

SYSTEMS APPROACH TO SKILLING AND VOCATIONAL EDUCATION IN INDIA

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INTRODUCTION

In 2020, India is on the verge of becoming the youngest nation in the world with the median age of its population at 29 and with 64 per cent of its population coming into the working age. This demographic dividend has the ability to accelerate the growth and development by positively impacting India's performance in social, economic, technical, and political domains. To channelize the potential of our youth in building the national human capital, skilling and vocational education hold the key. Therefore, the present and the future generations need to be educated, proficiently and profoundly trained in vocations with effective and efficient skilling programmes, starting as early as in pre-school and heading to PhD.

For a very long time, skilling has been narrowly conceived as a task enabler but in reality it serves a much bigger purpose and can be rightly classified as: life enabler, technology enabler, material enabler, and economy enabler. It can lead to financial stability and contribute to the safety and security of young women, and underprivileged and passionate young students having no means to education, thus strongly contributing to our economy. Through its 360-degree impact, skilling programmes can be structured to support improved quality of life and livelihood, and ensure basic needs such as health, water, sanitation, education, and energy.

The societal impact and externalities of skilling and vocational education are beyond the levels as presently perceived. Thus, it is important to assess the impact of such programmes to validate and foster their pivotal role in changing life of individuals and communities when designed and implemented in the right spirit.

India has a great potential to be identified through its innovative and creative skilling programmes across the globe with its rich diversity, unique variables and largest number of youth to serve. Thus, it will not only build its own capital but become a skilling garage for the rest of the world. To accomplish these objectives, skilling and vocational education in India needs to be viewed in a larger perspective, with a sustainable and inclusive systems approach, designed to cater to its unique, diverse and complex set of problems.

Presented here is an innovative systems approach to skilling and vocational education covering the unique aspects and different dimensions for India, based on the incremental guiding parameters: Initiative, Creativity, Innovation, and Excellence with Relevance. Also appended are special case studies (given as Boxes 1 to 6) as conducted by faculty of Dayalbagh Educational Institute (DEI), which provide invaluable insights and applications of the topics discussed here.

DECOUPLING SOCIAL STIGMA AND SKILLING

All education policies and commission reports support skilling and vocational education for their ability to create an alternate path for human resource development. Even the recent Draft National Education Policy, 2019 aims to provide access to vocational education to at least 50 per cent of all learners by 2025. Despite of all the recommendations and efforts the social stigma attached for participating in skill programmes as prevalent in the public at large, has led to their failure making students, teachers, institutions, and universities reluctant to participate in skilling and vocational programmes.

The solution to the above problems lies in restructuring the educational framework and introducing work-based courses in the conventional educational programmes. The strategy of bringing together general education and skill education will encourage students to experience both courses and take a rational decision to fulfil their ambition while following either. Educational institutes need to offer lateral transfer and flexibility between general education and skilling and vocational programmes, to popularize them and give students the opportunity to opt for a path without exclusively starting the journey for the same. The feasibility of credit-transfer under the choice-based credit system will significantly contribute to deeper understanding and relevance of skill and vocational programmes in the gamut of conventional programmes. This set-up will enhance social and academic interaction and exchange of ideas between peers, seniors, and teachers from similar and diverse courses and streams of education, and create wider social acceptability and understanding of the courses among learners and teachers. Further, the same set of teachers who contribute to conventional education can participate in skill-based courses as part of their academic endeavour and promote interdisciplinary approach and realization of the possibilities of success as well as life-changing paradigm for students, through skilling and vocational courses.

Research-based programmes can be introduced in domains of skilling so that students willing to pursue MPhil and PhD can upgrade their education as it happens in conventional education.

Such steps will encourage students to pursue skill programmes to transform themselves from unskilled, to semi-skilled, to skilled, and ultimately highly skilled individuals. They could then contribute effectively and efficiently in national missions, such as Digital India, Cyber Security, Swachh Bharat, Waste Management, Clean Drinking Water, Skill India, Stand-up India, and Code-India programmes.

MULTI-SKILLS AND MULTIPLE SKILLS

The **analogy of** skilled individuals to machines based on their ability to perform a particular task and contribute in an economic activity demeans the position of individuals and as citizens. This, in turn, stagnates their horizontal and vertical mobility both in education and in socio-economic strata. This viewpoint has also contributed to the social stigma associated with skill and vocational courses. It has led to the belief among the masses of the narrow capacity of skilled workers in dealing with wider and bigger problems and positioning them at the bottom of the work pyramid from where no path is laid for them to rise.

