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Role of Technical and Vocational Education and Training (TVET) in Sustaining and Enhancing the Quality of Education

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Abstract:

India is known as pool of youngest and largest technical resources in the world. However relating to its population this number is trivial. In fact after obtaining the required formal and traditional graduation also the people remained unemployed. In any management hierarchy more workforce is expected at lower (operational) level, however in reality the number of graduates are more in number than the diploma or certificate holders at higher level (Goel, 2019).

To decrease this imbalance, and extrapolate the adage "necessity is the mother of inventions" there is a pressing need that the conventional education and training to focus on technical and vocational aspects of the system for sustaining and enhancing the quality of education.

Key Words:

Technical and Vocational Education and Training, TVET, education quality, entrepreneurship

Introduction:

As rightly pointed by Jack Welch "if the rate of change on the outside exceeds the rate of change on the inside, the end is near". In the current fast changing world of VUCA (Volatility, Uncertainty, Complexity and Ambiguity) on the outside, the required changes on the inside is necessity. The competition in economic markets becoming more intense. Skilled workforce is the key to prosperity. The Technical and Vocational Education and Training (TVET) is able to contribute for the change on the inside. It provides social competency in terms of knowledge and skills required for employment (Cong et al, 2012) as well as for entrepreneurs.

Since the world is coming closer and becoming increasingly competitive, the job opportunities getting shifted across counties and continents only because of cost and competence requirements. The availability of economic resources such as skilled labors, power, transportation and raw materials determines the location of plant setup and thereby create job

opportunities there for manufacturing and support services.

This massive impact of labor cost and application of technology on the selection of job location outlines the importance of TVET.

1. Historical Background:

According to Willis (2020), bare qualification from traditional academic institute cannot ensure automatic entry into workplace now a days. The unemployment rate is increasing between 2008 and 2009, from 11.8 to 12.7 per cent (Tripney et al, 2013).By 2011, 74.8 million young people were unemployed and one billion young people, the majority from LMICs (Low- and Middle-Income Country), are predicted to reach employment age within the next decade.

Increasing applications of technology such as Artificial Intelligence (AI) and Robotics automation in manufacturing sector changed the equations. Low labor costs in underdeveloped or developing economies are being offset by lower labor-input costs in developed economies by adopting the new material and advance technology. This situation created the pressing need of Technical and Vocational Education and Training.

To become a part of industrial revolution 4.0, the digital transformation must be done in terms of training 4.0, Big Data, Cyber Physical Systems which is challenging, for that purpose business processes, the forms of work and social coexistence is needed (Gennrich, 2018), where TVET plays vital role.

2. Technical and Vocational Education and Training (TVET):

The definition of TVET used by UNESCO as “those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic life”. It incorporates: technical education, vocational education, vocational training, on-the-job training, and apprenticeship training (or any combination thereof). Which is missing in the traditional education.

The major drivers for TVET includes the growing technical awareness of customers, increasing requirements for far greater precisions in manufacturing, demand for weight reduction,

economic material strengthening and manufacturing cycle-time reduction.

The intrusion of Information and Communication Technology (ICT) and Computers in various sectors changed the skills requirement canvas totally for all the workers in the majority of classic technologies.

Ries (2011) in his book 'The Lean Startup" pointed out how today's entrepreneurs use continuous innovation to create radically successful business. TVET is instrumental not only for getting appropriate jobs but also to create the successful entrepreneurs.

3. Sustainable and Quality Education:

Education is the key that will allow many other Sustainable Development Goals (SDGs) to be achieved. When people are able to get quality education they can break from the cycle of poverty. Education therefore helps to reduce the inequalities and to reach gender equality.

Given the huge challenges of climate breakdown, inequality, conflict, poverty, hunger, biodiversity loss and unsustainable consumption, individuals and communities across the globe must be equipped to respond positively.

Major advantages of sustainable and quality education (Mac Donald et el, 2010) are as follows:

- **Increase in the Country's Productivity:**

  Because trained and skilled employee with quality education will reduce the wastage and increase the productivity.

- **Protection from Poverty:**

  Quality education provides lot of job opportunities.

- **Reduction in the Income Gap:** Quality education helps in reducing the income gaps.

- **Shorten the Years to be Spend in Conventional Schooling:**

  TVET shorten the learning-curve.

- **Reduction in Crime Rate:**

  Increase in employment will have impact on reduction in crimes

- **Sustainable Retirement:**

  Quality education provides opportunities to experienced resources.

Sustainable and quality education believes that learners must be given the tools (in terms of knowledge and skills) that allow

them to be part of the solution. They must be empowered to shape their future and live in an increasingly peaceful, just, inclusive and sustainable manner. Education and learning can play an important role in realizing this fundamental transition (Whitby, 2019).

4. Challenges in TVET:

We have seen the advantages of TVET and sustainable and quality education, however implementation of same is no so easy. Companies like IBM, Google, Microsoft and SAS are in a race to develop the integrated systems that will dominate the workplace. New technologies, for example 3-D printers disrupt not only the workplace but employment prospects for those without mastery of necessary knowledge.

Following are common challenges faced while applying the TVET:

- **Market demands and industry needs are not being addressed:**

  While designing and planning the curriculum for TVET, if market demands and industry needs are not considered then there can be big gap between the demand and supply in terms of requirements.

