SKILL EDUCATION: AN INNOVATIVE WAY OF LEARNING FOR EMPLOYABLE SOCIETY

[1]S. Glory Swarupa, [2]Ravi Kumar Goyal

Research Scholar, Principal

School of Entrepreneurship Skills

Bhartiya Skill Development University (BSDU), Jaipur, Rajasthan, Indiadi

Abstract: Skilled workforce is a scare commodity in Indian labour market. There is a distinct mismatch between youth with higher education and required job skills, which is hampering the economic growth of our nation. Timely supply of skilled persons is undersized against the ample demand from the industry. Apart from curriculum education, knowledge on employable skills are required for various forms of employment in the labour market. Primarily, students from higher education sector constitute the potential target group for skill development besides the labour work force in the organized sector, unorganized sector including those entering the labour market for the first time. In a large country like India, recognising the ultimate role of education sector in nurturing and promoting an ecosystem of innovation is very vital. The challenges in higher education system has triggered the introduction of few innovative practices among several educational institutional across the country. It was urged to establish a new platform for enabling the skill universities in the country to supplement the efforts of the government in reforming the higher education system and to lead the skills education initiative in the country. The paper is an attempt to bring forth the innovations in education by Bhartiya Skill Development University (BSDU), Jaipur. The paper highlights the challenges in higher education, need for innovations in education, importance of skill education, Government of India initiatives and National Skills Qualification Framework (NSQF). BSDU innovative approaches in designing skill courses related to employment & entrepreneurship, development of curriculum, course content, delivery mechanism, technical hands on training, business development, personality development, industry internship and employability skills are discussed.

Index Terms: **Innovation, Higher Education, Skill University, B.Voc, M.Voc, Employment**

I. INTRODUCTION

University education is a platform for innovations and social development. Stimulating students towards creativity and innovation is the primary objective in deepening the effect of innovations on society in general and economy in particular. Introduction of innovative practices in huge education system and imparting the skill to enormous group of students while organising the needed resources is a great challenge in the light of rapid changes/advances in technology, changing needs of industry/economy and several others. However, higher education sphere found to be an appropriate ground for pioneering innovations. National Innovation Council (NIC) has taken a proactive role in encouraging and promoting an ecosystem of innovations in education sector among universities, colleges and schools, as well as innovative education models for knowledge creation and diffusion. Total process of innovation needs to be managed very effectively, as it not only spreads within the higher education system but also touches every element of the system. (National Innovation Council, 2017).

II. STATUS OF INNOVATION IN INDIA

Innovation was part of India's culture since ancient times and a substantial number of learned people within and outside the country are involved in creativity and innovation. In order to take forward this innovative culture, all stakeholders are to be skilled. A repository of multiple innovations emerging from various domains viz., Research & Development laboratories, universities, government organisations and other sectors need to be maintained for augmentation of innovative ecosystem in the nation. NIC will act as a platform to facilitate this engagement and collaboration with domain experts, stakeholders and key participants to create an innovation movement in India. The aim is to herald a mind-set change and create a push at the grassroot level so that more and more people in education, business, government, civil societies, urban and rural development engaged in innovative activities are co-opted and are part of shaping the national level innovation strategy.

The statistics on patents is not very encouraging. Avirup Bose (2017) reported that as per the Indian Patent Office (IPO) information, number of patents filed in India are very less. India's ranking according to Global Competitiveness Index, 2016 indicated in the table below.

India's ranking according to Global Competitiveness Index, 2016

Sl.No	Sector	Total No. of Countries	India's Rank
1	Quality of higher education and training	140	90
2	Technological readiness	140	120
3	Digital connectivity	140	least
4	Overall education/skill	140	55

III. CHALLENGES IN HIGHER EDUCATION FOR DRIVING INNOVATION

The challenges faced by higher education system across the globe are many. According to European Union (2014), these challenges determine the development and implementation of numerous innovative practices. One challenge may trigger the introduction of different innovative practices in diverse institutional contexts, while the same innovative practice may simultaneously be driven by more than one challenge. Three important challenges that are limiting the innovation in education sector are listed below.

> 1. Pressure from globalisation

> 2. Changing supply of and demand for higher education

> 3. Changes in higher education funding

IV. Association of Indian Universities (AIU)

Association of Indian Universities (AIU) was established with the aim of bringing together all the universities on a common platform. However, the Association has not come up to the expectations of the universities. The regulatory bodies have not allowed the AIU to exercise any authority to help the universities in retaining their autonomy. Also, AIU does not have the resources and expertise to take on the responsibility to spearhead the emerging skill universities which are substantially different from the conventional universities. Further, it does not allow new universities to be its members until they complete two years of existence. Thus, all the skill universities are ineligible for AIU membership since they have been incorporated recently.