The aspirations of the New India, which revolves around creation of indigenous solutions, the ability to adapt and adopt local solutions, promotion of innovation through ‘Jugaad’ the frugal approach for optimal and economical utilization of resources, signified by national initiatives like “Make in India”, make it essential that a student be trained in multiple skills.

The most important skill underlying creativity and innovation is the ability to integrate components and parts to create complete solutions, which can be scaled up and multiplied across the globe. Restrictive and conservative views on skilling make the programmes unpopular, they mar the ability of imagination and creativity of both students and teachers with respect to their learning and profession. Therefore, backward, forward, upward, and downward skill integration can create an ecosystem that can significantly lead to understanding of solutions, technologies, and contribute to job creation and entrepreneurial opportunities.

Skilling needs to be viewed as an interdisciplinary, multidisciplinary, and transdisciplinary approach to education. Attributes developed by such an integrated approach provide the platform for the emergence of qualities in students, which is not possible with conventional education. Multi-skills is an approach, which prepares learners by expanding their ability horizontally with the inclusion of more skills. This establishes interconnections among various skills and their ancillary skills. With wider knowledge and skill base individuals trained for multi-skilling can become problem solvers rather just a part of the solution.

On the other hand, multiple skilling looks into generating the capacity to multiply skills and vertically move across the levels to higher-order thinking. The avenues for multiplying skills and moving upward in their ability is practically missing for students who take up skilling or vocational courses. It is important to scale up the curriculum and embed it with the ability to multiply the skills and also motivate them enough to move beyond employment opportunities and create organizations around themselves. This way they can contribute to the economy through job creation and become innovators to integrate, various skills in the most optimal, economical, efficient, and effective manner.

For example, one can expect an electrician to repair a fault line so that a system works, this is an easy solution. But, in case someone wants to get a solution for the efficient distribution of electric supply by integrating a rooftop solar system along with the distribution and an optimal demand solution which will be different for each household, then multi-skills and the integration of skill sets becomes the obvious and better option.

Therefore, a person trained in a 360-degree skill set around the primary skill would be able to find the optimal solution, add value to the solution, and utilize skills of co-workers and tools efficiently. The feasibility of creating multiple solutions and analysing them to arrive at the best solution requires original ideas. The bottom-up approach to innovate, design, and develop products will naturally be evolved for learning and implementing complex systems. Examples for multi-skilling and multiple skills have been demonstrated through systems models in Box

A modular approach to designing the curriculum would lead to multi-skill and multiple skill set personnel. A strong relation can be established between “getting trained” and “getting ready for the world” by including labour laws, taxations, understanding of micro and mini businesses, integrating with teams for solving larger problems, and understanding of documents like agreements and contracts, adhering to values, sensitivities, civic codes, and quality-based delivery of services and products. This will lead to outcomes contributing to both economical and social gains. It is important therefore, to broaden the approach to skilling, both horizontally and vertically.

Some benefits of multi-skilling and multiple skilling are given here.

1. Restricted versus Integrated Approach to Skill and Vocational Education

Skilling and vocational programmes can be viewed either as stand-alone qualification and people can be trained in a narrow domain, or as an aptitude for functional knowledge. Multi-skill and multiple skill sets can play a vital role where organizations can be created around

solutions, with value additions, and innovations. These can be further enhanced by integrating culture, traditions, and resources.

Such an approach will permit transitions among programmes at the undergraduate level through lateral entries and encourage students to register for more than one programme at a given time to get certificates at different levels. A choice-based system, in the real sense, will facilitate multi-skill sets and multiple skills qualifications. Integration also promotes collaboration among people who are experts in different fields. This leads to new designs, novel products, and deeper understanding of services as expected from skilled persons.

Skilling and vocational programmes must be an entry to higher education for achieving higher goals rather than a disconnected affair of low-level employability. The effective training on mini plants requires to be a part of curriculum inhouse. Therefore, the employability should not become an issue ever. At present, such schemes are practically non-existent and a choice-based credit system should also be encouraged to build in mechanism to assist the integration mentioned above. The examples of life-cycle approach and circular economy are given in Box 3, showing ample opportunities in all connected areas.