- **Perception that there is no Vertical Growth:**

  In traditional education system, the levels of education (such as certificate course, diploma, degree, post-graduate, doctorate and post-doctorate) are well defined. Lack of such socially accepted levels becomes challenge.

- **Lack of Social Acceptance and Motivation:**

  Lack of socially accepted courses and the levels becomes challenge. People thinks that the jobs obtained after TVET are ‘blue-collar’ jobs, which are yet not respected by society.

- **Availability of Limited Resources with Industry Exposure:**

  Sufficient experienced people from industry are not available for TVET.

- **Streams are not Transferable:**

  In traditional credit-based education system, the credits are transferable in relevant courses. However the competencies and skills acquired through TVET are not transferable. For example tailoring skills cannot be considered for painting purpose.

- **Poverty:**

  Traditional education is class-room based. However many times special purpose machines, tools and labs are

needed for TVET, which adds in the cost not affordable to poor people. Hence response to TVET is poor.

- **No Recognition from Industry:** Automated industries having special purpose machines, on which vendor / product specific skills are needed.

  TVET having low status globally, treated as second best without any prestige (Bandura et al, 2019) and considered as 'Remedial'. However the 'work-based learning' and 'learning-by-doing' are the best facets of the TVET.

  In his paper Chinchorkar (2016) suggested to convert the talent shortage from threat to opportunity by leveraging the TVET.

5. Enhancing the Sustainability And Quality Of Education:

Braden (2015) suggested to treat the student's natural energy for learning as "renewable resource". According to him, this tremendous source of energy should be diverted and used towards learner development, rather than wasting it in other things such as frustration, irritation, absenteeism, school drop-outs and failures. He stated that "learning fuels further learning".

His suggestions towards enhancing the sustainability and quality of education specific to TVET are as follows:

- **Make the Knowledge Work:**

  The technical knowledge gained through the training and education should be allowed to reflect in terms of output results.

- **Make the Communication and Information Technology Work:**

  The role of Information and Communication Technology (ICT) is vital effective usage of ICT should be taught.

- **Make their Creative Power Work:**

  The students have inherent creative power, recognizing the same and reflecting it to curriculum is essential.

- **Make the Social Relations Work:** Social Media as well as Social Relations going to be key drivers in the business. Teach the students effective usage of social media.

- **Make the Technology Work:** Technology is tool to accelerate the business process. Effective usage of technology going to determine the success of business.

- **Make the Change Work:**

  There is phrase that 'Change is the Only Constant Thing in this World'

education should make you ready to face the changes.

- **Make their Own Learning Work:**

  Education should allow to apply the own learning in the real life issues.

- **Make their Own Lives Work:**

  The education system has to be relevant and applicable to their own lives.

- **Make the Life on Planet Work:**

  The environment and green movement, reduction in waste and pollution and saving the natural resources must be a part of education system.

  Kayande (2012) in his paper suggested the use of technologies specific to insurance sector. The short courses offering the skills such as creation of Chatbots, application of Artificial Intelligence (AI) and Predictive Analysis gives lot of job opportunities in the sector.

  MacDonald et al (2010) suggested six top principles to make the TVET successful:

1) **Relevance to the Labor Market:**

   One that meets employer's needs and expectations.

2) **Access for Trainees:**

   Trainees need to be allowed to have access to various machinery, tools and application to have hands-on training.

3) **Quality of Delivery:**

   The delivery of technical and vocational knowledge and skills is equally important as content.

4) **Standardization:**

   To ensure the consistency in the delivery, the standardization such as applying standard operating procedures is essential.

5) **Inclusion of Soft Skills:**

   In these days the soft-skills that includes communication skills is necessary along with technical skills.

6) **Funding for the system is secure and uninterrupted:**

   Technical and Vocational Education and Training includes various machines, tools, applications, computers and labs, which needs considerable funding as compare to traditional education.

6. Conclusions:

The migration of job opportunities from low-wage countries back to higher-technology countries already started, which they left over past 20 years. Every new technology brings

with it enormous new possibilities. It disrupts existing technologies and offer more opportunities to create new business. TVET plays vital role in this changing scenario.

In order to obtain the sustaining and enhancing the quality of education, TVET need to focus on the two major concepts as:

1. **Understand the Learning:**

   It is essential to study and understand the learning process itself. In this context the Bloom's taxonomy, which is a set of three hierarchical models used to classify educational learning objectives into levels of complexity and specificity is useful. This learning process can be viewed as having three aspects

- **Connecting:**

  During learning process, getting the strong connection between faculty and students is essential. The content as well as delivery need to be interesting.

- **Investing:**

  Technical and Vocational Education and Training needs many equipment's, tools, machines and applications, which need investment.

- **Expecting:**

  Technical and Vocational Education and Training must be in line with the industry expectations and market needs.

2. **Broadening the Assessment:**

   The nature of Technical and Vocational Education and Training is totally different than traditional class-room based education systems, the assessment methodology also different. For example in traditional system paper-based evaluation is there, which is not suitable to assess the skills and competency.

Effective implementation of Technical and Vocational Education and Training (TVET) plays important role in sustaining and enhancing the quality of education, which results in not only to increase the employability but mechanism to create the entrepreneurs.

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