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Imparting Technical Education for Consistent Growth of a Productive Workforce

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Abstract
Education is a key factor in the economic growth of developed and developing countries. Technical Education plays a crucial role in preparing a future productive workforce. To be of high-quality productivity and prepare students for 21st-century careers, technical education will support the development of human resources of the country by creating skilled human labour and augmenting industrial productivity which will thereby aid in the economic progress of India. Technical education is imparted through technical institutes, Industry-based training institutes, government ITIs and engineering institutes which will create an interest among the budding technocrats who can become productive employees and employment creators. During this journey of developing productivity, it is necessary to look at the foundation of education which will ensure the characteristic inclination of kids towards logical and analytical skills. Therefore, it is necessary to look at secondary and higher secondary school education for imparting those foundational aptitude and technical skills which will bring clarity to their futuristic approach and inclination towards technical education. Primary and secondary school education requires urgent attention for developing value-based education which will enhance their humanistic values and higher secondary education should bring programmes oriented towards foundational technical skills. This will require weeding out obsolete programmes and encouraging programmes in growing technical fields that can lead to good careers and build interest in high school students. This is only possible if all the institutes imparting technical education come together on the same platform to raise the interest of concerned students and evolve technical education to the next level which will support and enhance the Indian economy. The present paper tries to provide insights and suggestions to bring the education providers together and work in collaboration for the growth and development of a productive workforce and Indian economy.

Keywords: Education, Training institutes, Indian economy, National Development

1. Introduction

Today, Technical Education is the greatest weapon that can be used for the development of the country in all aspects from economic, social, and political perspectives. This will also ensure the development of a skilled workforce which can be beneficial for the industry for enhanced productivity. Vocational education is specifically designed for students who are focused on their interests to make it a career. It is developed for those special interest groups which have given good productivity results [1]. Productivity is one of the parameters which computes the economic growth of a country. Technical education is not only fruitful for those who are interested in engineering education but also helpful in creating employment for those who want to join in agriculture, business, hotel management, industrial training courses and many more technical fields. Higher productivity is an assurance of better levels of economic well-being, greater national growth, and a strengthened economy. To achieve these results, it is required to focus on improvement of education which can also be incorporated through collaboration of educational institutions.

To bring improvement in technical education, key changes are required in learning expectations, and curriculum as well as improve the industry interaction with technical institutes and high schools. Technical education and training alone by itself does not lead to rapid industrialisation, or provision of jobs or the eradication of poverty. Initiatives by education providers are required to create a skilled workforce and enhance productivity. A support system can be created, and good governance can be brought to enhance the productivity of the industry.

2. Technical Education and Productive Development

Technical education is a platform to develop a productive workforce for tomorrow. The productivity depends upon the skilling and education that is provided to the budding technocrats. The education providers along with the government organizations are required to design the courses which will benefit from the futuristic perspectives [2]. Technical education providers are required to create a well-synchronized and dynamic curriculum which can bring skilling, upskilling and reskilling.

Technical education is a systematically designed programme of courses which explores career options, supports basic academic and technical skills, and facilitates achievement of high academic standards, leadership, preparation for industry-defined work, and advanced continuing education [3]. Technical education helps to contribute to economic competitiveness and well-being in a global knowledge-based economy. It is there to develop practical skills and enhance scientific knowledge and competencies essential in industries. It also builds up leadership qualities, and attitudes as well as helps in understanding career opportunities. Technical Education prepares learners for careers based on practical-oriented activity. This provides an opportunity for students to develop their core interests and get themselves trained as per their core domain [4]. Technical Education is such an education that covers the training programmes based on advanced and latest technologies which become a key input for Industry requirements and ultimately improving employability. Only innovative and good-quality training programmes can improve the creativity level of students which is also important for national education development [5]. After improving the creativity level of students, they can face new challenges faced by the industries and nourish the demands of employers [6]. Meanwhile, all the entry gates of industries and employment are open for them. It can be used as the strongest tool for improving employment and nation-building.

3. Role of Technical Education in National Development

Technical education plays a crucial role in developing a productive workforce by providing them required skills. This will not just bring a skilled and productive workforce but also generate a large number of opportunities for the future. Employment generation is one of the key areas where budding technocrats are required to be encouraged and maximize the number of employments for the future. A few areas are discussed where technical education plays a crucial role.