2. Service versus Creation of Organizations

Employment, education, and entrepreneurship are the three outcomes of skill and vocational education. Skilled youth should not be trained only for service but for setting up their own organization. By focussing just on employment we increase pressure on the service sector and increase unemployment. It is crucial to prepare youth to be on their own, by leveraging their potential to create organizations.

It is a myth that skilling doesn't create leaders in society, industry, or organizations. In the Western world and even in India, several successful and impactful industries have been built by people who have barely gone to schools or universities. Some of them understood the values of flexible education only after they had tasted the fruits of success.

The key to becoming leaders is to build a personal model of success rather than imitating others. People who have risen from the lowest rung to the highest have the deepest understanding of the system, law, finances, training, and interpersonal relationships. Family businesses, around the globe, are passed on with set traits to the successors; but outsiders, who believe in disruptions, care much more about the surroundings and their developments. They are keen to

bring about change. Therefore, skilling should be treated as an opportunity and an engine of change, which starts with a small step to become a big game changer.

3. Innovation in Higher Education and Skilling

A new modus operandi in education may lead teachers and students to learn multi-skilling simultaneously, which can open new domains of learning and research for everyone. This new avatar of education will involve including skills both as a method and as an outcome of classroom teaching. We can look forward to classroom examples of a system where lesson plans will be developed for a given course using paintings, dramas, animation, puppetry, and their combinations. These skills will be enhanced and embedded in technology utilizing platforms from real-life to simulations, virtual reality, and augmented reality to become part of the teaching curricula in most courses starting from schools to higher education. This changes the way we perceive the relation between conventional education and skill education.

Since the trend is, “do it yourself”, students will acquire multiple skills to learn and practice in education. The teachers will have to step forward and accept this change to encompass the needs of the new education system and obtain multiple skills to teach their students. This will create new business opportunities and novel thoughts to comprehend the implications in the future. Skill and conventional education together will create a better world and opportunities for the future generation. Therefore, integrating conventional education with skill education and vice-versa is the most important decision to be taken, at all levels, by decision makers.

LEVELS OF SKILLING ACROSS EDUCATIONAL PATH

Broadly speaking, skills can be divided into two levels: conventional skills and elite skills. Presently, there is very little emphasis on elite skills, such as, language restoration, heritage restoration, and reviving old paintings and artworks. It is critical to create a new model of education that promotes integration of various types of skills and opportunities across all levels of education. A cafeteria approach, which brings together the best of the experiential, constructivist, and action-learning approaches, can be implemented (as shown in figure 1).

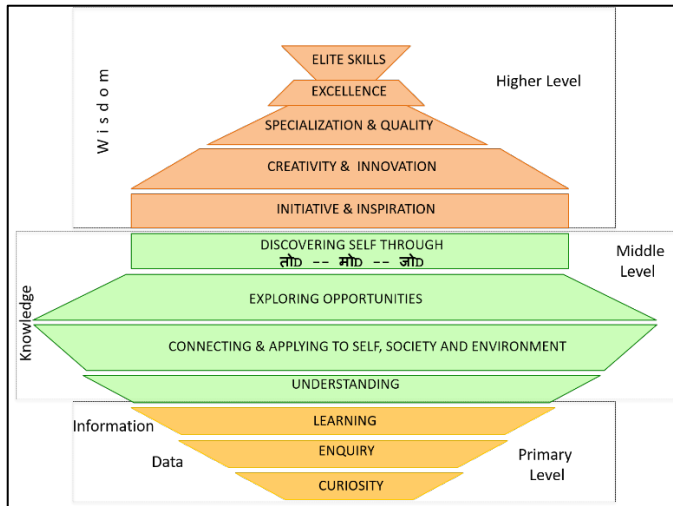


Figure 1: Diamond model for levels of skilling.

Skilling follows a hierarchy, which can be drawn parallel to the conventional education path, along with some alternate channels for weaving general education and skilling and vocational education from nursery to post-doc as shown in Figure 2.

