most needed?
How to distribute teachers in equitable and efficient ways?
How to retain qualified teachers over time?

Policy responses are needed at two levels - the first concerns the nature of the teaching profession itself and teachers' work environment. Such policies should seek to improve the profession's general status and competitive position in the job market. The second involves more targeted responses and incentives for particular types of teacher shortage, recognising that there is not a single labour market for teachers, but a set of them, distinguished by school type and characteristics, such as subject specialisation. Competitive compensation and other incentives, career prospects and diversity, and giving teachers responsibility as professionals are important parts of strategies to attract the most talented teachers to the most challenging classrooms. Active recruitment campaigns can emphasise the fulfilling nature of teaching as a profession, and seek to draw in groups that might not otherwise

have considered teaching.

Where teaching is seen as an attractive profession, its status can be further enhanced through selective recruitment that makes teachers feel that they will be going into a career sought after by accomplished professionals. Initial teacher education is another important part of the equation to ensure the supply of high-quality teachers in the longer term.

Yet, no matter how good the pre-service education for teachers is, it cannot be expected to prepare teachers for all the challenges they will face throughout their careers. High-quality professional continuing development is necessary to ensure that all teachers are able to meet the demands of diverse student populations, effectively use data to guide reform, engage parents, and become active agents of their own professional growth. There are numbers of other factors that are associated with better performance in schools.

Quality at this level of education can be assured by establishing goals and regulations; designing and implementing curricula and standards; improving the qualifications, training and working conditions for staff; and involving families and communities.

Promote Equity in Educational Opportunities

Inequality is deepening in many areas of life; education and training can help to bridge this divide. Improving equity in skills development is both socially fair and economically efficient. Moreover, research has long confirmed that equity and quality in education are not mutually exclusive. On the contrary: the highest-performing education systems across countries are those that combine quality with equity. Individuals who have low levels of skills, because they do not have access to high-quality education, because they fail to succeed in education or because they do not get a second chance to improve their skills later on, are much more likely to have poor labour-market and social outcomes.

Foundation skills have a profound relationship with economic and social outcomes in a variety of cultural contexts, and are related to those outcomes independent of the level of formal qualifications or diplomas. One reason for this is that direct measures provide a more up-to-date picture of an individual's skills because they reflect both the outcomes of skills gain and skills loss over a lifetime as well as the learning that has taken place in various contexts. Providing good-quality early

childhood education and schooling, particularly to children from socio-economically disadvantaged backgrounds, is an efficient way of ensuring that children start strong in their education careers.[2]

Governments can prevent school failure and dropout by eliminating system-level practices that undermine equity, such as grade repetition and early tracking, by managing school choice to avoid segregation, which can exacerbate inequities, and by designing alternate upper secondary education pathways to ensure that students complete their education. Governments can also support those schools that have higher proportions of disadvantaged students by investing in the kind of school leadership that fosters a supportive learning environment, attracting and retaining high- quality teachers, and linking schools with parents and communities.

Financing mechanisms can be instrumental in mitigating inequities, particularly after compulsory education. Equal access to education can ultimately reduce income inequality, and public funding and tax relief can be leveraged to ensure that financial considerations are not a barrier to skills development. Government should back their overall funding approach with a comprehensive student-support system to make it easier for disadvantaged students to participate in further education and training. A mixed system of loans and grants, available to students in the public and private sectors alike, can be particularly helpful. These schemes can assist disadvantaged students in covering tuition fees and living costs while obviating the need to spend excessive hours in part-time work and/or rely too much on family support. Means-tested grants help those with greater need and who might underestimate the net benefits of post-compulsory education.

Some disadvantaged groups require special support to ensure that they have access to high-quality education and training and manage the school-to-work transition. In most countries, young people, with an immigrant background, do not perform as well in school as their peers who do not have an immigrant background, even after accounting for their socio-economic status. They are over-represented among low-educated individuals who are not in employment, education or training. Policies aimed at fully integrating immigrant families into host countries should focus on providing language instruction at all levels, particularly for very young children. Yet, children at the critical age of 3 or 4 are usually under-represented in language classes.

But proficiency in the language of instruction, in addition to mastery of the mother tongue, is crucial if immigrant students are to participate fully and perform well in school, as can be seen in the success of targeted language policies in many countries. Children of immigrants and their parents often need some additional counselling to inform them about the education choices available to them.

For individuals who leave education with very low levels of skills, second-chance options for education can provide a way out of a low skills/poor-economic-outcome trap. Surveys show that substantial numbers of adults have minimal levels of foundation skills: depending on the country, between one-third and two-thirds of the adult population lack the minimum core skills necessary to engage in further learning and function in modern economies.[4]

Governments can offer second-chance foundation-skill courses for these individuals and incentives for employers to send their low-skilled employees to these courses. Some countries have developed successful strategies to reach low-skilled adults by combining different modes and purposes of learning, often in non-school environments. Thus, people, who have been at the margins of or excluded from the labour market, can work their way back in by developing their skills. While gender parity in education has generally been achieved in much of the industrialised world, it remains an elusive goal in parts of the developing world. While socio-economic background tends to have an impact on educational outcomes in virtually all countries, the problem is compounded in countries where the poorest households regard children as a source of income and where childlabour remains a concern. At the same time, some countries have addressed such challenges very successfully, often through changing incentive structures.

Promote Equity in Educational Opportunities

While governments tend to think and act primarily in national terms, economic activity is increasingly international. Skills policies increasingly need to adopt a global perspective in addition to catering to the needs of the national economy. Some countries, particularly emerging economies with rapidly changing skills needs, engage in cross-border education partnerships and other forms of knowledge transfer. Facilitate knowledge transfer and cross-border education co-operation on skills policies between source and destination countries can increase

benefits to both. Policies that encourage cross-border tertiary education help a country to expand its system more rapidly than if it had to rely on domestic resources alone. They can also help to improve the quality, variety and relevance of domestic higher-education – three key elements that require a critical mass of high-quality academics. A growing number of emerging economies in Asia have allowed foreign universities to introduce cross-border tertiary education on their territories.

