

# Review of Skill Development in Higher Education in India

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## Abstract

With the emergence of the fourth Industrial revolution 4.0, organizations are integrating cutting-edge technologies into their operations to face the challenges of evolving IT trends. Meanwhile, the organizations are also upgrading technological infrastructure. Workforce is struggling to keep pace with the fast changing and evolving technical skill sets. While it is alarming to note the pace at which digital revolution is taking the world by quantum leaps, regrettably the rate of digital adoption is negligible.

Many eminent industrialists including Infosys co-founder N. R. Narayan Murthy have voiced concerns of a talent crunch in the country impacting youth, and in turn entrepreneurship. With this backdrop, the need for skilling is gaining importance. This need has accelerated for policy-backed skill development initiatives of government of India to realize the potential of the youth for employability and entrepreneurship. However, there exists a huge gap between the current status and the desired goals in terms of skill development.

With the advantage of 'demographic dividend' which is a pride and source of strength of India, the graduating students were the centre of focus of this study. This study is a conceptual study exploring the need for imparting skills to the youth to bridge the gap of skill requirement in the industry for employment or entrepreneurship, and the initiatives taken by government of India for higher education. This paper will be of interest to students, academicians, and industry professionals.

**Keywords :** Academic training, Artificial Intelligence, demographic dividend, entrepreneurship, skill development, skill India, UGC

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There is a hue and cry from the industry that most of the students graduating from higher education institutes are not job-ready or do not have strong entrepreneurial skills. Economic development of any country rests on the strong foundations of knowledge and skill of its human resources. India is facing a mismatch between demand and supply of skilled human resources despite a series of education policies.

The purpose of education is to develop students' desire and ability to acquire knowledge and skills for life and career. Further, the purpose is to learn work life balance to enable one to adapt to work with peers throughout education and beyond. However, the gap between academic training and skill required for employment has widened to such an extent that graduates are unable to find jobs they aspire for, while employers are unable to get the right talent for the job openings available. With this mismatch between academia and industry, it is observed that as per the India Skill Report 2019, only 45.6% of the students graduating from institutions across India are employable.

## Research Gap

The most challenging issue in the past and the current decade is the financial crisis that occurs often at the domestic and at the global level. Other issues are demographic change, shift towards the east as centre of economic power, alarming trends of urbanization, public health, abuse of human rights, and depleting natural resources in the ecosystem. With a fragile and dynamic eco-system, and the emergence of new organizational practices and trends in the rapidly challenging and changing global economy, knowledge and skill sets are the driving factors resulting in both challenges and opportunities. The global economy has increased opportunities for countries with good levels of education and skill sets. Therefore, competent human capital, skill sets, and knowledge are the driving forces in the global ecosystem.

Based on detailed literature review, this paper focused on the following issues of concern :

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- (1) With the backdrop of demographic dividend, how the new industry trends and technological skill sets are evolving.
- (2) With the demands from industry, how higher education is preparing to respond to training and nurturing students for evolving technological demands or skills from industry for employment and entrepreneurship?

## **Statement of the Problem**

- (1) With the advantage of demographic dividend, the challenge on the part of government, industry, and higher education is to offer knowledge, competence, and training in trending skill sets to students who are the future professionals/workforce/entrepreneurs.
- (2) Relevance of curriculum inclusive of skill training/trade skills imparting knowledge, competence, and employability or entrepreneurship skill-sets to face the global challenges of the 21<sup>st</sup> century.
- (3) Role of industry : Academia connectivity for preparing students for global challenges of global employment and entrepreneurship.

## **Main Objective of the Study**

Currently, tremendous social, political, economic, environmental changes, and global relations are impacting business, industry, and societal ecosystem.

This review paper was conducted keeping in view the demands, expectations, and perspectives of different stakeholders. Re-emphasising the importance of skill sets, skill development, and the corresponding significance of education forming part of the foundation of any developing economy coupled with the advantage of demographic dividend was the nucleus of this study.

## **Sources of Data Collection**

**Secondary data :** Extensive literature review of periodicals, published gazettes, online resources, survey reports from various bodies such as All India Council for Technical Education, Ministry of Human Resource Development, University Grants Commission, Ministry of Micro, Small and Medium Enterprises etc. were taken into consideration.

