Akhil Bhartiya Shiksha Samagam

Report on

Session 7: Creating a Synergy between Education and Skilling - Future of Work

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Government of India

Akhil Bhartiya Shiksha Samagam

Session 7: Creating a Synergy between Education and Skilling - Future of Work

Introduction

The National Education Policy (NEP) 2020 emphasizes, "The education system must prepare students for the jobs of the future, which will require a combination of technical skills, problem-solving abilities, and creativity." The NEP has also brought in regulatory and transformative changes in curriculum and pedagogy to ensure students are developing higher order cognitive skills, 21st century skills, mathematical and computational thinking, critical thinking skills amongst others.

With new and improved "learner-centric" initiatives like the National Credit Framework allowing flexibility of multiple exits and entries, credit-based learning (Academic Bank of Credits), and the availability of futuristic online and offline courses, India has taken a leap in the right direction.

Education plays a crucial role in building a strong foundation of knowledge and Vocational and technical skills training programs can provide individuals with industry-specific skills and hands-on experience, enhancing their employability. This calls for the synergy of education and skill training.

The members of the session are shown in the table below:

S. No.	Activity	Chair/ Participants
1	Welcome Address	Dr. K. K. Dwivedi, Additional Secretary, MSDE
3	Session brief by Chair	Shri Atul Kumar Tiwari, Secretary, MSDE
4	Panelist 1	Shri Sanjay Gupta, President & CEO, Minda Corporation
5	Panelist 2	Shri Shrikant Madhav Vaidya, CMD, Indian Oil Corporation
6	Panelist 3	Ms. Aurelia Ardito, Education Specialist, UNICEF
7	Panelist 4	Shri TG Sitharam, Chairman, AICTE

Issues

The rapid changes in Technology have created a demand for an agile workforce adept to cater to the changing requirements. This creates a need to develop capacity of Indian education and skill sector to leverage this demand and increase employability. In recent years, emerging technologies such as Artificial Intelligence (AI), automation, robotics, analytics etc. have become bliss for the industries but the same can result in job displacement. A balance between the two is important to ensure adoption of new age technology and increase in employment.

Further, India is looking for sustainable energy options to compete global push on clean energy. India has large availability of natural resources for generating clean energy; however, it can be

achieved only when individuals are equipped with the knowledge and skills needed to contribute towards the clean energy sector.

Further, India's electronics and semi-conductor manufacturing sector has been growing rapidly in recent years owing to the push from Govt. of India. However, majority of IT hardware consumed in India is imported, indicating a lack of progress in domestic manufacturing. To make India self-reliant in electronics manufacturing, there is a need to increase the pool of skilled resources for the sector.

As the technology keeps changing over the time, there is a need to motivate students and develop a culture of lifelong learning, relevance and agility to changing technologies to enhance their employability. Also, to prepare students for the changing job market, there is a need to integrate skilling with general education.

Discussion

Evolving technology and skilled workforce:

As the technologies continue to evolve, workforce must adapt to the changing demands of the industry/ market. India's education and skill sector using its network across the country can leverage the increasing demand for a skilled workforce in the following ways:

- **Developing a new-age curriculum:** The education system needs to recognize the changing scenario of the job market and offer a curriculum specializing in new-age, industry-specific skill sets. The curriculum should focus on imparting knowledge of technology and relevant skills required.

- **Following a skill-based approach:** The education sector must take a skill-based approach to address skills gap and skill mismatch in India's workforce.

- **Investment on infrastructure and upskilling:** The Govt. should invest on infrastructure and upskilling for the youth to build a competitive workforce. The Govt. should emphasize on on-the-job training, industry partnerships, and alignment of courses with the industry needs.

- **Encourage diverse set of skills:** Having a diverse set of skills can help individuals adapt to changing circumstances leading to better job opportunities and career growth.

- Establishing a thorough system and seamless cycle of education, vocation, and growth to bridge the gap between the current curriculum and the new age demands of the job market.

By implementing above steps, India's education and skill sector can leverage the increasing demand for a skilled workforce and develop a new age skilled workforce that is equipped to handle the changing job market.

Evolving technologies and employment retention:

As industries strive for increased efficiency and cost-effectiveness, many tasks that were once performed by humans are now being automated or being performed by robots resulting in change in skill sets required. To maintain a balance between emerging technologies and the workforce, the following measures can be taken:

- **Upskilling and reskilling the workforce:** The emergence of new-age technologies like AI,

automation, robotics and analytics has created a high demand for professionals with emerging skills. The Govt. can invest in infrastructure and upskilling for the youth to build a competitive workforce.

- **Encouraging diverse skill sets:** Having a diverse set of skills can help individuals to adapt changing circumstances leading to better job opportunities and career growth.

- **Encouraging ethical use of technology:** The ethical use of technology can help ensure that the workforce is not threatened by emerging technologies. The government can also create regulations and guidelines to ensure that emerging technologies are used ethically and do not impinge on human rights like privacy and are used towards the common goal of sustainable development.