Creating networks of expatriates can also have positive effects on both technology transfer and investment. Organizations of expatriate scientists have been instrumental in encouraging firms in the host country to invest in the expatriate group's country of origin. There is also evidence that networks of expatriates have initiated joint research projects with scientists in their countries of origin, thus improving the flow of technology and information.[5]

Invest in Skills Development Abroad

Another way to link migration and skills policies across borders is to invest in people abroad. This has the double advantage of providing well-trained workers to branches of firms located abroad, building up skills in the host country, and reducing the incentive for emigration, especially among higher-skilled individuals, since there are work opportunities available locally.

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Digital Literacy
An Emerging Life Skill Among Future Leaders

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Introduction

Computers have provided an entirely new medium for literacy (reading and writing). Digital literacy has led to great increases in information that can be conveniently and quickly accessed and facilitates the collaboration and sharing of knowledge. With other forms of digital literacy, we are also seeing an increasing reliance on digital modes of communication. Word processing is now the standard for writing and there has been a global uptake of email and usage of the World Wide Web. In addition sites like Facebook, Twitter, YouTube, all speak to digital literacy leading to greater global participation in literacy. There is now the potential for global access to knowledge and an interest in creating more multi-lingual and multi-literacy online environments as digital technologies facilitate global and intercultural exchange. The computer has become a part of global business and the education culture, to this end digital literacy has a direct effect on a country's economy. '…digital literacy is so closely connected to the traditional association of literacy and democratic rights, as well as to more specific notions of e-government' (Dobson &Willinsky, 2009). All of this knowledge, available at our finger tips, knowledge is power,

and to access the knowledge we need to be digitally literate.

Digital Literacy in 21st Century

The definition of literacy has evolved in the 21st century. The basic definition of literacy means to be able to read and write. To be successful in today's digital world, literacy goes far beyond being able to read and write. What it means to be digitally literate has reflected the change in how information is processed, delivered, and received in todays highly connected world. The University Library of the University of Illinois defines digital literacy as: The ability to use digital technology, communication tools or networks to locate, evaluate, use and create information. The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers. A person's ability to perform tasks effectively in a digital environment. Literacy includes the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments.

Digital literacy also includes learning how to use technology's tools. The list of digital tools is never ending. New releases make something that was new yesterday old today. Educators as well as students must thoughtfully determine which tools are essential to their digital literacy tool kit. Tool kits vary from one educator to another as they do from one student to another. Once you have mastered a particular tool, move on to another so you can increase your digital power.

Digital literacy does not replace traditional forms of literacy. It builds upon the foundation of traditional forms of literacy. Digital literacy is the marrying of the two terms digital and literacy; however, it is much more than a combination of the two terms. Digital information is a symbolic representation of data, and literacy refers to the ability to read for knowledge, write coherently, and think critically about the written word.

A digitally literate person will possess a range of digital skills, knowledge of the basic principles of computing devices, skills in using computer networks, an ability to engage in online communities and social networks while adhering to behavioral protocols, be able to find, capture and evaluate information, an understanding of the societal

issues raised by digital technologies (such as big data), and possess critical thinking skills.

Why to Use Digital Literacy?

- Digital literacy is one component of being a digital citizen - a person who is responsible for how they utilize technology to interact with the world around them.
- Digital technology allows people to interact and communicate with family and friends on a regular basis due to the "busy constraints" of today's world.
- Not only do white-collar jobs require digital literacy in the use of media to present, record and analyze data, but so do blue-collar jobs that are looking for way to increase productivity and analyze market trends, along with increase in job safety.

Digital Literacy as a Bunch of Life Skills

Modern life skills encompass an intricate system of knowledge, skills, abilities, and motivational factors that must be developed according to the needs of their specific domains. The populations where digital literacy is most important are ICT users, e-business professionals, and ICT professionals.

1. ICT user skills are those that should be learnt by all citizens of the knowledge society in order to select and apply ICT systems and devices effectively; utilise common generic software tools in their private lives; use specialised tools for work; flexibly adapt to changes in infrastructure and applications.
2. e-Business skills are the capabilities needed to exploit business opportunities provided by Internet based applications. These skills are used, among others: to rationalise management; to promote more efficient and effective performance of organizations; to explore new ways of conducting established businesses; to establish new businesses.
3. ICT professionals' skills require high-level, specialized knowledge used for researching, developing, and designing ICT tools; managing, producing, marketing, and selling tools and services; consulting, integrating, and installing ICT supported applications; maintaining, administrating,

supporting, and servicing ICT systems.

Cross-curricular Digital Literacy Skills

Digital literacy is essential for cross curricular writing and research skills. Whereas the school library might have been the first port of call for research 20 years ago, now the internet is the go-to resource. However, pupils – while they might appear internet savvy – often find it difficult to gauge the validity and veracity of information presented to them.

1. It is essential that pupils are taught to be discerning and critical when viewing search results. An understanding of how search results are determined, and also how search results can be manipulated for advertising purposes, is key to pupils developing an understanding and critical judgement of which search results are valid.
2. Pupils also need to be able to determine which results on the search engines represent original primary source material, and which are comprised of secondary source material. Whether or not the information has been vetted, fact checked, and has been published by a verifiable third party source are also points which students need to be taught.
3. If students cannot discriminate effectively, then subjective, narrow and opinionated content is likely to be presented as objective fact in pupil essays – which will negatively impact on marks – especially in arts subjects.
4. There are various ways in which these skills can be taught in ICT, History and English. Teaching pupils the rules of Wikipedia, and acting as editors, is one unconventional yet effective method.
5. Pupils also need to understand how and why plagiarism software is used by academic institutions. They also need to be encouraged to check their own submitted coursework using applications such as Turnitin, Writecheck for students and Copyscape, to reduce the likelihood of false positives.
6. Respecting copyright and avoiding intellectual property and copyright infringement is a skill which needs to be taught effectively in schools. Copyright infringement has serious

consequences, whether it is by stealing photographs via Google for use in projects, to downloading movies or music without paying. The principle which defines why copyright infringement is morally and legally wrong needs to be embedded early in secondary education, if not by the end of KS2.