1. **Generation of Employment:** Technical education helps to decrease unemployment in society. Technical education helps to develop professional skills in students so that their chances are increased for getting the opportunity in the industry. The number of industries will be increased looking for the benefit.
2. **Skilled Workforce:** Technical education ensures skilling, upskilling and reskilling as students receive hands-on knowledge. The time consumption of work by each employee will be reduced. Once the number of skilled workforces is generated, the work completion is fast and opportunities for new tenders will be more. This will create a platform for innovation and invention and meet the creative work profiling by including new technologies through industry research centres.
3. **Industrial Development:** To improve technology as well as industries, competent students play a vital role in developing and utilizing technologies for industrial and economic development. It is a tool that can be used to build up and prolong the manpower needs of any nation.
4. **Entrepreneurship Strategy:** Technical education offers the ability to be independent job creators and employers for the beneficiaries. This strategy shows up a bigger picture of creating jobs for the upcoming generation. They will be job creators rather than just doers.

4. Challenges and Opportunities in Technical Education

1. **Gaining Employment:** To gain a job in this competitive world is difficult. However, the skilled workforce is not lacking any opportunity in the job market. Skilling is the major gap almost visible for decades, however, no institute ever gave serious thought to this concern. Therefore, the market is seen as no job givers to the engineers. The fact is industry is not receiving a skilled workforce.
2. **Generating Employment Opportunities:** Technical education facilitates opportunities for the students to look at the world by focusing on small problems and finding solutions with innovation and invention. This will allow them to start a business which can be a Unicorn project for the future.
3. **Growth of Industries:** Industrial growth is only dependent on the timely completion of the work with integrity, accountability, commitment, standardization in all respects and social stand. This is only possible if technical education provides them with enough training in technical as well as behavioural skills. This will bring trust among the stakeholders and thereby growth will be vertical.
4. **Entrepreneurship Development (Boosting Start-ups):** The most important and competitive growth of technical education depends on the use of innovation and invention for creating and designing a new product. The quality and sustainability of any technical product decide the future of the creators, thereby boosting up the start-ups. Entrepreneurship requires engagement and focus to bring the product on board with the acceptance of improvements.
5. **Expertise in Language:** Students from remote areas have done most of their studies in their local language. It becomes difficult for such students to accept learning the English language. As it is known that most academic books are found in English, students are required to be self-motivated to learn the English language and educational institutes are required to sensitize the English and communication teachers for their skilling in English. Although students know the issues, they do not try to overcome them. Their knowledge will be at stake if they do not know how better is to share their knowledge. It is necessary to train such students.

6. **Innovative Techniques of Teaching:** There is a shortage of faculty who is familiar with Innovative techniques, the one who has practical knowledge and is well-versed with technology, don't do the jobs. Even the salary is not paid timely with no increments and other benefits.
7. **Learning Ability of Students:** The grasping power of students is varied. In this case, it is too difficult for the teachers to give 100% attention to each student. As the quality of students is trending low, it is necessary to look at the bigger picture of benefitting students through peer learning, collaboration, and mentoring, etc.
8. **Poor Exposure for Implementation:** Students are not aware of the applications of subjects or particular topics. They are lacking in implementing their theoretical knowledge in the real world. Such exposure for students is very poor in many schools and institutes.
9. **Poor Industry Interaction:** Institutes are the mediators which connect the students and industry. Therefore, it becomes necessary for the institutes to initiate interaction, partnership, and association with industry hubs which will promote healthy discussions about the changing industry requirements and prepare future human resources with the skills and techniques required for the job. This will be a win-win situation for the industry as well as institutes. This will minimize the industry's investment in training and institutes will get support from the industry for practical-oriented learning.

5. Methodology

Technical education providers are required to collaborate to develop a productive workforce. These institutes also need to collaborate and associate with industries which will support the institutes in developing a productive workforce through effective training and skill development. The objectives and activities are required to create and incorporate the requisite training and development activities.

- **Liaising of Technical Institutes, Industries, and High Schools by Creating the IIS Association**

The linkage of High schools, Technical institutes and Industry is required to establish (Industry, Institutes and Schools-IIS Association) to encourage budding technocrats for technical education. The training and development activities play an important role during the study time. This will minimize the training time and they will get themselves ready for the job. Aptitude development, logical thinking, analytical reasoning and verbal skills can be incorporated into the curriculum to enhance the employability of engineers. This requires a proactive approach of technical institutes and industries for high school goers. The skill enhancement can only happen during the school days when students need to be provided an opportunity to display their scientific and technical inclinations. Their inclination can give an impetus to teachers to bring special training programmes or organize technical exhibitions and events to encourage their learning spirit. This will sensitize them about the upcoming opportunities for their career development. Industries as well as technical institutes are ready to support these events which will prosper their upcoming talent and, in a way, help in the development of the Indian economy. Nation-building is only possible if all the stakeholders come together and proactively involve themselves in individual growth which comes with national growth.