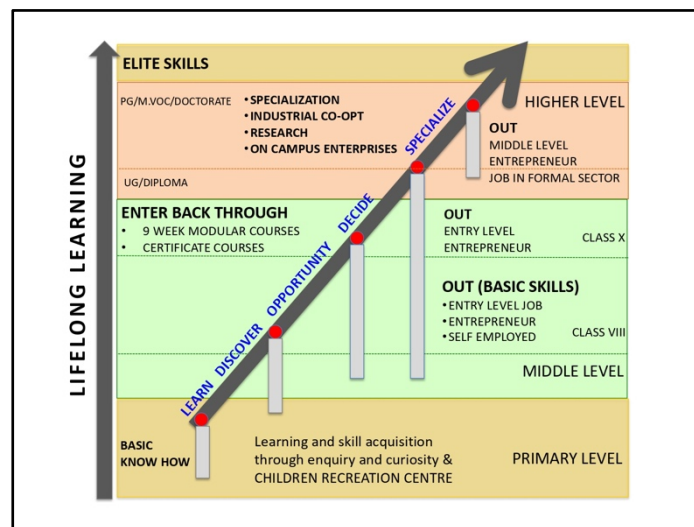


Figure 2: Lifelong learning model of education with multiple entry and exit points.

The process of learning can be grouped into three levels: Primary, Middle and Higher.

- *The primary level:* Included in this level are children from nursery to Class V. These young and curious students are made to learn through enquiry, observation, and by igniting their curiosity. At this level, Children’s Recreation Centres (CRC) along with conventional academic learning offer well-structured play-way skilling activities. The CRCs function like “edutainment labs” where young learners share ideas and resources and work together, with their hands, under the supervision of mentors.

- *The middle level:* Skill development at the middle level or the secondary level (from Class VI to Class VIII) is integrated with the regular curriculum through Discovery Labs. These vibrant spaces are stocked with facilities for various skills. Students are encouraged to explore, tinker, and discover their talents, which they can then pursue from Class VIII onwards. After Class VIII, students who have an aptitude and interest in skilling can exit into purely skill-based pathways, with the option to get back to formal learning at any time through nine-week modular programmes, which are ‘fillers’ and help learners meet the prerequisites of the course they wish to pursue. The middle-in and middle-out approach addresses the problem of early dropouts by making them move towards skilling programmes (as shown in Figures 3). Thus, a complete pathway for skilling with multiple entries and exits must be followed to present an adaptive system of education, centred around the young students and their needs.
- *The higher level:* The learners who have the correct foundation, specialize in a field at this level which refers to post-secondary, college, and university level. The integrated system of education, with lateral and vertical connections between track-based academics, technical, vocational and skill education programmes, allows learners to specialize in a trait or field through qualities and values, initiative, and excellence.

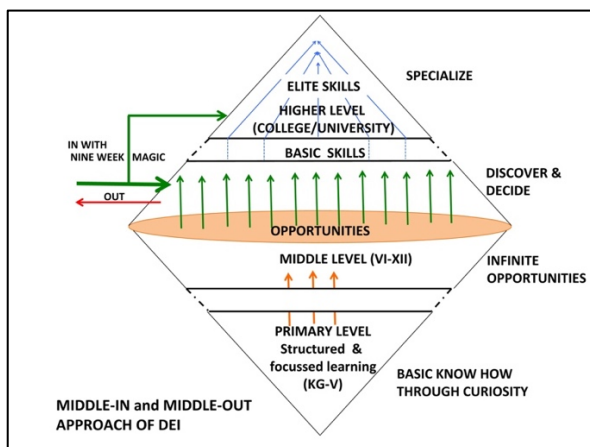


Figure 3: Middle-in and middle-out approach.

This drop-by-drop method of accumulating knowledge and skills builds both the expanse and depth and helps students to analyse the complexity of a problem in its totality. Continuous evaluation is essential at all levels. The disruptive learning methodology can bring in the novelty in teaching and learning process and include activities such as group discussions, minor projects, peer learning, and skilling camps.

To run such a plethora of courses at multiple levels, an open-learning ecosystem is required where, infrastructure resources are shared in space and time at all levels, making the implementation of new changes and analysis of their outcomes faster. This would be an adaptive educational system, maximizing the benefits and remaining relevant to the needs of both society and industry.

ATTRIBUTES FOR SKILLING AND VOCATIONAL EDUCATION

Skilling and vocational education is an integrated system of knowledge, skills, and attributes, which leads to developing competency in students. It is inevitable to look beyond training the hands, the heart, and head, to create inclusive and sustainable learning pathways, which catalyse the students' personal, social, and professional growth.