7. Copyright infringement can have practical implications in schools. Media Studies, film studies, graphic design, photography and art coursework often requires an adherence to licences and use of Creative Commons Licenses if images have been sourced via the internet. Non-compliance could result in lower marks. If pupils' projects are showcased on a school website, the school could become liable if images, music or text copyright has been infringed. A 'DMCA' complaint to Google could lead to the school website being removed from search engines. Recent changes in the law regarding 'small claims' mean a photographer can invoice copyright infringers and file claims using the small claims court. £70 plus costs for each stolen photograph used on a website would be considered a reasonable fee.
8. Creating strong passwords, texting and emailing responsibly, being aware of the Malicious Communications Act and Communications Act regarding comments on Twitter and Facebook, being aware of preventing, avoiding and dealing with the effects of cyber bullying, are all aspects of digital literacy which affect daily lives both in and out of school.

Digital Literacy Skills for Students

Digital Literacy is a key 21st century skill which significantly elevates students' learning capacities. It is essential that opportunities are provided for all pupils, and ideally, not in situations which are limited to in-school use. To garner the maximum benefit from digital literacy teaching, pupils need to be able to use the skills effectively, and of their own volition, outside school. For example, teaching pupils to use Photoshop is a worthwhile industry standard skill which is not only useful for cross curricular IT skills, but also for job and career prospects.

However, it is unlikely all of the students will have access to Photoshop at home. If the Photoshop skills are extended to utilising transferable image editing and manipulation skills in iPhone apps, open source software, and free web applications, then all the pupils will have access, and probably the motivation, to use these digital literacy skills to enhance their own photos, websites, and social media profile pictures. Their skills will develop faster and to a higher standard due to the increased usage and practice – far more so than if the skills are limited to using Photoshop in school ICT lessons. Similarly, when using hardware, pupils need to be made aware of any useful crossover skills. The ability to use a PC is useful, but being able to identify the links and common IT principles to then be able to use a Mac, or a Linux workstation, or an iPad, are more useful skills. Broad IT skills are more useful than specific platform awareness. A pupil's confidence in being prepared to engage with any digital technology is a key objective all schools should embed in ICT teaching.

Conclusion

After a brief discussion it is evident to conclude that digital literacy is more than knowing how to send a text or watch a music video. It means having the knowledge and ability to use a range of technology tools for varied purposes. A digitally literate person can use technology strategically to find and evaluate information, connect and collaborate with others, produce and share original content, and use the Internet and technology tools to achieve many academic, professional, and personal goals. Technology is changing day by day. Every day technology changes with new advancements. It is gone the days when students rely on the teachers for the whole learning. Nowaday's students are well informed than teachers. So it is the need of the time to be digitally literate and use the new technology confidently, intelligently and in a purposeful way. Technology is ever growing and changing in the digital era. In this scenario it will be right to say that technology will not replace teachers, but teachers, who use technology, will replace those who do not. Teachers must use technology in the class and outside the class to make his/her teaching interesting, effective and fruitful. Digital literacy itself is a bunch of various digital skills which can acquire with practice.

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डिजिटल इंडिया के लिए कौशल विकास पत्रकारिता की आवश्यकता

विशाल शर्मा*

सूचना क्रांति के दौर में जब कौशल प्रधान इंडस्ट्री को लेकर देश भर में माहौल बना हुआ है तो जाहिर है ऐसे में मीडिया इंडस्ट्री भी इससे अछूती नहीं रह सकेगी। मीडिया जगत में कौशल विकास को लेकर रायशुमारी की चर्चा अभी से नहीं बल्कि इंटरनेट के उदय होते ही होने लगी थी। इंटरनेट के आते ही अखबारों और उनकी खबरों का प्रभाव समाज के साथ-साथ कंप्यूटर की डिजिटल स्क्रीन पर साफ दिखने लगा था। मोबाइल और स्मार्ट फोन के आने से तो पत्रकारिता का स्वरूप ही बदल गया। सवा अरब से ज्यादा की आबादी के देश में जहां हर दूसरे हाथ में स्मार्ट फोन का दावा हो उसके लिए अखबारों को खुद का अस्तित्व बचाने के लिए इन माध्यमों के हिसाब से चलने को मजूबर होना पड़ा। इन्फॉर्मेशन के डिजिटल अवतार ने नए भारत पर अपना रंग दिखाना शुरू कर दिया। इन नए प्रयोग से उसकी पहुंच दूसरे माध्यमों से बिल्कुल अलग दिखाई देने लगी। साथ ही, सामाजिक और आर्थिक रूप से सशक्त तबके पर इसकी पकड़ हर दिन मजबूत होती गई। आलम यह हो गया कि ग्लोबल दर्जा हासिल करने वाली अंग्रेजी भाषा ही नहीं बल्कि हिंदी और स्थानीय भाषाओं को भी अपनी मौजूदगी के लिए ई-माध्यम के ट्रेंड का हिस्सा बनना पड़ा। नए माध्यम से जुड़ाव के लिए जाहिर है नए कौशल की जरूरत भी पड़ती है। ऐसे में पत्रकारिता के बदलते स्वरूप में कौशल विकास को लेकर नए प्रयोग भी हो रहे हैं। सोशल नेटवर्किंग साइट्स—फेसबुक, ट्विटर, इंस्टाग्राम, यू-ट्यूब, गूगल प्लस से लेकर तमाम सर्च इंजन