By implementing above measures, a balance can be maintained between emerging technologies and the deployment of workforce. These measures will help ensure that the workforce is not marginalized by emerging technologies and can adapt to changing circumstances.

Sustainable energy for holistic development:

India has a massive demand for energy to fuel its rapidly growing economy. The country's vision is to achieve Net Zero Emissions by 2070. India can achieve sustainable energy options while aiming towards holistic development by implementing the following measures:

- **Invest in research and development:** Investing in research and development (R&D) can help India develop new technologies and innovations in the field of sustainable energy. By involving students in R&D projects related to green hydrogen, India can nurture a skilled workforce with expertise in this field.

- **Awareness and collaboration:** To foster the growth of green hydrogen technology and raise awareness among students as well as the society, educational institutions, research organizations, and the government need to collaborate. Awareness campaigns, workshops, seminars, and educational programs can be organized to generate awareness amongst and sensitize the students about the potential of green hydrogen and other forms of renewable energy as a sustainable energy solution.

- **Promote renewable energy sources:** India has made significant progress in renewable energy, with solar, wind, and biomass being the primary sources of energy. Promoting renewable energy sources will help India achieve its sustainable energy goals while also reducing its carbon footprint.

- **Invest in sustainable energy ecosystems:** Investing in sustainable energy ecosystems will help ensure socio-economic development while promoting sustainability. This will help India in advancing economic development, improving energy security, and mitigating climate change.

- **Promote public-private partnerships:** Public-private partnerships can help adopt sustainable energy practices and encourage investment in the sector. The Govt. can work with private sector to develop sustainable energy projects and promote sustainable energy practices.

By implementing above measures, India can achieve sustainable energy options while aiming towards holistic development and achieve its goal of becoming a global leader in sustainable energy.

Self-reliance of Indian Electronics Manufacturing:

As the technology is changing, demand for electronic devices and technical equipment is increasing. Due to recent trends of remote working, online learning, and digitalization trends, sectors like education, hospitality have witnessed an upward surge. Further, during the lockdown, sectors like healthcare, education reported huge demand for devices that will facilitate online learning and remote working. Also, the infrastructure and network for remote connectivity has to be in place in all locations. However, the supply chain was disrupted, leading to challenges in meeting the growing demand for semiconductor components.

To make India self-reliant in electronics manufacturing and increase the pool of skilled resources for the sector, the following steps can be taken:

- **Strengthening skill development programs:** The government should focus on enhancing skill development programs specifically tailored for the electronics manufacturing sector. This can include vocational training, apprenticeships, and certification programs to equip individuals with the necessary technical skills.

- **Collaboration with educational institutions:** Collaborating with educational institutions, such as universities and technical colleges, can help in designing curriculum and courses that align with the needs of the electronics manufacturing industry. This can ensure that graduates are job-ready and possess the required skills.

- **Encouraging research and development:** Promoting research and development activities in the electronics sector can lead to innovation and the development of advanced technologies. This can be achieved through partnerships between industry players, research institutions, and government agencies.

- **Promoting entrepreneurship:** Encouraging entrepreneurship in the electronics manufacturing sector can lead to the establishment of new companies and startups. The government can provide support in terms of funding, mentorship, and infrastructure to promote entrepreneurship in the sector.

- **Collaboration with industry experts:** Collaborating with industry experts and international organizations can help in sharing best practices, knowledge, and expertise. This can facilitate the transfer of technology and skills, ultimately benefiting the domestic electronics manufacturing sector.

By implementing above measures, India can enhance its electronics manufacturing capabilities, reduce reliance on imports, and create a skilled workforce to support the growth of the sector.

Future of Work (FoW) and Integration of Skilling & Education:

Embedding the ethos of the FoW at schools, ITIs (Industrial Training Institutes), and higher education institutes is crucial to prepare students for the changing landscape of work. Further, integrating skilling with general education is necessary to prepare students for the changing job market and ensure that they have the necessary skills and mindset to succeed. Embedding the ethos of the FoW at schools, ITIs, and higher education institutes as well as integration of skilling with general education is necessary for the following reasons:

- **Early learning and critical thinking:** Early learning skills are crucial for children as they form

the foundation for their future development. Apart from academic knowledge, emotional skills, critical thinking are equally important. Ultimately, focusing on a solid foundation of learning during early stages lays the groundwork for lifelong success and adaptability.

- **Preparing students for the changing job market:** The world of work is evolving rapidly, with advancements in technology, automation, and globalization. By anticipating and incorporating FoW elements into education, students can develop the skills, knowledge, and mindset needed to thrive in this dynamic environment.

- **Closing the skills gap:** There is often a disconnect between the skills taught in educational institutions and the skills demanded by employers. Embedding FoW elements can help bridge this gap by ensuring that students are equipped with the relevant and in-demand skills needed for future careers.

