

## Evaluating the Effectiveness of Collaborative Initiatives between Industries and Vocational Institutions to Alleviate Skill Gaps in India

Dr. Medhavini S Katti<sup>1\*</sup>, Dr. Ramesh T Pote<sup>2</sup>

### ABSTRACT

India is the second largest higher education network in the world at present. Here the technical education and vocational training is imparted through Government Institutions, Government Aided Institutions, etc. And these Vocational education and training are included in vocational teaching in India. There is no minimum qualification needed for vocational training, which frequently awards certificates in craft instruction. Under a centrally supported program called Cationization of Secondary Education, Emerging technologies like AI, robotics, and blockchain are transforming industries, necessitating a focus on new-age skills. Vocational training must evolve to prepare the workforce for these changes. The collaborative efforts between industry and vocational sectors in India are transitioning towards a demand-driven framework. By 2026, these endeavours have shown improved efficacy in enhancing workforce readiness, notwithstanding persistent deficiencies in quality standards and rural outreach. In contemporary labour markets, the significance of vocational education lies in its capacity to address the skills deficit by imparting practical, hands-on expertise tailored to sought-after occupations. This approach not only enhances job prospects and economic development directly but also nurtures entrepreneurship through affordable avenues to professional trajectories, thereby enhancing individuals' versatility and competitiveness within swiftly changing sectors. Moreover, it guarantees a proficient labour force in targeted fields, curbing joblessness and welfare dependency while propelling inventive practices. The demographic benefit of India, characterized by a substantial proportion of young individuals, can be fully leveraged through the acquisition of requisite skills by the labour force. Vocational education is increasingly recognized as a pivotal mechanism for bridging the gap between theoretical knowledge and practical industrial demands. The efficacy of vocational education is predominantly contingent upon collaborations fostered between industrial enterprises and vocational training establishments. This research scrutinizes the significance of industry alliances in vocational education and evaluates their influence on enhancing prospects for employment. It provides suggestions for enhancing vocational education by emphasizing enhanced industry involvement, technological integration, and embracing inclusive approaches.

<sup>1</sup>Professor, Dept. of Economics, Vijayanagar Sri Krishnadevaraya University, Kalaburagi.

<sup>2</sup>Associate Professor, Dept. of Economics, Government Degree (autonomous) College, Ballari.

\*Corresponding Author

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By 2026, vocational education plays a crucial role in the Indian economy due to its management of the largest global youth cohort. India, with an approximate 65% of its populace under 35 years and around 12 million individuals entering the labor force annually, relies significantly on vocational training to effectively leverage this demographic surplus for economic productivity. Projections indicate that by 2030, India's working-age group will peak at 68.9%. In the absence of vocational education, this substantial demographic remains untapped; presently, merely 4.9% of India's workforce has received structured skill development, a notable contrast to Germany's 75% and South Korea's 96% skilled workforce.

The cooperative efforts between Indian industrial sectors and vocational establishments, particularly Industrial Training Institutes (ITIs), play a vital role in addressing skill deficiencies. While these partnerships have demonstrated promise in harmonizing training programs with market needs and enhancing job prospects, they encounter obstacles like irregular quality standards, obsolete facilities, and inadequate connections in various areas, thus yielding varied outcomes.



The collaboration between industrial entities and vocational institutions plays a pivotal role in fostering employment opportunities through the synchronization of training programs with industry requirements, facilitating practical exposure through internships and apprenticeships,

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guaranteeing the pertinence of educational content, and establishing a direct pathway for graduates to secure employment. This partnership cultivates a proficient workforce, enhancing industrial competitiveness, diminishing recruitment expenses, and ultimately contributing to economic advancement by narrowing the skills deficit, enhancing graduate employability, minimizing job-market mismatches, and bolstering economic prosperity. Indian industries collaborate in designing educational initiatives aimed at imparting job-specific skills to align with market demands, thereby enhancing the immediate employability of graduates. Practical training through internships, apprenticeships, and real-world projects equips students with essential hands-on experience, enhancing their appeal to potential employers. This strategy not only boosts employability but also increases the competitiveness of graduates with practical exposure and pertinent skills, resulting in elevated hiring prospects and seamless workforce integration.