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का अखबारों और उनके दफ्तरों में होना अब आम बात है। मोबाइल कम्युनिकेशन ने तो उसे और बढ़ा दिया। पल भर में घटना की सटीक जानकारी की चाह और खबर का असर व फीडबैक ने व्हाट्सअप जैसी एप्लिकेशन को एक नया बाजार दे दिया है।

अखबारों में कौशल और तकनीक का हाल

प्रिंट से डिजिटल की तरफ बढ़ते रुझान ने पत्रकारों की भाषा ही नहीं बल्कि तकनीकी ज्ञान का भी साक्षात्कार लेना शुरू कर दिया। हिंदी पट्टी और स्थानीय भाषाओं के लिए तो इस तकनीक कौशल के क्षेत्र में टिके रहने की चुनौती दिखाई पड़ने लगी थी। क्योंकि तकनीक और नए दौर ने जिस तरह अंग्रेजी के साथ सामंजस्य बैठाया उसके सामने उनका प्रभाव कहीं टिकता ही नहीं था। दूसरे हिंदी अखबारों के समाचार संकलन का तरीका अंग्रेजी से बिल्कुल अलग है। यहां पर स्थानीय खबर और उनके पाठकों को जोड़ने के लिए किसी न्यूज एजेंसी पर निर्भरता नहीं है। बल्कि उन सबके लिए उन्हें संवाद सूत्र या संवाद सहयोगियों की तरफ आशान्वित रहना पड़ता है ये सब स्रोत उस स्तर की खबर नई मुहैया कर पाते जो सीधे तौर पर ग्लोबल मीडिया का हिस्सा बन सके। उसकी तमाम वजहें थीं। एक मीडिया संस्थान की तरफ से खबरों को देने वाले संवाद सूत्र या स्थानीय सहयोगियों को शुरुआती चरण पर कोई प्रशिक्षण नहीं दिया जाता जो उन्हें नए कौशल के बारे में जानकारी दे सके। दूसरा- मीडिया संस्थान की प्राथमिकता सूचना अथवा खबर को प्रकाशित करने से पहले उस पर कौशल कार्य करने की हो सकती है लेकिन खबर के स्रोत को कौशल के रूप से इतना सशक्त बनाया जा सके कि वो खुद उस स्तर की जानकारी दे सके जैसा इंडस्ट्री की मांग है, ऐसा संभव नहीं है। तीसरा- हिंदी भाषायी अखबारों में प्राथमिक स्तर पर काम करने वाले पत्रकारों के जीवन निर्वाह का मुख्य जरिया महज पत्रकारिता ही नहीं है। वे जीविकोपार्जन के लिए दूसरे काम करते हैं। पत्रकारिता उनके लिए अलग से एक काम है। जिसके कारण वह खुद भी तकनीक-कौशल से जुड़ने का खयाल ही नहीं करते। बाकी की कसर संस्थानों की तरफ से दिया जाने वाला मानदेय कर देता है, क्योंकि जिस मानदेय पर वह काम करते हैं उसमें अगर उनसे तकनीक और कौशल आधारित पत्रकारिता की बात की जाएगी तो वह नाइंसाफी होगी। ऐसे में खबरों को लेकर जो भी पॉलिशिंग का कार्य होना है वह न्यूज डेस्क पर किया जाता है। वहां भी डेडलाइन और वर्कलोड का दबाव ज्यादा कुछ करने के लिए मौका ही नहीं दे पाता और खबर का स्तर सामान्य या उससे कम ही रह पाता है। जिस कारण वह छपने के बाद सूचनात्मक तो होती है पर प्रभावकारी नहीं हो पाती। वहीं मुख्यधारा से जुड़े उच्च पदों पर आसीन पत्रकारों के लिए अगर संस्थान किसी तरह का प्रशिक्षण मुहैया कराए भी तो वह भी बहुत चुनौतीपूर्ण है। इन पत्रकारों को एक लंबा अरसा परंपरागत रूप से पत्रकारिता करते हुए बीत जाता है। ऐसे में आनन-फानन में अगर नए कौशल अपनाने के लिए इन्हें कहा भी जाए तो ये उसमें मुफीद नहीं बैठ पाते। जो थोड़े-बहुत इस तरह की मुहिम में चल पड़ते हैं वही आगे चलकर बाकी का नेतृत्व भी करना शुरू कर देते हैं।

