Abstract: INNOVATIONS IN WELDING SKILL ACQUISITION AND SUSTAINABILITY

This paper seeks to explore the Indian Skill Demography, Skill Gap, National Skill Qualification Framework and Vocational Education Trends, with a particular emphasis on Innovations in Welding Skill Acquisition and Sustainability. The initiatives for skill development frequently face various challenges, including Historical, Social, Economic, Political, and Emerging trends.

The industry continues to have a significant demand for skilled labour around the globe. However, the levels of employability remain stagnant due to a lack of innovation and sustainability. To encourage potential candidates to engage in skill development; dynamic, innovative and sustainable approaches that elicit results-oriented public-private partnership are essential.

WHY INNOVATIVE AND SUSTAINABLE SKILL DEVELOPMENT IS SO CRITICAL FOR INDIA- THE DEMOGRAPHIC DIVIDEND?

The nation has been discussing the demographic dividend for the past two decades. Therefore, it is beneficial to understand what demographic dividend entails us and why it is vital to equip our youth with skills. The United Nations Population Fund (UNFPA) defines it as "the economic growth potential that can arise from changes in a population's age structure, particularly when the proportion of the working-age population (15 to 64) exceeds that of the non-working-age population (14 and younger and 65 and older)."

The upward mobility in careers and the advancement of technically skilled individuals, as well as the current industry trends, require thorough research before the execution of innovative projects. What has transpired within our vocational education system, and what is our current mapping?

CHALLENGES OF SKILL TRAINING AND REFORMS

Growth and Development foster positive transformations in individuals, particularly concerning their Beliefs, Society, Environment, Economy, Education, and Technology. The application of engineering skills in real-life scenarios facilitates genuine advancement. Employability Skills are acquired through structured skill training, leading to tangible outcomes. Nevertheless, in the current post-Covid era and AI landscape, it is imperative to embrace more innovative approaches beyond conventional skill training methods to ensure sustainability. For instance, Manual Welding still represents as one of the most cost-effective and efficient methods for permanently joining metals; however, its application is primarily confined to repair and maintenance today, as it is increasingly supplanted by semi-automated or fully automated techniques with the rise of Robots and Cobots. As a result, only innovative and sustainable skill sets can effectively address the existing skill gap in the evolving context of [Industry 4.0 & 5.0] metal fabrication, manufacturing, and production.

RECOMMENDATIONS AND SUGGESTIONS

India possesses a clearly articulated National Skill Qualification Framework System (NSQF) consisting of qualification packs, national occupation standards, recognition of prior learning, national council for vocational education and training, national qualification register etc. This framework aims to provide an innovative and sustainable foundation for the country's skill development initiatives, thereby enhancing the employability skills of the Indian demographic dividend. India should leverage this advantage, which may persist for a couple of decades more, by innovations in metal joining and fabrication, particularly through the adoption of cutting-edge technologies in fabrication, welding, and manufacturing, with a strong emphasis on qualitative employability skills which ensure career growth and sustainability.

CONCLUSION

Addressing the skill gap through employable skills presents a formidable challenge and demand innovation and sustainable effort. IIW India has the potential to serve as a model in this context, transforming the aspirations of a nation and redefining the culture of skill qualification and work ethos in India.

KEYWORDS

Innovation, Sustainability, Trending Technology, NSQF, Employability Skills, and Demographic Dividend.