Among the three, attributes are the most neglected aspects of skilling, which has the potential to make any programme hollow if not achieved. Skilling programmes should inculcate sensitivity, values, ethics, quality, and conscientiousness as the foremost attributes among students and teachers. This can be accomplished by designing skilling and vocational programmes with compulsory core courses in addition to content related to specific skill sets. These programme should also include experiments, laboratories on land, industrial training, and internships for practical and professional exposure to real-life challenges. In the aspects covered here are: (1) Two kinds of models, embedded and appended models of skilling; (2) Internship; (3) Opportunities for Entrepreneurship; and (4) Creating Human Cloud and Organization

1. Embedded and Appended Models of Skilling and Vocational Education

The embedded model of skilling and vocational education involves education being embedded in a value-based quality framework. Introduction of core courses in the curriculum like Comparative Study of Religion, Indian Culture, Sports/Physical Education, Yoga, Environment Protection, and Disaster Management will promote value, quality, and other attributes and also life skills.

The minimum number of credits can be assigned for work-based experience courses, skill practices, and vocational programmes, along with life skills courses for majority of population as part of mainstream education. These courses should be introduced in all institutes and universities, and if possible, in schools as well so that overall appreciation starts emerging at an early age. Technology related courses such as, Information Technology, Artificial

Intelligence, and courses on finance, language, civic codes, qualities and values also need to be part of the curriculum. Work-based courses enhance working with one's hand, improving functional skills and the aptitude for building solutions. Such training will surely improve our technical and professional education and will also address issues related to social stigma attached with skilling and vocational programmes.

The appended model implies moving beyond the courses and experiences embedded in the institute programme, towards the local services, industrial services, on-job training exposures for students. These experiences can be interwoven with conventional courses also such as the Bachelors courses for the arts, commerce, and science (B.A., B.Com., B.Sc.) based on individual interest, aptitude, and need leading to the integration of minimum credits from education and skilling. Such programmes may not be as fulfilling as embedded programmes, which are based on maximum credit of interest.

2. Internship During the Programme of Study

Institutes can dedicate at least one semester to job training or practices as interns in educational institutes itself giving the opportunity to learn and develop solutions to real life problems. Internship programmes can add value to students in terms of experience in real life. By the end of an internship, it is envisaged that a student will have acquired:

- a) ability to link theory with practice in each skill and its ancillary skills
- b) application of skill in a team environment
- c) acquire new learning through experience, by doing, and by facing challenges
- d) demonstrate professional skills with positive attitude and energy in a workplace
- e) develop self-understanding, self-discipline, maturity, value system, and confidence.

Internship brings in maturity to understand the deeper requirements of customers and consumers. The integration of various courses and skill set can add efficiency and optimization in the solution or operation. Institute should give students living lab opportunities to learn, so they can enhance their understanding about the bigger picture and the crucial role of a given skill set. Internship at local organizations and mini plants will exposes students to various asymmetries of society and opportunities for development.

All skilling programmes should include “earn while you learn” scheme. This plays a dual role of meeting the financial needs of students for self-sustenance and to creatively balance working and learning. Institutes need to design space for co-learning and co-working for students, thus

ensuring participation of students with little or no means to fund their education. The scheme can also be projected as part of programmes like Maintenance-Network Research Programme across campuses so that students contributing in such programmes will earn while they learn and services and systems in campuses can run efficiently. Such incentives will motivate students to pursue higher education, who otherwise dropout because they are unable to afford the university or college education.

3. Opportunities of Entrepreneurship in and around Campus

The educational campus should be an example for promoting entrepreneurship in the areas of services, manufacturing, product design, and content creations, such as security, library, waste management, apparel manufacturing, food processing, hospitality for event management, IT services, and many more. Instead of outsourcing or hiring services, students should be engaged on similar terms and conditions. This creates peer pressure to excel and at the same time the shortage of local industries can be successfully addressed. Such support assists educational institutes to fulfil their social and community obligations and responsibilities. Multiple examples of such operations on campus will help remove barriers of caste, creed, gender, and religion.