- **Promoting lifelong learning:** FoW emphasizes the importance of continuous learning and adaptability. By integrating FoW elements into education and skilling, students and trainers are encouraged to develop a mindset of lifelong learning through upskilling and reskilling, enabling them to stay relevant and agile in the face of changing job requirements.

- **Enhancing employability:** FoW is centered around the skills and competencies that are highly valued in the job market, such as critical thinking, problem-solving, collaboration, and digital literacy. By embedding FoW elements, educational institutions can enhance the employability of their graduates, making them more attractive to employers.

- **Fostering innovation and entrepreneurship:** FoW encourages creativity, innovation, and entrepreneurial thinking. By incorporating FoW elements, educational institutions can nurture these qualities in students, empowering them to become future innovators, problem solvers, and leaders.

- **Addressing societal challenges:** FoW encompasses not only technological advancements but also social and environmental considerations. By embedding FoW elements, educational institutions can equip students with the knowledge and skills to address societal challenges, such as sustainability, diversity, and social responsibility.

Overall, embedding the ethos of FoW at schools, ITIs, and higher education institutes is necessary to prepare students for the future of work, bridge the skills gap, promote lifelong learning, enhance employability, foster innovation, and address societal challenges. It is essential for educational institutions to adapt and evolve to meet the changing needs of the workforce and ensure that students are well-prepared for the opportunities and challenges that lie ahead.

Way Forward

The various stakeholders from public, private and academic sector gave their perspective on working together and find a way forward for integration of education and skilling:

Government Stakeholders

- Partnering with Private Sector by actively offering apprenticeship and industry exposure programmes for students.

- Enhancing collaboration between educational institutions and industries for aligning education

with industry needs.

- Making online learning platforms and Massive Open Online Courses (MOOCs) (digital platforms) for providing skilling opportunities to a wider population.

- Set up career counseling and guidance in secondary schools providing the necessary exposure to students to vocational education at an early age.

- Encourage entrepreneurship and innovation to foster a culture of self-employment and job creation.

Academic Stakeholders

- Offer work-integrated learning programs to allow students to gain hands-on experience while they are still studying to develop the skills and knowledge.

- Raising awareness and engaging students in emerging technologies such as automation, Artificial Intelligence, data analytics, robotics etc.

- Equip students with the necessary skills for the future job market by focusing on practical experiences, industry collaboration, and leveraging technology.

- Industry-Academic collaboration to promote skill development among existing as well as new employees and create a talent pool as per the industries' requirements.

- Integration of distance and regular education to provide flexibility and wider access to learners from diverse backgrounds based on their preferences and requirements.

Industry/ Private Stakeholders

- Reskilling of existing workforce as per new technology as the job market is rapidly evolving due to technological advancements.

- There is huge demand for skilled professionals in industries like semiconductors and hydrocarbons, emphasizing the importance of efficient skilling and job creation. Industries can develop the job roles as per the changing nature of market demand and prepare the workforce to remain employable in the long run.

- Although technologies like AI, ML, robotics and automation etc. have raised concerns about job displacement, creation of new job roles in these areas can help the young workforce to meet the new requirements of IT industries especially in jobs related to AI development, data analytics, data mining, data science, deep learning etc.

The National Education Policy 2020 aims to transform the education landscape by focusing on multiple aspects, including early childhood care and education, school education, higher education, vocational education, and teachers' training. However, as the nature of demand for skilled workforce is changing as per the dynamic requirements of industry due to frequent changes in technology, there is a need to bridge the gap between education and skilling to improve the skills of students and enhance employability. It will require collaborative efforts from all stakeholders including but not limited to government, educational institutions, industries, and society to foster a strong collaboration between education and skilling in India.

Conclusion

- There is a vital need to align education and skilling for the employability of Indian youth. Key strategies include partnering with the private sector to bridge the gap between theory and practical skills and embracing digital integration for technological preparedness.

- Renewable energy, particularly hydrogen, offers promising employment prospects in the global energy sector. Research and development, investment, awareness creation and collaboration for renewable energy can help India in achieving sustainable development.

- There is a need of emphasizing lifelong learning and developing foundational skills, critical thinking, and emotional intelligence in the youth. Learning, unlearning, relearning, effective trainer training and exposure to diverse opportunities are considered as essential elements for meeting industry demands and fostering better career aspirations.

- Collaboration across Ministries is essential to create a job-oriented education system, embedding internships and apprenticeships. Teachers' training and upskilling are emphasized to equip educators for the evolving educational landscape.

- Addressing challenges related to gender disparities, socioeconomic inequalities, and geographical limitations is essential for achieving inclusive development. The National Credit Framework has played an important role in integration of education and skilling, along with the adaptation of technological subjects across education levels.

- The focused efforts to harmonize education and skilling are needed to empower Indian youth, enabling them to become future ready and meet growing industry demand.

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