हिंदी पत्रकारों का कौशल विकास को लेकर नजरिया

हिंदी भाषा के जिन मीडिया संस्थानों ने कौशल विकास आधारित पत्रकारिता को अपनाया है उसके लिए उन्हें पत्रकारों की नई पीढ़ी को साथ लेकर चलना पड़ रहा है। क्योंकि पिछली पीढ़ी के पत्रकारों का समाचारों का इकट्ठा करने का तरीका भी परंपरागत हो गया है। जबकि खबरों के बाजार में बने रहने के लिए मीडिया संस्थान उस परंपरागत शैली से बाहर निकलने की कोशिश कर रहे हैं। सूचना क्षेत्र के उस दौर में जहां संस्थान पल-पल की जानकारी लाइव चाहते हों, वह भी विशुद्ध रूप से परिपूर्ण, संस्थान के नए नियमों के मुताबिक जानकारी देना परंपरागत पत्रकारों के लिए आसान काम नहीं था। क्योंकि उनकी पेशेवर परवरिश का माहौल आज के दौर से बिलकुल जुदा था। ऐसे में डिजिटल लिट्रेसी का ज्ञान इनके दरवाजों तक पहुंच पाना नामुमकिन था। इसी का नतीजा यह निकला कि अब संस्थानों में भी इस बात को तरजीह दी जाने लगी कि मुख्यधारा से जुड़ने वाला पत्रकार पत्रकारिता की डिग्री और डिप्लोमा हासिल किए हुआ हो। साथ ही, तकनीक और कौशल की पर्याप्त जानकारी रखता हो जिससे वह संस्थान की नीतियों में फिट बैठ सके। अब संस्थान में मैन पावर के लिए सिर्फ पत्रकारिता की जानकारी रखना ही आवश्यक नहीं था बल्कि तकनीक कौशल का जानना ज्यादा अहम हो गया। इस तकनीक कौशल में जो लोग महारती हैं उन्हें मीडिया संस्थान प्रिंट संस्करण के अलावा डिजिटल फॉरमेट के लिए भी नियुक्त करने लगा। इस फॉरमेट से जुड़ने वाले पत्रकारों के कामकाज का तरीका परंपरागत रूप के कामकाज से बिल्कुल अलग था। उनके लिए खबर के दफ्तर पहुंचने तक का समय या एजेंडा आधारित पत्रकारिता नहीं था, बल्कि खबर की टाइमिंग और उसे बाजार के हिसाब से बनाए रखना जरूरी हो गया। यही कारण है कि मोबाइल एप, फेसबुक पेज और वेबसाइट के लिंक के माध्यम से खबरों का प्रचार-प्रसार किया जाने लगा। इन माध्यमों के लिए काम करने वाला पत्रकार अपनी खबर न इकट्ठा करता है बल्कि उसे संचार के इन नए माध्यमों के साथ जोड़ता भी है ताकि घटना घटते ही तुरंत उसका व्यापक स्तर पर प्रचार प्रसार हो सके। अखबार की भाषा में इस खबर की मार्केटिंग करना कहते हैं। अखबारों का मानना है कि जिस खबर की जितनी मार्केटिंग हो गई समझ लो कि उसकी पहुंच उतनी ही बढ़ गई। खबरों के इसी दायरे बढ़ने और बढ़ाने के ट्रेंड ने इससे जुड़े पत्रकारों की जीविका भी तय कर दी। उनके इस प्रचार-प्रसार के तरीके से जितने लोग जुड़ेंगे उनके बाजार में टिके रहने की संभावना उतनी ही मजबूत बनी रहेगी।

मूल्य आधारित बाजार में पत्रकारिता के लिए जरूरी कौशल

यूरोप के बेहद प्रतिष्ठित अंग्रेजी अखबार द इंडिपेंडेंट ने मार्च 2016 से अपने डेली संस्करण को प्रिंट के बजाय डिजिटल वर्ल्ड से जोड़ लिया है। द इंडिप्डेंट का आखिरी अंक 20 मार्च को प्रकाशित किया गया था। उस मौके पर अखबार के मालिकान का कहना था कि जिस तरह डिजिटाइजेशन के दौर में मीडिया के स्वरूप में बदलाव आया है उसके लिए और आने वाले भविष्य के लिए हमें प्रिंट के बजाय ई-संस्करण फायदेमंद रहेगा। यह एडिटोरियल के लिहाज से

ही नहीं बल्कि मुनाफे के लिए भी फायदेमंद है। द इंडिपेंडेंट के प्रिंट एडिशन के बंद होने के चलते हमारे यहां के अखबारों में भी इस तरह की चर्चा चल पड़ी कि आने वाले समय में अखबारों का भविष्य महज डिजिटल ही न रह जाए। हालांकि जिस तरह इंटरनेट और उस पर आधारित मार्केट उपभोक्ताओं को अपने से बांधे हुए है उससे इस तरह के अंदेशों को झुठलाया भी नहीं जा सकता। अब सवाल यह है कि अगर अखबारों में इस तरह के परिवर्तन आए तो क्या उसमें काम करने वाले पत्रकार और उनके संस्थान नए परिवेश के हिसाब से तैयार हैं या उन्हें उसके लिए किसी प्रकार की स्किल्ड फोर्स की आवश्यकता है। वैसे भी मौजूदा समय में महज भाषायी समझ ही पत्रकारिता के लिए पर्याप्त नहीं है। हिंदी पत्रकारिता के लिए हिंदी के साथ-साथ अंग्रेजी पर पकड़ होनी भी आवश्यक है। ई-संस्करण की रिपोर्टिंग की डिमांड के मुताबिक पत्रकारों को राइटिंग स्किल, कैमरे से मूड कैप्चर करने की कला में भी महारत होनी जरूरी है। वीडियो मेकिंग और एडिटिंग का ज्ञान भी वेब जर्नलिज्म का अभिन्न हिस्सा है। मोबाइल एप्लिकेशन से न्यूज अपडेट हासिल करने वाले पाठक को उसकी दिलचस्पी के मुताबिक न्यूज परोसनी होगी। जाहिर है इससे जुड़ने के लिए पत्रकारों को टेक्नोलॉजी के साथ दोस्ताना रिलेशन ठीक उसी तरह रखने होंगे जैसे वह खबर से जुड़े अपने स्रोत से बनाए रखते हैं। इसके लिए मीडिया संस्थानों को भी अपने आंतरिक ढांचे में बदलाव करना होगा। अकादमिक संस्थानों की तर्ज पर खबरों से जुड़े संस्थानों को अपने कर्मचारियों को तकनीक से जोड़ने के लिए ट्रेनिंग और समय-समय पर रिफ्रेशर कोर्स संचालित करने होंगे। जिससे वहां कार्यरत पत्रकारों को टेक्नोफ्रेंडली होने का माहौल मिलता रहे और वह अपनी रोजमर्रा की दिनचर्या में इस शामिल भी कर सकें। संस्थान को अपने कर्मचारियों के प्रमोशन से लेकर सिलेक्शन तक में इस टेक्नोवाइज्ड कल्चर को अपनाना पड़ेगा।