1. Objectives of the IIS Association

- To incorporate the effective educational process with the dynamic curriculum and courses
- To provide practical and hands-on skills taking timely technical support and guidance
- To guide the students in improving their attitudes and understanding related to occupations in the various sectors of industries
- To highlight the importance of the acquisition of practical knowledge and skills required in the industrial sector
- To solve real-life problems and adapt the technology which useful for industries
- To learn, unlearn and relearn the technical skills for expected outcomes
- To upskill and reskill as per the dynamic requirements

2. Activities for High School Students

- **Technical Seminars:** Technical seminars give the idea about the latest technologies and recent trends in the market. Stakeholders of IIS also provide input in the technical seminar. Seminars brainstorm students and create awareness about the recent advancements in the relevant field of interest.
- **Industrial Visits:** It provides an insight into the working environment as well as the different sectors available in companies. The students should also get to know about technical workings and how technical knowledge becomes an input for practical problems. They get an opportunity to gain in-depth knowledge about the field of their interest, helping them make the correct career choice in future. Interfacing with the industry gives them a chance to build networks and hone their business communication skills.
- **Practical Workshops:** Industrial practical workshops are applied sessions with interactive discussions and demonstrations. They facilitate companies to communicate with delegates, display their products and present their latest material and outputs while offering practical training to participants. They are provided with hands-on sessions to implement it in the actual work. An innovative mindset and inventory approach can be developed through the application of workshops.
- **Project Exhibition:** The event develops a problem-solving approach by developing appropriate technologies and integrating scientific ideas with daily life situations. The students exhibit their technical knowledge by working on real-time problems thereby innovating new strategies to complete the work with ease and comfort.
- **Aptitude and Attitude Development:** The curriculum is to be developed by taking the inputs from industry as well as technical institutes. Value-based education should be provided to students during academic conduct by working on real-time problems. Situation-specific scenarios can be created to develop the attitude. Logical, reasoning, and analytical skills can only be enhanced if they are given mathematical and quantitative problems. Practice sessions are required to be incorporated as per the interests of students.

3. Role of IIS Association

- The IIS association has to design a proper curriculum or syllabus which includes innovative techniques, latest trends, and advanced software for upgrading technical education for the technical institutes by taking inputs from industries.

- The association shall include the prerequisites for the designed curriculum.
- The association shall provide the requisite training material mutually for better outcomes.
- The association shall work on providing the resources for the development of the knowledge and practical implementation.
- The association shall arrange training sessions and workshops for High school students.
- The association shall arrange a faculty development programme for improving the technical skills of teachers which will be beneficial for their students for better improvement in technological aspects.
- The centre of excellence shall be established to improve the laboratories of high schools.
- The students are to be encouraged to work on real-time problems and they shall incline towards practical-oriented learning.
- They shall arrange a maximum number of Industrial visits for high school level students which help to gain knowledge about the different sectors of industries.
- The association shall organize visits to technical institutes and industries which will create interest among the students for entering into the technical courses.
- Awareness sessions are to be incorporated from time to time.

4. Expected Outcomes

- The students will create interest in the technical education.
- The curriculum improvements in high schools will be an assurance of meeting the futuristic requirements.
- Technical institutes are required to support continuously for the development of talent which will develop human capital for national growth.
- High school students will be provided with practical skills
- High school students will be able to understand the intricacies of the industry by visiting the same and thereby enhance the requisite knowledge of the industry.
- Basics of communication skills and technical requirements will be incorporated among the students for implementation.
- Aptitude skills such as logical, analytical, and reasoning skills will be incorporated by developing the skill set required for the job.
- Roles and responsibilities are to be defined and ensure compliance by all stakeholders.

Conclusion

Technical education is one of the leading education systems of any developing country as they create the future of the country. Luckily, India, today, is one of the countries having the largest young population that will be creating an opportunity to become a developed nation and economy. They are the backbone of the economy as they will create jobs and become the human capital for the world. To create this skilled and productive workforce, the education providers must come together on one platform with one objective of creating an ecosystem which will be technically sound and contribute to the development of the Indian economy. The nation's development is possible if well-resourced models like the IIS Association can be created which will benefit the all-round development of the country. Imparting structured and well-planned technical education with effective implementation of the IIS model will ensure powerful outcomes to become the major contributor to developing India on the economic front. All the stakeholders of the model will be engaged with an interest in futuristic growth and ensuring productivity and skilling. IIS Association aims to meet the needs of the emerging opportunities, increasing populations of technocrats and challenges of the 21st century. India needs a higher and technically educated workforce who plays a big role in the betterment of the Indian economy. If India can provide skilled people to the outside world, then it becomes easy for the nation to become a developed nation in the upcoming five-year plan of the country. Moreover, skilled, and productive workforce provision for the world will ensure the fastest growth of the nation.

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