“Earn while you learn” gets scaled up to a level where students get the confidence to deliver and meet expectations of different stakeholders. The growth of individuals as an organization can be supported by the institutes and communities by helping them to establish Association of Persons (AOP) while tinkering on innovative ideas, with credit from the institutes or interest-free loans. As soon as the groups pass out of the institute they can form Self-Help Groups (SHG) and continue building their organization further. This acts as an incubator and works towards the challenge of the lack of entrepreneurial skills and handholding.

Most cities and towns have low industry interface due to the non-existence of industry and also the absence of business culture and professional environment. Education institutes can transform the conventional paradigm separating industry and institute by acting as a nursery for mini plants based on waste management, recycling of paper, and opening institute infrastructure to create products and provide services in off hours, thus creating new opportunities and benefits for all stakeholders.

4. Creating Human Cloud and Organization around Oneself

Education needs to promote collaboration, peer learning, and working across networks. The need of the hour is not a single person with all the expertise, but a group of individuals who can form dynamic organizations to solve a problem, bringing optimization and innovation.

Approaches like Human Cloud Creation where individuals with different sets of skills form a network and work in collaboration can successfully cater to the population. Human cloud brings in need-based expertise for a given solution, and contributes to cost cutting and faster solutions, through lean organizations, which create more value for customers with fewer resources. This novel approach moves beyond the service category and widens the scalability of the skill sets of individuals when working in synergy. Similarly, this approach will be very effective for the maintenance network of large systems. This system will be fed by learning the best practices from peers. Its impact will include parameters like how many personnel of the same and similar trade over a period start treating themselves as peer to learn best practices. This collaboration will create better utilization and distribution of profits earned over a period between oneself, family, and local people. Therefore, building communities with an approach of welfare and development as part of social responsibility will lead to examples to be replicated.

By revamping the education model around initiative, creativity, innovation, and excellence with relevance we can promote overall development of learners and lay down the path for building networks and organizations around an individual and an individual in himself can be an organization who guides and mentors people around him.

MAPPING THE SOCIAL IMPACT OF SKILLING AND VOCATIONAL EDUCATION

While much progress has been made, there remain rural pockets in India about which little is known, especially with respect to residential, business, and tourism experiences and opportunities. For India to advance further, all village communities must and should reap the fruits of progress and modernity. Varied approaches to the development of rural areas, such as Smart Villages, Provision of Urban Amenities in Rural Areas (PURA), Rural Economy Zones (REZ), and Special Economy Zones (SEZ), and other rural livelihood schemes, have financial uplift as their primary goal. But it is equally important to examine how education, development, and prosperity can be brought to rural residents while helping them retain and maintain their moorings, surroundings and heritage, in fact, their rural *samskara* the inherent impressions and dispositions.

Notions of development do not lie in financial growth alone, and nor should development aim to convert villages or sparse habitats into urban settings. As the world edges towards becoming what Tom Friedman calls, “Hot, Flat and Crowded”, the need of the hour is smarter living, and the utilization of technologies for a balanced rather than one-dimensional growth. Rural innovations and the benefits of a frugal lifestyle are lost in the so-called modern approaches of financial growth, which often takes place at the cost of enrichment, enablement, and empowerment of village dwellers.

Some pertinent questions may be raised at this point:

- What is the notion of rural development?
- What are the expected observable outcomes?
- Should we look at increased revenue or a continuously evolving and sustainable quality of life?
- Should the aim be urbanization or to retain simplicity and cultural heritage with appropriate technology interventions?
- Is it about understanding rural needs or only about aligning the rural socio-economic lifestyle to urban greed?

Developing communities, especially in the rural sector with economically marginalized people, means benefits and outcomes being shared equally by every individual, irrespective of caste, colour, and creed. The balanced growth in all facets of life — social, economic, environmental, political, educational, health, hygiene and sanitation, or women’s security, and empowerment demands a balanced, physical, mental, and spiritual development of the members of the community. An embedded model of education with skilling and vocational education programmes can contribute to this.

The creation of value and knowledge-based micro-economies, requires not only a transformation in the thought process of the beneficiaries, but also of the policy makers. It calls for a change to see the change, and the education sector has much to contribute to this gradual and evolutionary process of transformation. Thus, there is a need to develop a vision and mission for a village or a village cluster that leads to sustainable improvement in the quality of life without environmental deterioration. As a step in this direction, can we create universities in villages?