## **Demographic Dividend**

Various sectors of industry such as manufacturing, telecom, healthcare, IT, ITES, hospitality, banking, insurance, and other service sectors demand workforce with appropriate skill sets to fulfill their workforce requirements. In India, with the demographic dividend, the graduating student is the focus of this study. As per recent studies conducted, for the next five years, 15 million youth entering the workforce annually will not be job ready as per industry requirements. With India comprising 18% of the world's population and with a workforce of 520 million, it is alarming to note that by 2022, about 100 million youth will not get their dream jobs on account of lack of right skill sets as required by different industry sectors.

India is one of the youngest nations in the world with over 50% of the population under the age of 30 years. It will be contributing to about 20% of the world's workforce by 2020. In order to leverage potential opportunities, every country develops its own system of education to harness socio-economic and cultural identity. Keeping its unique ecosystem under consideration and to reap the benefit from the demographic dividend, India needs an educational system which is relevant, qualitative, affordable, and flexible. To enable and empower youth for a sustainable livelihood, institutions need to look beyond the traditional mode and leverage skills, and up-skill human resources to meet the challenges of employment, and entrepreneurship.

## Skill India Mission

With fast changing global technology and the industry demands, 'Skilling' has emerged as a buzzword. The mission of "Skill India" encompasses not only entry level skills but also higher order skills through new initiatives in higher education. This calls for regular engagement and collaborations of members from both academia and industry to bridge the skill gap and build new bridges between 'knowledge' and 'practical application'.

The emphasis is on the need for skill-based courses in higher education which can pave the way for industry-ready youth for better employability, promote entrepreneurship, and job creation. Making 'skilling' a part of higher education system has been a great challenge for the institutions of higher learning.

The 12<sup>th</sup> five year plan document of the Planning Commission has laid a special emphasis on the inclusion of skill based programs in higher education. Skill development and its linkages with entrepreneurship encompass both rural and urban sectors. This paves the way for inclusion and qualitative production not only within the country, but also helps in meeting the skill challenges as expected at the global level.

Skill India Mission was launched in 2015 by India's Prime Minister, Shri Narendra Modi to make India the skill capital of the world. Various programs were launched by Ministry of HRD and Government of India to skill the youth of India. The objectives of the programs were to impart skills through various programs such as "Pradhan Mantri Rojgar Prohast to 400 million by 2022.

The Ministry of Skill Development and Entrepreneurship is responsible for all skill development activities across India, removal of disconnect between demand and supply of skilled manpower, skill up-gradation, and building new skills not only for existing jobs but for future jobs as well.

To achieve the vision of Skill India, the Ministry is gearing to skill at a larger scale and impart high standards of skills. Various initiatives of the Ministry are supported by different wings of National Skill Development Agency (NSDA), National Skill Development Corporation (NSDC), National Skill Development Fund (NSDF), and 33 Sector Skill Councils (SSC), as well as 187 training partners of NSDC, collaborating with all the state governments, industry, NGOs, and international organizations for an impactful implementation of skill development at all levels.

With the Skill India program as enunciated by Mr. Narendra Modi, the challenge ahead is integration of skilling with higher education and taking the process to the next level. No doubt, the foundation is laid for skill training through the involvement of MHRD, but going forward, there is a need for greater involvement and participation of private collaborators, and the regulation of the entire skilling ecosystem.

The industry in general opines that it is the prerogative of the government to integrate skilling with education, but nowhere across the globe skilling is centre-based. The need of the hour is a policy to make skilling an integral part of higher education. Thus, Skill India Mission can be realized only if the government motivates private players to collaborate and initiate such skilling programs through incentives instead of moving towards a subsidy-based model. Skilling is an aspiration program for the youth.

## Skill India - NSDC

Emerging technology is enabling new ways for students to learn and work and be more creative and innovative in their approach by training and preparing them for their future career challenges. Recent surveys show that parents and teachers are also in favour of education being a combination of digital and experiential learning for students.