Realizing the passive role of AIU and its reluctance to allow new universities to be its members, it was urged to establish a new platform for enabling the skill universities in the country to come together, to aggressively participate, to supplement the efforts of the Government in reforming the Higher Education System and to lead the skills education initiative in the country.

V. INNOVATION IN TRANSFORMING INDIAN EDUCATION SYSTEM

Indian Higher Education is on the threshold of a major transformation. With India working on transforming its education system, embracing most innovative methodologies and modern technologies appears to have become a significant norm in the country. The Government is geared up for drastic changes in the present system. Skills and knowledge are the driving forces of economic growth and social development for any country. Presently, the country faces a demand – supply mismatch, as the economy needs more 'skilled' workforce than that is available. In the higher education sphere, knowledge and skills are required for diverse forms of employment, education, health care, manufacturing and other services. Potentially, the target group for skill development comprises all those in the labour force, including those entering the labour market for the first time, those employed in the organized sector and also those working in the unorganized sector.

Government has planned major changes in Higher Education, especially relating to Skills Training/Education. UGC has issued instructions for offering B.Voc program and has included B.Voc and M.Voc in the list of degrees to be awarded by Indian Universities under Section 22 of UGC Act. However, bulk of the over 800 universities in the country are still offering conventional degrees. Though, some of them have started offering B.Voc degree in some skill disciplines, but not much work has been done on development of proper curriculum and the assessment process for B.Voc and M.Voc programmes.

Government of India, while considering the requisite of imparting skill training to students, launched National Vocational Education Qualification Framework (NVEQF) that was later integrated into National Skills Qualifications Framework (NSQF). Ministry of Finance, Govt. of India has issued NSQF Notification No. 8/6/013-invt. dated 27 December 2013 instructing all employers, universities and other institutions in the country to specify eligibility criteria for all jobs and admissions to higher programs in terms of NSQF levels with effect from 2018. As many as 40 Sector Skill Councils (SSCs) are in the process of developing Qualification Packs (QPs), National Occupational Standards (NOS) and assessment mechanisms in respective skill domains, in alignment with the future needs of the industry.

VI. NATIONAL SKILLS QUALIFICATION FRAMEWORK

National Skills Qualifications Framework (NSQF) is a competency based framework that organizes qualifications according to a series of knowledge, skills and aptitude. The NSQF levels, graded from one to ten, are defined in terms of learning outcomes, which the learner must possess regardless of whether they are obtained through formal, non-formal or informal learning.

National Occupational Standards (NOS) are statements of the skills; knowledge and understanding needed for effective performance in a job role and are expressed as outcomes of competent performance. These standards can form the benchmarks for various education and training programs to match with the job requirements. Just as each job role may require the performance of a number of tasks, the combination of National Occupation Standards (NOS) corresponding to these tasks form the Qualification Pack (QP) for that job role.

The NOS and QP for each job role corresponding to each level of the NSQF are being formulated by the respective Sector Skill Councils (SSC) set up by National Skill Development Corporation (NSDC) with industry leadership. The curriculum which is based on NOS and QP would thus automatically comply to NSQF.

6.1 The specific outcomes expected from implementation of NSQF are as follows:

a. Mobility between vocational and general education by alignment of degrees with NSQF
b. Recognition of Prior Learning (RPL), allowing transition from non-formal to organized job market
c. Standardized, consistent, nationally acceptable outcomes of training across the country through a National Quality Assurance Framework (NQAF)
d. Global mobility of skilled workforce from India, through international equivalence of NSQF
e. Mapping of progression pathways within sectors and across sectors
f. Approval of NOS/QPs as national standards for skill training

6.2 Type of Courses and Awards

All skill courses are modular in nature, which enables multiple exit and entry option. Credits are awarded to Skill Education and General Education components as depicted in the diagram below. The multiple entry and exit option enables the learner to seek employment after any level of Award and join back as and when feasible to upgrade qualifications/skill competencies either to move higher in the job profile or in the higher educational system. This will also provide the learner an opportunity for vertical mobility to second year of B.Voc degree programme after one year Diploma and to third year of B.Voc degree programme after a two year Advance Diploma. The students may further move to Masters and Research degree programmes mapped at NSQF Level 8 – 10.