Such universities can act primarily as the learning seats of local innovations, medicine, culture, literature, art and folk skills. These rural universities will not only restore the decaying diversity of India but can also become attractive learning centres for the intellectual elite in the world. Today's development policies unfortunately force many village artisans to become labourers, and daily-wage earners, fulfilling the demand of exploding urban economies. But by empowering artisans as faculty, specific skill and vocation-based curricula can be created for value addition and for branding a village on a cultural theme.

There is an important point to be made here that skill training and vocational education can also become a tool for reviving and rejuvenating local cultural traditions and depleted unique services and products. Local art, and heritage can also be restored with local expertise. REZs can be created to nurture and foster skilling and vocation as business models to improve the economy as well as the quality of life. Therefore, casting skilling and vocational initiatives into a narrow perspective may miss its wider impact.

Our nation on one hand faces deep-rooted and persistent challenges such as illiteracy, dropouts, unemployment, skill-gaps, wage disparity, and on the other confused, disoriented, and disinterested youth. Confidence-building among the youth through skills, financial stability, and goal-oriented education for providing livelihood and for improving the quality of life can play a key role in reducing these challenges to a great extent.

The implementation of various skilling and vocational programmes should provide opportunity to students to practice concepts, do practical work, have industrial and mini-plant experience in the institute, or/and in the vicinity of their neighbourhood. Thus, learning functional knowledge on the job training and established credits for education certification will lead to better recognition in the public at large. This way they can support their family in terms of further education and livelihood.

The social impact of these activities can also be measured in terms of qualification and opportunity enhancement, and change in the mind-set of the neighbourhood. The visible change in social status takes place because of learning certain skills and exposure to certain others. This has a snow ball effect on the closely knit community leading to more and more students getting registered for such programmes. It will slowly but surely raise the education and economic levels of the family and the community.

Skilling and vocational programmes, therefore, must be placed in educational hierarchies early enough so that they can be recognized as a potent empowerment tools for self-support in

education and for support for family. This would lead to nation building from inside to outside, with villages becoming major contributors to solutions at the national level and even at global scale.

CHALLENGES AND BOTTLENECKS FOR SKILLING AND VOCATIONAL PROGRAMMES

1. Local Infrastructure Issues

Skilling and vocational education is incomplete without hands-on-experience and practical training as absorption in the industry, employability, and even entrepreneurship needs industry-ready individuals. But how can we generate the infrastructure to provide practical learning platforms to millions of youth? This problem can be solved by targeting the local market and local issues as living laboratories for training. This will reduce the need of mobility of skilled workers and empower them to contribute as clusters to local and neighbouring organizations and industries.

For example, if a given city is declared a “smart city” with a very high possibility of skilled workers to be engaged and employed, the development plan should be linked to skilling courses and vocational programmes. It is also clear that the manpower requirements with new technologies, associated services, and facilities create opportunities for the work force to be employed.

Innovative start-ups like Swiggy or Zomato, both online restaurant aggregators providing a platform for placing orders for deliveries and for reviews, create the need for skilled workers, giving a boost to restaurants and related jobs in the city. Such creative business and entrepreneurial models when brought to rural landscape can generate the need for skilled workers and provide opportunities for local villages and their cottage industries. The possibility of starting market need-based business will act as drivers for future skilling and vocational programmes. This emphasizes the importance of linking local educational institutes with skilling so that the pathways for skilling, reskilling, and upskilling can be opened for all and can promote such programmes.

By promoting in-situ marketing counters at educational campuses, entrepreneurship can increase dramatically. Students can first get the market among their friends and colleagues within their campus. These kinds of activities teach students about quality, standardization, and values. Further improvement in products and services can make the difference with frank

feedback from the student communities. Such activities, when promoted under the supervision of teachers, can result in innovative, economical, and optimal resource utilization. Later, if resource centres are opened in and around educational institutes, involving village panchayats and rural markets, the concept of REZ to international markets will become a success story.

The participation of villagers develops a conducive market for budding entrepreneurs and also provides several opportunities for socio-economic transformation that will lead to a change in the quality of life. Examples of systems model for integration of education, skills and vocational programmes for building rural economy are given for Dairy Entrepreneurship in Box 4 and for Apparel and Toy Making in Box 5.

