ISSN No:-2456-2165

An Empirical Analysis of Emerging Trends of Vocational Education and Training in India

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Abstract:- With rapid economic growth and a noticeable scarcity of skilled labour, there has been a growing emphasis on modernising formal vocational education and training (VET) in India. The Indian government has prioritised skill development for over a decade, leading to the implementation of state policies and schemes aimed at enhancing and revitalising a VET system grappling with both quantitative and qualitative issues. This article provides an overview of the key foundations of the Indian VET system, while also discussing the policies and initiatives undertaken to restructure and upgrade formal VET in India. There exists an empirical analysis of Emerging recent trends that are popular nowadays in India. Lastly, it sheds light on the primary challenges faced and explores the potential for further advancements in the sector from various systemic perspectives.

Keywords:- *Education, Training, Vocational, Trends*

I. INTRODUCTION

Vocational education plays a vital role in enhancing employment opportunities and driving economic growth for every nation. In India, a rapidly developing country, significant strides have been made to enhance and establish technical education.

Vocational education, also known as career and technical education (CTE) or technical and vocational education and training (TVET), focuses on preparing individuals for employment and specific occupations. It encompasses training in various trades, crafts, and professions across different levels and domains. Practical tasks are an integral part of vocational education, providing trainees with hands-on experience. Often referred to as professional education, it equips learners with specialised knowledge in specific techniques. Vocational education has its roots in the traditional learning system and continues to be an essential component of education in India.

Keeping in view the great importance of vocational education, trends are important to grow the vocational education which will guide future directions to expand the vocational education in the developing countries like India. Therefore, we study the emerging trends in vocational education and Training in India.

II. RESEARCH METHODOLOGY

The research paper consists of the data and information to be taken from secondary data resources. This is a descriptive type of research where analysis and conclusions are based on the in-depth study without using statistical tools. Thus, framing a hypothesis for analysis factor is not required here, However, through objective we examine the trends in the vocational education programme

- *Objectives of the Study*

- To find the emerging trends in the field of Vocational Education and underlying challenges on it.
- To suggest how to overcome the challenges for better implementation of VE.

- *Hypothesis*

- H0 Trends directly affect vocational education
- H1 Trends indirectly affect vocational education

III. LITERATURE REVIEW

- *"Skill Development and Vocational Education 2022: Top 5 trends to watch out for this year":*

The article which focuses on the top 5 trends in the year 2021 and 2022. This article was studied to get comparisons with the current year trends in Vocational Educational Training.

- *"Vocational Education and Training in India: Prospects and Challenges from an Outside Perspective":*

This article is written by authors Matthias Pilz and Julia Rege. This article states that India's formal vocational education and training (VET) system has been under scrutiny due to the country's high economic growth and a shortage of skilled workers. The Indian government has prioritized skill development for over a decade, leading to state policies and schemes aimed at improving the quantitative and qualitative aspects of the VET system.

- *"Trends and Future Expectations in the year 2023 in the Education and Skilling Industry: Derived from* https://www.cxotoday.com/specials/trends-and-future-expectations-in-the-year-2023-in-the-education-and-skilling-industry/**" :**

The trends analysed for the year 2023 are 1) Expansion of program service providers and continuous development in job-ready skills and soft-skill training. Add two more lines to expand

- *The Future of Education in India: Predictions and Trends for 2023:*

The article discusses predictions and trends for the future of education in India in 2023. It emphasizes the increasing importance of technology in education, such as online learning platforms, virtual classrooms, and digital content. The article also highlights the potential of artificial intelligence and machine learning in personalizing education and improving student outcomes

- *M.K Salooja, Vipin Kumar Jain(1995), Oriental Guide on Vocational Education Programme:*

In this literature, the The National Council for Vocational Education and Training (NCVET) and the functioning of entities engaged in vocational education and training, both long & short-term, and establish minimum standards for the functioning of such entities are mentioned. The major functions of NCVET would be recognition and regulation of Awarding Bodies, Assessment Agencies, and Skill related Information Providers; approval of Qualifications; monitoring and supervision of recognized entities and grievance redressal.