Fig 1 NSQF Levels-Degree-Credits

NSQF Level-4: Certificate (06 months- 30 Credits after 10+2)

NSQF Level-5: Diploma (01 year- 60 Cumulative Credits after 10+2)

NSQF Level-6: Advanced Diploma (02 year- 120 Cumulative Credits)

NSQF Level-7: B.Voc. Degree (03 years- 180 Cumulative Credits after 10+2)

NSQF Level-8: PG Diploma (01 year- 60 Credits after B.Voc./ any Graduation)

NSQF Level-9: M.Voc. Degree (02 years-120 Credits after B.Voc./any Graduation)

NSQF Level-10: Research Level (UGC minimum standards and procedure for M.Phil/Ph.D Degrees Regulation, 2016)
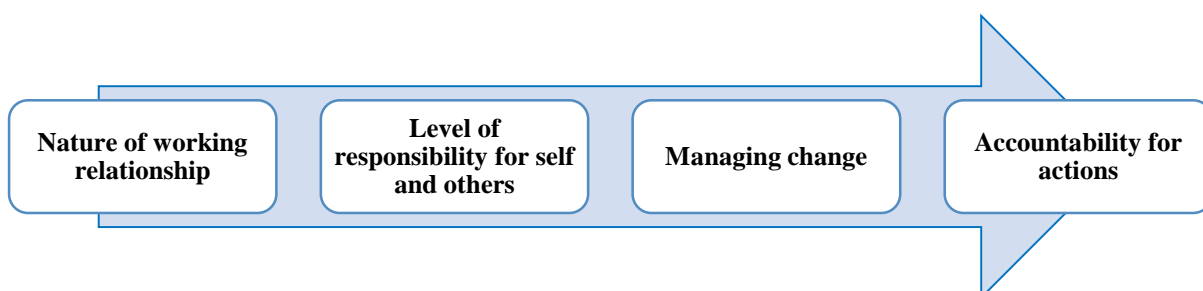
6.3 Curricula and Credit System for Skill Based Courses

Skill Development and General Education (GE) are the two major components of curriculum in each semester/year, which is an appropriate mix. Skill Component constitute 60% credits and General Education shall have 40% of the total credits. Along with GE and Skill, emphasis also laid on the following important aspects.

- Professional knowledge, a learner should know and understand with reference to the subject
- Professional skills, a learner should be able to do and,
- Core skills refer to basic skills involving dexterity and use of methods, materials, tools and instruments used to perform the job including IT skills needed for that job.
- Responsibility aspect determines the following figure.

Fig 2 Responsibility aspects in Skill Courses

| Nature of working relationship | Level of responsibility for self and others | Managing change | Accountability for actions |

All the institutions shall prepare a draft curriculum as per the UGC guidelines for Curricular Aspects Assessment Criteria and Credit System for Skill based Vocational Courses and submit for vetting by the UGC Advisory Committee being constituted by the government.

The course curriculum should be approved by the Board of Studies (BoS) and Academic Council of the University/Autonomous College. The Universities where BoS for Vocational subjects has not yet been constituted, the curriculum may be considered by the BoS in allied subject area or an ad-hoc BoS may be constituted until the time regular BoS is notified in the university. The BoS should consider the programme wise curriculum based QP for skill component and relevant general education subjects i.e. the curricula for programmes in one broad subject area may vary from institution to institution in case the different progressive QPs are mapped with the programmes being offered. The choice of different progressive Job roles for a course may also be enabled under CBCS.

VII. ASSOCIATION OF INDIAN SKILL UNIVERSITIES (AISU)

Establishment of skill universities by a number of states has signalled the transformation of Indian Higher Education with a strong bias towards skills education to generate employment and to facilitate better industry-academia cooperation.

All the skill universities in the country come together as an Association to collectively take on this effort forward. The Association will also be able to spearhead the skills education in the country and help the Government to formulate model curricula and assessment process for skills education. At present, there are seven skill universities in the country.

1. Bhartiya Skill Development University (BSDU), Jaipur, Rajasthan
2. Sri Vishwakarma Skill University (SVSU), Haryana
3. Rajasthan ILD Skill University (RISU), Jaipur, Rajasthan
4. Centurion University of Technology & Management (CUTM), Bhubaneshwar, Odisha
5. Symbiosis Skills & Open University (SSOU), Pune, Maharashtra
6. Seacom Skills University (SSU), Birbhum, West Bengal
7. TeamLease Skills University (TSU), Vadodara, Gujarat

VIII. SELECTION OF SUITABLE NAMES FOR SKILL COURSES

As of now, only two skill courses namely Bachelor of Vocation (B.Voc), three-year duration and Master of Vocation (M.Voc) a two-year course were included in the UGC list of degrees to be awarded for the students by the Universities. It was deliberated and arrived at a consensus to have B.Skill & M.Skill for the degrees and the skill sector name in brackets, as it has edge over traditional term vocation. Moreover, the word Vocation does not sound aspirational and enthuse students to take admission for skill courses. It was agreed upon by the AISU that B.Skill and M.Skill should be recommended to UGC for inclusion in the UGC list of courses/degrees. At present, the course names are being continued as B.Voc and M.Voc, until further approval from UGC.