To bridge the gap between industry and academia, National Skill Development Council (NSDC) has developed a learning model to integrate skill based trainings into the academic cycle of institutions of higher learning and universities (NSDC, n.a.). These skill trainings are based on National Occupational Standards (NOS) set by the industry through Sector Skill Councils (SSC) & Entrepreneurship under National Skills Qualification Framework (NSQF). The highlights of the learning model are listed next.

### Identification of sectors and job roles based on state skill gap report :

↳ Identification and development of skill models.

- ↳ Integration of skill models into university academic calendar.
- ↳ Regular orientation programs of students about various sector skills and informed choice based on job roles based on one's career aspirations.
- ↳ Uniform and standardized training designed and to be offered by NSDC Training partners.
- ↳ Regular training of trainers by Sector Skill Council.
- ↳ Facility for internships and on-the-job trainings.
- ↳ Evaluation, assessment, and certification by Sector Skill Councils.
- ↳ Creating opportunities for employability and entrepreneurship avenues for students.

To facilitate this learning model, NSDC is working with universities, UGC, and AICTE (AICTE, n.a.; MHRD, n.a.; MSDE, n.a.; NSDC, n.a.; University Grants Commission, n.a.) catering to colleges and institutions of higher learning across the country.

## **Skill India - New Initiatives**

As per recent surveys, industry demands smart workforce to have a better human-machine interface. To meet the challenges of upcoming emerging industrial demands, technical institutions are expected to adapt, educate, and train their students to meet the emerging requirements of the Industrial Revolution 4.0. To develop sustainable productive human resources, Ministry of HRD in association with AICTE has taken up initiatives to create a self-sustainable eco system in institutes of higher learning to facilitate innovation through the right mix of technology and experiential learning.

As a reformation, through the financial budget 2019, Government of India has allocated ₹ 400 crores towards the New Education Policy, research fund, skill development, and a new and reformed higher education regulatory under the category of “Youth”.

In line with government support, initiatives taken by UGC are skill orientation, and vocational orientation for higher education.

- ↳ Schemes like community colleges and Deen Dayal Kaushal Vikas Kendra (KAUSHAL) for promoting skill based education are launched.
- ↳ Bachelor of vocational, masters in vocational studies, and Ph. D. in vocational education have commenced to make students job ready and improve their employability.
- ↳ Moreover, B.A., B.Com. or B.Sc. graduates have the option to pursue add-on vocational courses from a basket of courses offering Certificate / Diploma / Advanced Diploma along with Degree depending on the duration of the course to enable students become job-ready.
- ↳ 162 institutions approved by UGC are offering B.Voc. degrees for which 19,050 students have enrolled for 103 trade courses offered.
- ↳ Under the scheme of Community colleges, 15,550 students are pursuing courses in 83 trades of various industrial sectors.
- ↳ Under the Government of India approved scheme Deen Dayal Upadhyay Centres for Knowledge Acquisition and Up-gradation of Skilled Human Abilities and Livelihood (KAUSHAL), this year UGC has permitted 63 centres for advanced level of skilling the youth under various trade courses depending on demand and regional potential.

## **Skill India – Way Forward**

As per the recent studies conducted, the skills that are most in demand in 2020 are described next.



Industries are focusing on Data Science and Technology skills. There is robust demand for Artificial Intelligence, data science skills, Cloud computing, web development frameworks, and IT certifications in AWS, Comp TIA, and Docker.

As per the article “The rise of the financial machines” (2019), with the rise of financial machines, these courses will be in high demand: Python, React (Web), Machine Learning, Angular, and Docker. These will be the five most popular tech skills in 2020.

As per the recent study conducted by IBM, it is estimated that around 120 million people in workforce around the world need to be re-trained as a result of automation and Artificial Intelligence in the next three years. The workforce needs to be trained in skills such as adaptability, time management, and collaboration for the current industry scenario.

With Artificial Intelligence stretching its wings to all sectors, the demand for advanced technical skills in an Artificial Intelligence (AI) enabled world is on the rise. Artificial Intelligence shall be the centre of focus of industry in the next decade. SAP is also anticipated as a sought out and fastest growing process related skill in 2020s.