- *(2005)In Service Training of Vocational Teachers in Career Guidance, PSS Central Institute for Vocational Educational Training:*

This literature review covers the training methodologies given to the existing educators and the underlying principles applied for the overall development of the teachers undergoing training.

- *Indian Journal of Vocational Education, PSS Central Institute for Vocational Education (ISSN 0972-5830)*

This is a detailed journal, mentioning various research articles based on Vocational Education, which covers areas of study in TVET, better practices and future agenda for TVET in India.

- *Trends in Vocational Educational and Training-One Paragraph on Importance of Trends*

Following are the trends:

- Digital technology adoption
- Industry integrated Higher Education
- Blended learning and Higher Forms
- Re-imagining and rebranding of ITIs

- *India's Three Tier Approach*

The Technical and Vocational Education and Training System (TVET) in India has adopted a three-tier approach to enhance human capital development:

- *Specialised Professionals at the Graduate and Postgraduate Levels:*

These individuals undergo rigorous training in prestigious institutions such as IITs, NITs, and engineering colleges to become skilled engineers and technologists. Their expertise is honed through comprehensive academic programs and practical experience.

- *Technicians and Supervisors at the Diploma Level:*

Polytechnics play a crucial role in training graduates at the diploma level to become competent technicians and supervisors. Through hands-on learning and theoretical knowledge, they acquire the necessary skills to excel in their respective fields.

- *Vocational Stream and Craftsmen at the Certificate Level:*

The TVET system also caters to higher secondary students interested in vocational careers and craftspeople seeking skill development. These individuals are trained in ITIs (Industrial Training Institutes) and formal apprenticeships. By participating in these programs, they acquire valuable skills, making them semi-skilled and skilled workers.

By implementing this three-tier system, India's TVET is effectively improving the human capital by producing specialised professionals, technicians, and skilled workers across various levels of expertise.

- *Challenges in Vocational Education and Training -One Paragraph Regarding Challenges*

The existing state of vocational education in India faces several challenges:

- High drop-out rate at the secondary level.
- Vocational education is currently limited to grades 11 and 12.
- Lack of participation from private companies and industries.
- Insufficient number of vocational institutes across the country.
- Inadequate availability of trained faculty members.
- Unsuccessful implementation of vocationalization at all educational levels.
- Lack of vocational education and skills training in emerging sectors.
- Severe shortage of skilled instructors and teachers.
- Limited opportunities for continuous skill development.
- The current education system fails to meet the skill requirements of existing and future industries, resulting in a supply-demand gap.
- Vocational training centres outside the school system are ill-equipped to handle the demand and cater to only a limited number of students.
- Significant gap between skill demand and supply.
- Vocational education and training institutes often have outdated centralised syllabi that do not align with market conditions.
- Absence of a monitoring committee.

In summary, vocational education in India is confronted with issues such as drop-outs, limited grade coverage, lack of private participation, insufficient institutes and faculty, ineffective vocationalization, skill gaps, and outdated curricula, among others. These challenges hinder the development and accessibility of vocational training in the country.

➢ *Statistical Calculation for Hypothesis*

- H0 Trends directly affect vocational education is null hypothesis
- H1 Trends indirectly affect vocational education is alternative hypothesis

➢ **Trends directly affect vocational education**	➢ **Trends indirectly affect vocational education**
• Integration of technology in the classroom • A focus on STEM learning and computational thinking • 'Flipped' classroom learning • A push for student wellbeing and mindfulness • A trend towards more flexible learning environments (FLEs) • Life skills and Workplace preparation	• Augmented reality • Artificial Intelligence • Holistic learning approach • Training based learning • Education with entrepreneurship

For analysing the data further, based on the google form data, following were the conclusions made for the variable

- HO trends affecting
- H1 trends not affecting

➢ *Test applied: Chi Square*

H0 and H1, the null and the alternative hypothesis is tested with the data value of n=60, obtained mean value at 29.3 and level of significance at 0.05