हिंदी पत्रकारिता के लिए कौशल विकास की चुनौतियां

डिजिटल इंडिया के सपनों में रंग भरने के लिए हिंदी पत्रकारिता को कौशल विकास व तकनीक के साथ जोड़ने की बेहद आवश्यकता है। इस बात को झुठलाया नहीं जा सकता कि यूनिकोड के आने से सोशल साइट्स पर हिंदी के चाहने वालों की संख्या में इजाफा हुआ है। लोग अगर हिंदी जानते हैं तो अब नए माध्यमों में हिंदी का इस्तेमाल करने की कोशिश करते हैं। गूगल इनपुट से लेकर तमाम दूसरे प्लेटफॉर्म उन्हें इसका अवसर भी प्रदान करते हैं। डिजटिल मीडियाक्रेसी के लिए इस तरह के नवीन इनोवेशन की बेहद डिमांड है। इसके पीछे की वजह यह है कि नए भारत के लिए जिस तरह के समाज की परिकल्पना की जा रही है उसके लिहाज से मीडिया संस्थान भी आने वाले दौर के मुताबिक होंगे। अखबारों की दुनिया में देश में सबसे ज्यादा पाठक हिंदी भाषा के ही हैं। सबसे ज्यादा अखबार भी हिंदी में प्रकाशित होते हैं। राष्ट्रभाषा होने के नाते हिंदी पत्रकारिता के लिए यह चुनौती होगी कि वह किस प्रकार डिजिटल वर्ल्ड के लिए खुद को तैयार कर पाती है। अंग्रेजी माध्यम के स्कूलों से शैक्षिक परवरिश पाने वाली पीढ़ी को हिंदी अखबार पढ़ना आसान नहीं होगा। क्योंकि गैर अंग्रेजी भाषा के अखबारों के मंच बिल्कुल अलग है मगर उनका पाठक एक ही वर्ग का है। मीडिया इंडस्ट्री के अलावा मीडिया और कम्युनिकेशन स्टडीज

की पढ़ाई देने वाले शैक्षिक संस्थानों में भी बदलाव की आवश्यकता है। पत्रकारों की नर्सरी की जिम्मेदारी नए दौर में इन्हीं संस्थानों की है। इसलिए बेहद आवश्यक है कि यहां पर इंडस्ट्री बेस्ड कोर्स स्ट्रक्चर हो जिससे डिग्री हासिल करने वाले पत्रकारों को अपने क्षेत्र की बखूबी समझ हासिल हो सके। पत्रकारिता के विषय में महज ज्यादा नंबर पाना ही फील्ड में टिके रहने का परिचायक नहीं है। इसके लिए जरूरी कौशल आवश्यक है और उसकी जिम्मेदारी शैक्षिक संस्थानों को भी लेनी होगी। इंडस्ट्री और शैक्षिक संस्थानों का यही आपसी तालमेल भविष्य में पत्रकारिता को एक नए शिखर पर ले जा सकता है।

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स्किल इंडिया और रोजगार के अवसर

कौशल विकास का महाभियान और रोजगार के अवसर

मनोज चतुर्वेदी

भारत विकास के युवातम राष्ट्रों में से एक है जो पूरे आत्मविश्वास एवं उम्मीद के साथ विकसित हो रहा है। भारत की दो-तिहाई आबादी 35 वर्ष आयु से कम लोगों की है, जो इसे समृद्धि हासिल करने के व्यापक अवसर उपलब्ध कराती है। बशर्ते देश की अकुशल, अर्धकुशल, प्रशिक्षित एवं उच्च प्रशिक्षित आबादी को रोजगार के अवसर प्रदान कर दिए जाएं। किंतु यह सरल कार्य नहीं है। देश में प्रतिवर्ष 1 करोड़ 25 लाख नए युवा रोजगार की तलाश में घर से निकलते हैं। यह संख्या प्रतिवर्ष बढ़ रही है। यहां प्रत्यक्ष बेरोजगारी के साथ-साथ प्रच्छन्न बेरोजगारी की समस्या भी है। जैसे—यदि किसी किसान या कारीगर के चार बेटों को कोई अन्य काम नहीं मिलता तो वे अपने पिता के ही काम में लग जाते हैं। यानी यहां काम नहीं बढ़ा वरन काम करने वाले ही बढ़ गए। जो काम एक व्यक्ति कर सकता है अब उसे ही पांच व्यक्ति करने लगे। इनमें से चार के पास वास्तव में काम नहीं है फिर भी वे कामगार दिखने लगते हैं। बेरोजगारी अथवा काम की कमी जस की तस है।

वर्तमान नीति आयोग के आंकड़ों के अनुसार सन् 2004-05 से 2009-10 तक, यानी पांच वर्षों में देश में 27 लाख रोजगार के अवसर तैयार हुए, जबकि 6 करोड़ अवसरों की तत्काल आवश्यकता थी। साथ ही 2009-10 में 1 करोड़ 57 लाख लोग कृषि क्षेत्र से बेरोजगार हुए तथा 72 लाख लोग विनिर्माण क्षेत्र से। दरअसल, भारत में जो युवा शिक्षित हैं उन्होंने रोजगार पाने लायक शिक्षा प्राप्त नहीं की और जो रोजगार क्षेत्र में हैं, उन्हें अपनी औपचारिक शिक्षा से बहुत

* पत्रकार, वाराणसी

कम लाभ मिलता है। मात्र 23 प्रतिशत ही कार्य में दक्ष हैं।[1]

आज प्रश्न युवाओं का मात्र कार्यदक्ष होना ही नहीं है बल्कि उन्हें ऐसा रोजगार दिलाने की जरूरत है जो वास्तव में आय का सृजन करता हो। लेकिन इस उद्देश्य की पूर्ति के लिए, यानी रोजगार के अवसर सृजित करने के लिए एक ओर तो नए उद्योग-धंधे होने चाहिए तथा दूसरी ओर उनमें काम करने के इच्छुक युवाओं में काम कर सकने की दक्षता होनी चाहिए। साथ ही, ऐसे लोग भी चाहिए, जो उद्योग शुरू करने में उत्सुक हों और उसकी क्षमता रखते हों।