2. Content Availability in Local Languages

Language plays an important role in communicating ideas and networking with peers and mentors. The curiosity over vocational skills may be aroused early but skilling in the true sense starts only after class 8. Students at this age and beyond are more comfortable in communicating, thinking, sharing, and learning in the local language. Most of the peers, who are the real motivators and role models for students also speak in the local language. Interaction with industry and stakeholders at this level should be in the local language, thus promoting networking and experience sharing at the grass-root level. With a heterogenous set of languages available, the content for skilling and vocational programmes needs to be prepared in local languages to foster learning and practising skills in an unprecedented way, as the innovation and creativity at this age will be higher in local language.

3. Creating Catchment Area for Youth

The vision of empowering India's youth takes a back seat in the present scenario when even in the 21st century, a large number of communities and families remain indifferent to the power of education. The fault lies in the absence of flexibility and adaptability in the education system and its inability to accommodate the needs and aspirations of the individuals, whose basic necessities even are not fulfilled. Thus this ultimate challenge of connecting children, youth, and adults and bringing them out of the closed doors and existing unskilled professions is the pivotal point for success. The initiative that organizations, institutes, communities, and individuals take is the first step of the self-energising cycle of initiative, creativity, and innovation leading to excellence with relevance. Until we bring each child and youth on the path to excellence we are depriving them of the opportunity to lead a purposeful life and contribute to national and social development.

The challenge of the low mobilization of students in skilling and vocational education can be addressed by organizing institute activities in a manner that they create a neighbourhood catchment area for youth. This can be done by leveraging the potential of existing social interaction platforms such as National Service Scheme (NSS) and Unnat Bharat Abhiyan (UBA), and also novel platforms such as medical camps (see Box 6) and unrestricted on-campus visits of the community on “Open Day”, to popularize the skill and vocational programmes. The endeavour to make the youth aware of the skill development programmes must be carried rigorously across all media, like a national mission, so that no one is left behind from availing the opportunity.

Besides increasing the awareness of skilling and vocational programmes and the gross enrolment ratio (GER) in education the larger picture is changing the mindset of individuals and exposing them to their capacities and the possibilities to transform their lives. This can be termed as a “hole in the wall” approach where institutes create a window for children and youth from underprivileged sections of society, to organize activities which give them the immersive experience of a world beyond what they have seen and believe exists. This would be in sync with social responsibility and community engagement of educational institutes in opening avenues for infinite opportunities for learners by motivating them to explore the options for a better future and take rational decisions.

CONCLUSION

Skilling and vocational education have a vital role to play in transforming India and lives of millions of youth residing there, but first the nature of educational institutes needs to transform. The social stigma attached to skilling and vocational programmes can be detached by establishing vertical and lateral connections of these programmes with general education and technical education. Multiple entry exit opportunities with ‘practice-learn-earn’ loop can add significant value to the lives of students who are initially not motivated and reluctant to pursue such courses, and also pave the path for dropouts to enter in skilling and vocational programmes without any difficulty.

A well designed integrated curriculum can motivate learners to create growth paths for themselves by preparing them in functional learning, innovation and creative solutions. Steadily they can network and evolve Self-Help Groups and create organizations by getting experience of growth for themselves and others. Thus, skilling and vocational programmes need to be viewed as a source of financial stability and opportunities to grow personally and

professionally in terms of employability, education, and entrepreneurship, way beyond than what conventional path offers.

Finally, it is not simply the skilling that we seek. The youth of today need to think for themselves, about the quality of life they lead, their values, their families, the society, and the environment. Skilling and vocational education programmes should simply not train the youth in skills but make them evolve into better humans who lead a life of purpose. As only the informed and thoughtful citizens can contribute to building our nation.

ACKNOWLEDGEMENTS

The authors acknowledge the contribution of a large number of faculty members from DEI for the generation and implementation of ideas mentioned in the chapter. Authors of the paper have compiled information and have given interpretations based on the systems approach to design a model for national relevance. The authors appreciate and are thankful to all the coordinators who are running the vocational and skill programmes at various levels and have readily shared their experience to enrich this content.

ENDNOTE

Readers could visit www.dei.ac.in for reading the white papers on *Vocational and Skilling and Systems Thinking in Education*. Examples included in these papers illustrate the creative and innovative concepts mentioned here.