$n =$ 60 $\bar{x} =$ 29.3 $\sigma =$ 3

Level of Significance: $\alpha =$ .05

Test Statistic:

$$z = \frac{\bar{x} - \mu_o}{\sigma/\sqrt{n}} = \frac{29.3 - 30}{3/\sqrt{60}} = -1.81$$

Rejection Rule: Reject H_0 if p-value $\leq .05$

p-value $= .0351 \leq \alpha = .05$

Conclusion: Reject H_o

Obtained p value = 0.351

➢ *Conclusion:*

Thus the null hypothesis is rejected and the alternative hypothesis H1 is accepted, and thus it proves that trends do not directly affect vocational education.

Indirect trends can be a major factor which can impact vocational education as it has to revised as per the needs and demands of the changing market.

On what basis applied test?????

- *Trends for Overcoming Challenges*

IV. FINDINGS FROM THE RESEARCH

Following are the findings obtained from the research:

- In the field of skill development and vocational education in 2022, there were five key trends to watch out for. Firstly, there is a growing collaboration between the Ministry of Skill Development and Entrepreneurship (MSDE) and the Ministry of Education (ME) to align skill development programs with formal education systems. This aims to facilitate a smooth transition for students into the workforce.

- The key trends and future expectations in the education and skilling industry for 2023: Expansion of program service providers: Program service providers are expected to expand their offerings beyond traditional skilling programs to encompass other areas such as higher education, executive education, and lifelong learning.

- Continuous development in job-ready skills and soft-skill training: There will be a continued focus on developing job-ready skills, including technical and soft skills, to meet the demands of the rapidly evolving job market.

- There is a shift towards district-level skill development initiatives. Instead of a generic supply-side approach, efforts are being made to tailor skill development programs to meet the specific needs of industries in each district. This ensures that individuals acquire skills that are directly relevant to the local job market.

- The adoption of emerging technologies is becoming crucial in skill development. With the rapid advancement of technologies like artificial intelligence, robotics, and blockchain, it is important to incorporate these into skill

development programs. This prepares individuals for the jobs of the future, which are increasingly reliant on technology.

- There is an increasing emphasis on industry-academia partnerships. Collaborations between industries and educational institutions are on the rise as they help bridge the gap between classroom learning and industry requirements. This ensures that students gain practical skills and knowledge that are directly applicable to their chosen industries.

- Skill development programs are focusing more on entrepreneurship. There is a greater emphasis on promoting entrepreneurship and supporting aspiring entrepreneurs through skill development initiatives. This helps foster a culture of innovation and self-employment, empowering individuals to create their own opportunities.

These trends highlight the efforts to enhance the effectiveness and relevance of skill development and vocational education, enabling individuals to thrive in the evolving job market.

V. CONCLUSION AND SUGGESTIONS

The future of vocational education is expected to be influenced by several significant developments and innovations. Advancements in artificial intelligence and machine learning will play a crucial role in shaping vocational training, enhancing its effectiveness and efficiency. The rise of micro-credentials and online learning platforms will continue to transform the landscape of vocational education, providing flexible and accessible learning opportunities. The advent of Industry 4.0 will bring about new challenges and opportunities, requiring vocational education to adapt to the changing demands of digitalization and automation. Moreover, the importance of soft skills such as problem-solving, critical thinking, and teamwork will be emphasised, recognizing their significance in the workplace. The integration of sustainable practices and green technologies will be given greater attention, aligning vocational education with environmental concerns. Lastly, the integration of AI and data analytics will further enhance vocational education, enabling personalised learning experiences and data-driven decision-making. Overall, these trends and advancements will shape the future of vocational education, promoting innovation, adaptability, and the acquisition of essential skills for the evolving job market.

➢ *Suggestions*

- Technical Data required to analyse vocational education trends in various parts of country
- More transparency to operations
- More clarity on implementation of policies are required
- Overall data for the country is required for hypothesis testing

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