आज सरकार स्वावलंबन और कौशल विकास पर विशेष ध्यान दे रही है। उसका लक्ष्य सन् 2022 तक 15 करोड़ युवाओं को काम का हुनर, दक्षता, सिखाना है ताकि वे अपने उद्योग-धंधे स्वयं स्थापित कर देश के आर्थिक विकास में सहयोग कर सकें। क्योंकि वर्तमान समय में विकसित देशों के पास धन तो है लेकिन काम करने वाले कुशल जन नहीं हैं। भारत उन्हें प्रशिक्षित और कुशल करोड़ों युवा दे सकता है। कौशल का उत्पादकता से सीधा सहसंबंध है। भारत को मानव संसाधन हब के रूप में विकसित होना है। प्रशिक्षित होने से आमदनी के साथ-साथ युवाओं में आत्मविश्वास का विकास होगा।

भारत कौशल विकास अभियान के अंतर्गत 4 अन्य योजनाएं जैसे—'राष्ट्रीय दक्षता विकास मिशन', 'उद्यमिता', 'प्रधानमंत्री कौशल विकास' और 'प्रशिक्षित कर्जयोजना' संबद्ध हैं। इस समय देश में कुशल कारीगर मात्र 3.5 प्रतिशत हैं, जबकि विश्व में कुशल प्रशिक्षित लोगों के लिए नौकरियों का बहुत बड़ा बाजार तैयार है। माना ऊंची मेरिट से ही नौकरी मिलना संभव नहीं है, इसके लिए छात्र को बाजार ज्ञान, संबंधित क्षेत्र की पूरी जानकारी, टीम भावना और मैनेजमेंट कौशल होना चाहिए। विशेषज्ञों का भी मानना है कि अच्छी डिग्री के साथ ही विषय की जानकारी, संवाद कौशल, बाजार की समझ, सामान्य व्यावहारिक ज्ञान और प्रस्तुतीकरण कौशल भी होना चाहिए।

कौशल के साथ शिक्षा भी आवश्यक तत्व है। सन् 2011 की जनगणना के अनुसार भारत में साक्षरता दर 75.04 प्रतिशत है। यानी देश की लगभग 30 करोड़ आबादी आज भी साक्षर नहीं है। अतः इनका कौशल विकास एक अलग चुनौती है। इसके अलावा महिला-पुरुष की साक्षरता दर में भी अंतर है।

जहां पुरुषों की साक्षरता दर 82.14 है वहीं महिला साक्षरता दर मात्र 65.46 प्रतिशत है। केवल शिक्षा से ही कौशल विकास संभव नहीं है, इसके लिए गुणवत्तापूर्ण शिक्षा की आवश्यकता है। देश में कुशल श्रमशक्ति का सर्वथा अभाव है। भारत में यह 4 प्रतिशत से भी कम है, जबकि चीन में कुशल श्रमशक्ति 47 प्रतिशत, जर्मनी में 74 प्रतिशत तथा जापान में यह 80 प्रतिशत तक है। एशिया के दक्षिण कोरिया में 96 प्रतिशत कुशल श्रमशक्ति है। इस तरह स्पष्ट है कि भारत में कुशल श्रमशक्ति की कितनी भारी कमी है।

भारत में स्वतंत्रता-पूर्व भी बेरोजगारी की समस्या सबसे बड़ी थी। इस दीर्घकालिक समस्या के ही स्थायी समाधान के लिए महात्मा गांधी ने स्वावलंबन एवं कौशल विकास की अवधारणा प्रस्तुत थी। उस समय की सरकार को सबको सरकारी नौकरी दे पाना संभव नहीं था, आज भी

संभव नहीं है। इसीलिए गांधीजी ने यह संदेश दिया कि हर व्यक्ति सामान्य आवश्यकता की कोई न कोई वस्तु तैयार करने में कुशलता हासिल करे। ऐसा करके हर व्यक्ति, हर परिवार, हर गांव और अंततः संपूर्ण देश आत्मनिर्भर बन सकता है।[2]

प्रख्यात स्वतंत्रता सेनानी विपिन चंद्र पॉल का कथन है—Neither Dependence Nor Independence, But Self Dependence' अर्थात् दूसरों पर निर्भर रहना भी अच्छा नहीं है। पूरी तरह स्वतंत्र होकर अन्यों से कट जाना भी अच्छा नहीं है, बल्कि आत्मनिर्भर होना और सबसे पूर्ण संबंध बनाए रखना आवश्यक है।

आज का युग 'तकनीकि युग' है और इसमें आबादी और रोजगार के बीच बड़ा अंतर आ चुका है। ऐसे में कौशल विकास महत्वपूर्ण है। भारत की अप्रत्यक्ष/प्रच्छन्न/प्रत्यक्ष बेरोजगारी का समाधान इसी से संभव है। क्योंकि वैश्विक अर्थव्यवस्था विशेषज्ञता व दक्षता पर आधारित होती जा रही है। एक आंकड़े के मुताबिक संपूर्ण विश्व में 5.5 करोड़ दक्ष लोगों की कमी है। इनमें नर्स, टेक्नीशियन, फिटर, इलेक्ट्रिशियन, प्लंबर जैसे कार्य करने वाले लोग शामिल हैं। हालांकि भारत में इन कार्यों में दक्ष लगभग 4.7 करोड़ लोग ऐसे हैं, जिनके पास रोजगार नहीं है।