Emerging technologies threaten to eliminate jobs that can be easily done with machines and automation. As per McKinsey & Company, 800 million global workers are likely to lose their jobs to robots. Therefore, it is important for the workforce to have a *growth mind-set*, be motivated to reach higher levels of achievement by learning, and acquiring new skills which cannot be replaced by future technology.

Another trend that is catching up is an increased interest in skills that require a human element, such as critical thinking, and emotional intelligence. Creativity and innovation are things that a machine cannot replace. Thus, soft skills which cannot be replaced by technology are becoming more relevant now. The most important soft skills students need to inculcate in the current scenario are:

**(1) Innovation :** To improve upon an existing idea or concept, create or re-create an idea, process or method to achieve the desired outcome.

**(2) Creativity :** To evolve and develop new thoughts, ideas, and develop new workable solutions for existing problems.

**(3) Positive growth mind-set :** Aspiration to learn continuously and willingness to accept and adapt to on-going changes in the ecosystem.

**(4) Communication skills :** Understanding, analysis, and interpretation of information through focused listening, observation, speaking, and expression of thoughts with clarity.

**(5) Emotional intelligence :** Expression and observation of inter-personal relationships, adapting emotional control among co-workers in the workplace.

**(6) Awareness and adaptability to culture :** Ability to interact, work in team, develop meaningful relationships with the co-employees of varied cultural background within the organization, and with all the stakeholders.

**(7) Analytical and critical thinking :** Unbiased-objective analysis and evaluation of a situation to arrive at a productive solution for a problem/topic.

**(8) Ability to solve problems :** Space & Tesla CEO & Founder, Elon Musk stated that he did not consider a graduate eligible to work in Tesla. In one of his interviews, he pointed out that beyond college degrees, the skill set that he sought from his prospective applicants were evidence of exceptional ability to solve problems. So, an individual with the zeal and skills to solve problems are more sought after in some of industries.

**(9) Leadership :** Willingness to motivate, guide, inspire, and be a team player for fulfilling the vision/mission, and taking the organization ahead.

**(10) Concentration and focus :** To harness concentration and be focused to make realistic short- term and long-term decisions.

As per studies, to build these skills for a company, an ambience of a positive culture for employees is required. They

can learn from popular learning platforms such as LinkedIn Learning, Coursera, Edx, Udacity, Degreed, Future Learn etc. In line with the industry trends and demands, AICTE has recommended emerging technical skills to be part of skill development programs along with academics to build skill sets of higher education students in all institutions across India. The technical skill sets proposed by AICTE are virtual reality/robotics/Internet of Things (IoT)/cyber security/data science/block chain/artificial intelligence/quantum computing/3D printing, design etc.

## Conclusion

No doubt, as per the current global industry trends and demands, students are acquiring certain important skills through higher education for their career. Skills acquired include : communication, teamwork, leadership, interpersonal skills, time management, critical thinking, and problem solving.

The need of the hour is to prepare students not only for employment, but also help them to be entrepreneurs. Entrepreneurship involves niche competencies, skills, and attitude which expect students to have risk-taking/problem solving abilities, and to understand the job-market. The youth need to understand their hidden potentials and be able to enter into new ventures, not only be employable, but also create jobs through entrepreneurship.

No doubt the foundation is laid for skill training through the involvement of MHRD, AICTE, and UGC, but going forward there is a need for greater involvement, participation of private collaborators, and regulation of the entire skilling ecosystem to fulfil the aspirations of students to scale new heights in their dream careers, and in turn catalyze nation building.

## Limitations of the Study

Conclusions were drawn on the basis of review and analysis of available literature and secondary data collected. Since skill development is an evolving and trending issue, the opinions expressed may vary with technological development, industry trends domestically and globally, demands and challenges from the social ecosystem.

## Scope for Further Study

The dynamic economic trends, industry expectations, government policies, competency, and demands for next generation human capital, leaders, and entrepreneurs are posing challenges for institutions of higher learning. It is a great challenge for institutions to embrace innovative strategies and modules to nurture and empower students with evolving technologically driven skill sets for their future roles as professionals and entrepreneurs.

In view of the limitations, researchers can further empirically conduct studies region - wise , and sector-wise, on the skill requirements based on technological and sector development in line with the aspirations of the youth in tune with global industry challenges for employment or entrepreneurship.

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