IX. GUIDELINES FOR SKILLS UNIVERSITIES IN INDIA

Since the Skill Universities are preparing to offer courses in several skill sectors, identifying a suitable job role, developing the NOS, framing the guidelines about the configuration of a Skill University is very essential. For effective functioning of Skill Universities, guidelines are being prepared by the AISU as per the requirement and submitted to UGC as well as MSDE for necessary approval. Unlike AIU, AISU will be open for membership to all skill universities and conventional universities, which are also conducting skills programs at present. It was also recommended by the AISU Members that Skill Universities should have the flexibility to admit the students from 9th class onwards. UGC has set 10+2 as the basic education qualification from a recognized university/board for getting admission into B.Voc course. Students from Open Schooling and Recognition of Prior Learning (RPL) conducted by Ministry of Skill Development & Entrepreneurship (MSDE), Govt. of India are also eligible to take admission in a Skill University.

X. BHARTIYA SKILL DEVELOPMENT UNIVERSITY (BSDU), JAIPUR

BSDU is the first pure Skill Development University in the country, incorporated through Rajasthan State Act, March 2017. It has been established with an objective to promote Skill Development based education on the Swiss-Dual model from Certificate-Diploma-Advance Diploma-B.Voc.; PG Diploma-M.Voc. and Ph.D. degrees. It is located at 001-002 Domestic Tariff Area (DTA), Social Infrastructure Zone, Mahindra World City, Off Ajmer Road, Jaipur-302042, Rajasthan. More details can be obtained from www.ruj-bsdu.in.

10.1 Board of Studies (BoS)

BSDU has constituted a very strong Board of Studies (BoS) comprising Vice Chancellors of ten universities including all the Skill Universities in the country, Professors from IITs, IIMs, National Institute of Technical Teachers Training & Research (NITTTR), Chandigarh; other universities, CEOs of Sector Skill Councils, Experts from Industry and Officials from Government, Ministries/Organisations involved in Skill Development. Very large efforts and resources are being invested for the purpose. The curriculum for the B.Voc. and other programs of University is developed as per the UGC guidelines and approved by 65 members of Board of Studies (BOS).

10.2 Compliances

The university has acquired the approval/compliance of the following national bodies as per Govt. of India norms.
- ✓ University Grants Commission (UGC)
- ✓ 60% Skill Education and 40% General Education
- ✓ All India Council of Technical Education (AICTE)
- ✓ National Skill Development Corporation (NSDC)
- ✓ National Skill Qualification Framework (NSQF)
- ✓ Qualification Packs (QPs)
- ✓ National Occupational Standards (NOS)
- ✓ Sector Skill Councils (SSC)

10.3 Infrastructure

BSDU created State of the Art Laboratories/Workshops and equipped with latest machines & equipments from the world over. This ensures that students get technical/skill training on high quality machines, are industry ready and are capable of seeking employment anywhere in the world. Further, start a micro enterprise of their own.

10.4 Faculty

The teaching faculty at the University includes teachers and trainers in the ratio of 1:2. The teachers are appointed following the UGC/AICTE guidelines for minimum standard of qualification. The trainers are appointed as per the guidelines of MSDE, Govt. of India, since there are very few properly trained trainers in the country. At present, the University has two Swiss Trainers in each school in addition to Indian Engineer graduates who have been trained in Switzerland and Germany to create nuclear of trainers at the University. This team of Swiss trainers and highly trained Indian trainers conduct the Skill/Technical Hands on Training for the students at the University.

10.5 Internship

Every alternate semester of B.Voc. Program is Industrial Internship. The University have signed MOU with more than 50 industries across the country as more program are added, more MOUs will be signed with relevant industries. The campus skill learning is so popular with the industry that all students get a stipend ranging from Rs 5000/- to Rs 15000/-per month during the Internship. This facilitates earning by the students while they learn. The program is first of its kind in the country and its proving to be a great success.