वैश्विक स्तर पर भारत की कार्यशील आबादी का अनुपात सर्वाधिक है, पर उनमें कौशल दक्षता का सर्वथा अभाव है। 15 से 69 वर्ष के 60 प्रतिशत लोग अकुशल हैं जिससे उनके श्रमबल लाभ का उपयोग बेहतर तरीके से नहीं हो रहा है। यहां तक कि 53 प्रतिशत लोग अकुशल कृषि-कार्य में लगे हैं, क्योंकि माना जाता है कि यहां कौशल दक्षता की आवश्यकता नहीं है जबकि वास्तविकता यह है कि आधुनिक कृषि में सबसे अधिक दक्षता की आवश्यकता है। इसी प्रकार 93 प्रतिशत लोग अनौपचारिक क्षेत्रों में कार्यरत हैं, लेकिन ये सभी यदि प्रशिक्षण द्वारा कार्य में दक्षता प्राप्त कर लें तो उत्पादकता में अभूतपूर्व वृद्धि दर्ज की जा सकती है। सूक्ष्म, लघु एवं मध्यम श्रेणी की उद्यम इकाइयां यानी एमएसएमई क्षेत्र भारतीय अर्थव्यवस्था की रीढ़ हैं। देश के औद्योगिक उत्पादन में इसका बड़ा योगदान है।

विनिर्माण क्षेत्र में 45 प्रतिशत और निर्यात में 40 प्रतिशत इसका योगदान है। देश की जी. डी.पी. में भी इसका योगदान 37 प्रतिशत है, जिनमें करीबन 40 प्रतिशत रोजगार का सृजन होता है। इन इकाइयों में रोजगार पाने वाले श्रमिक कम कुशल, अनपढ़ और वंचित समूह से संबंधित होते हैं। देश में लगभग 2.6 करोड़ एमएसएमई इकाइयां हैं, लेकिन इनके अकुशल या कम कुशल श्रमिकों के कारण ही 3 लाख से अधिक इकाइयां वर्ष 2015 में बीमार घोषित हो गईं। सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय ने ग्रामीण युवाओं को रोजगार के अवसर उपलब्ध करवाने के लिए अपने स्वयं के उद्यमों की स्थापना के लिए ग्रामीण आजीविका बिजनेस इन्क्यूबेर्टस (एल.बी.आई) हेतु नई योजनाओं की शुरुआत की है।[3]

उद्यमशीलता सहकौशल विकास कार्यक्रम की पहल के भाग के तौर पर सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय ने उद्यमशीलता विकास संस्थानों के जरिये ढाई लाख से अधिक युवाओं को उद्योग के लिए तैयार करने और स्वरोजगार हेतु उद्योग स्थापना के लिए 9,142 प्रशिक्षण कार्यक्रम आयोजित किए। विनिर्माण क्षेत्रों में उद्यमियों के लिए कुशल मानवशक्ति उपलब्ध कराने के लिए

1 लाख 65 हजार, 340 युवाओं को प्रशिक्षित किया गया तथा 18 प्रौद्योगिकी विकास केंद्रों के जरिये 36 हजार 216 युवाओं को प्रशिक्षित किया गया है। तकनीकि रूप से शिक्षित युवाओं की कौशल आवश्यकताओं को पूरा करने के लिए एमएसएमई ने 10 स्थानों अर्थात लुधियाना, नई दिल्ली, हैदराबाद, अहमदाबाद, औरंगाबाद, भुवनेश्वर, चेन्नई, मुंबई और कोलकाता में तकनीकि स्कूल खोले हैं। गांवों में लघु उद्योगों को पुनर्जीवित करने के लिए और व्यावसायिक कुशलता के लिए स्फूर्ति स्कीम को नए बदलाव के साथ लागू किया गया है। एमएसएमई एक्ट, 2006 में पुनरुद्धार और पुनर्वास योजना को बढ़ावा दिया गया है। इसके तहत कोई भी उद्यमी राज्य सरकारों के प्रतिनिधियों, विशेषज्ञों और अन्य सदस्यों वाली एक समिति के माध्यम से पुनरुद्धार और पुनर्वास के लाभ की मांग कर सकता है। ग्रामीण आजीविका व्यवसाय योजना ग्रामीण युवाओं को रोजगार के अवसर देने के लिए कारगर है। 13 राज्यों और केंद्र शासित प्रदेशों में उद्यम लगाने के लिए आवेदन फाइल करने हेतु एक पोर्टल शुरू किया गया है। विश्व बैंक की सहायता से 15 नए टेक्नोलॉजी डेवलपमेंट सेंटर खोले जाएंगे जिसके द्वारा युवाओं को बेहतर प्रशिक्षण मिलेगा। मुद्रा बैंक की स्थापना से सूक्ष्म, लघु व मध्यम उद्योगों को विकास की नई राह मिलेगी।[4]

गांधी जी का स्वावलंबन व कौशल विकास सिद्धांत आज भी कम प्रासंगिक नहीं है। इसके लिए कुछ अन्य उपाय भी कारगर सिद्ध हो सकते हैं। जैसे—साइकिल के उत्पादन पर सब्सिडी, लग्जरी कारों पर अधिक टैक्स, हैंडलूम वस्त्रों पर छूट, लेकिन मिलों से तैयार वस्त्रों पर अधिक टैक्स, परिवहन-यातायात के साधन सुलभ कराना आसान हो, स्थानीय बाजारों का विकास हो जिससे फल, सब्जी, दूध उत्पादक लाभान्वित हों तथा दूध के उत्पादन को बढ़ावा दिया जाए। यह श्रम-सघन कार्य हैं। इसका उत्पादन एवं खपत बढ़ने की संभावना है।

निश्चित ही प्रधानमंत्री नरेंद्र भाई मोदी के नेतृत्व में युवा भारत को कौशल विकास का मंत्र मिला है। देश का युवा वर्ग कुछ कर गुजरने के लिए संकल्पित है तथा संपूर्ण विश्व में कौशल युक्त युवाओं का डंका बजाने वाला है। अब देश का युवा जाग चुका है।

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