Simultaneously, BSDU is also extending the Internship facility to Engineering students from other universities/colleges up to a period of maximum 6 months and shorter duration of 2 months since its infrastructure and Faculty can take it up.

10.6 Skill Courses

The first batch started during 2017-18. At present around 500 students are pursuing modular B.Voc and M.Voc courses with a provision of multiple entry and exit option in the following Skill areas:

10.6.1 B.Voc Courses:

1. Automotive Skills
2. Carpenter Skills
3. Computing Skills
4. Construction Skills
5. Electrical Skills
6. Entrepreneurship Skills
7. HVAC & Refrigeration Skills
8. IT Networking Skills
9. Machine Learning & Artificial Intelligence Skills
10. Manufacturing Skills
11. Office Administration Skills
12. Renewable Energy Technology Skills

10.6.2 M.Voc Courses:

1. Automotive Skills
2. Carpenter Skills
3. Embedded Systems & IoT Skills
4. Entrepreneurship Skills
5. HVAC & Refrigeration Skills
6. Smart Power System Skills

The university recently introduced course of Entrepreneurship Skills in B.Voc, M.Voc. and Ph.D. The aim of this school is to produce entrepreneurs capable of providing employment to large number of educated unemployed youth.

> **The University plans to have 40 Skill Schools offering B.Voc, M.Voc and Ph.D**
> **in 3 to 4 disciplines in each schools**

10.6 Innovative Approaches of BSDU

- ➢ Swiss Dual System (6+6 system- Alternate Semester-Industry Internship)
- ➢ One Machine—One Student
- ➢ 4 Trainers for every 15 Students
- ➢ Flexible Entry/Exit Policy
- ➢ Skill/Technical Hands on Training by Swiss Trainers
- ➢ Experienced Faculty
- ➢ State of the Art Infrastructure
- ➢ Teaching/Training as per industry requirement
- ➢ Earn while Learn
- ➢ Admissions twice in a year i.e., July/August and in December/January
- ➢ After completion of the course, the students will be able to take up Competitive Exams of all nature in Central and State services
- ➢ Backward linkages with RUFIL Dairy Pvt. Ltd, RJ Wood Craft, RS India Pvt. Ltd, which were established by Rajendra Ursula Joshi (RUJ) Trust and BSDU is a unit as well under the RUJ Trust.

CONCLUSION

India is suffering from talent gap, the lack of right skill set for the job required, as higher education institutions do not impart employable skills. Unemployment and skill gaps are threatening the growth of economy, stability, wellbeing and prospects of individuals in India. The youth employment situation is at doldrums despite improvements in average educational attainment. Skill development has intense relationship with economic and social outcomes. Enhanced skills improve employability of young people. Skill Education creates opportunities for individuals to broaden their horizons and be equipped with the skills needed to face today's global and multicultural world of work. "Bhartiya Skill Development University is offering Skill Education, which aims at empowering the students through improved skills, knowledge and internationally recognised qualifications to enable them access to decent employment and to promote inclusive national growth." Undoubtedly, this initiative is an innovation in the higher education system, which will reduce the skill gap largely in course of time. The innovations introduced viz., 60% Skill Education (80% practical & 20% theory out of 60%), 40% General Education and industry internship needs to be adopted by all educational institutions with the scale at which BSDU has been skilling students to be more capable and employable. A small beginning is made and long way to progress while understanding the future trends in skills ecosystem, to boost the wage employment and self-employment for a sustainable society.

REFERENCES

1. Antara Sengupta and Terri Chapman, 2018, India needs innovative ways of skilling and educating. Observer Research Foundation.
2. Avirup Bose, 2017. Education: India's innovation agenda is a work-in-progress, The Financial Express.
3. India Education Dairy, BSDU visited by Vice Chancellors of 6 Universities from Jharkhand. 22 March 2019.
4. Kiran Banga Chhokar, (2010) "Higher education and curriculum innovation for sustainable development in India", International Journal of Sustainability in Higher Education, Vol. 11 Issue: 2, pp.141-152, https://doi.org/10.1108/14676371011031865
5. National Innovation Council, 2018. innovationcouncilarchive.nic.in/
6. Sanchayan Bhattacharjee, 2018. A roadmap for skills universities in India, India Matters, Observer Research Foundation (ORF), Mumbai, 25 May 2018.
7. Study on Innovation in Higher Education, European Union, 2014.
8. UGC-NSQF Guidelines, 2017.
9. Vedamani Basil Hans, 2017. Improvement and Innovations in Higher Education in India: Need for a New Framework.