The reduction of skill mismatch is facilitated through direct industry involvement, which serves to bridge the gap between the skills offered by educational institutions and those demanded by employers. This collaboration not only decreases training expenses and time for businesses but also facilitates direct job placement as companies frequently recruit and retain students they have assisted in training, establishing a seamless pathway to employment and cultivating allegiance. Furthermore, exposure to authentic work settings equips students with the necessary skills for the industrial landscape, transforming them into proficient knowledge workers and potential entrepreneurs. Additionally, institutions gain access to state-of-the-art resources and knowledge through resource and technology sharing, while companies profit from a customized pool of talents.

By 2026, the integration of industrial and vocational institutions is imperative for job creation through the cultivation of graduates equipped with the specialized skills necessary for the swiftly changing labour market. India is projected to require a minimum of 115 million new job opportunities by 2030, and statistical evidence highlights that educational establishments engaging in collaborative initiatives with industries exhibit employability rates soaring to 80%, in stark contrast to the 41% exhibited by those lacking such affiliations. These partnerships are particularly crucial in 2026 for the preparation of the workforce in burgeoning sectors such as Artificial Intelligence (AI), sustainable energy, and advanced manufacturing, all of which are currently encountering substantial shortages in skilled personnel. Comprehensive programs serve to instill an entrepreneurial outlook, empowering graduates to establish their enterprises armed with practical industry expertise, thereby assuming the role of job creators themselves.

### REVIEW OF LITERATURE

**Sanjay Joseph and Priyanka Yadav (2025)** conducted a study for the EPRA International Journal of Multidisciplinary Research focusing on the evaluation of industry-academia collaboration effectiveness within CSR-funded skill development programs. Their research, employing a case study methodology, specifically scrutinized such programs in India. It was found that robust industry involvement alongside meticulously designed curricula resulted in elevated employment rates (ranging from 65% to 90%) and increased employer contentment. Consequently, the study underscores the critical importance of fostering enhanced industry-academia alliances to proficiently tackle skill deficiencies.

**Kumari Rajpriya (born January 1, 2025)** conducted a study focusing on the National Education Policy (NEP) of 2020, specifically examining strategies to bridge the skill gap in

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higher education in India. The NEP underscores the importance of strong collaboration between academia and industry to tackle skill deficiencies. Fruitful partnerships have the potential to improve vocational education, incorporate industry-specific coursework, encourage creativity, and prepare graduates adequately for contemporary professional environments.

**Santosh Kumar Pandey and Shiv Sagar Vishwakarma (2024)** conducted research for the "Journal of Advances and Scholarly Research in Allied Education." Their study emphasizes the significance of industry and vocational institution partnerships in facilitating successful reskilling and improving educational congruence with industry demands. Nevertheless, obstacles such as diverse curriculum criteria and the necessity for ongoing modifications impede smooth incorporation, ultimately influencing the efficacy of addressing skill deficiencies.

The study by **P. Karpaga Priya and Nem Raj, conducted on April 1, 2025**, centered on the evolution of India's skill ecosystem in alignment with Viksit Bharat @2047. It highlighted the importance of policy interventions, infrastructural enhancements, and fostering inclusive growth. The research underscored the critical role of forging partnerships with industries and revitalizing apprenticeship schemes to address skill gaps within India. Noteworthy programs like Project Aadika were cited as successful models of collaborative efforts, facilitating the integration of marginalized populations and aligning vocational training with local economic priorities to prepare a competent workforce for the future.

In their study titled "Bridging the Skills Gap: An Employer-Centric Focus Group Discussion on Industry Demands and Academic Alignment in Calamba City, **Lanuza, Aligam, Mendoza, and colleagues (2025)** underscore the importance of ongoing partnerships among academia, industry, and government to tackle skills mismatches. The research proposes the establishment of routine dialogues and motivational measures for enterprises to boost employee preparedness, offering insights transferrable to India's endeavours in aligning skills effectively.

In his scholarly work titled "Aligning Vocational Education with Industry Needs," **Mustafa Kayyali (1 May 2025)** underscores the crucial role of fostering productive partnerships between vocational education establishments and industry stakeholders in India. This collaborative approach aims to develop curricula that are closely aligned with industry requirements, thereby improving both student readiness for employment and industry contentment. The author presents compelling instances of successful implementations that exemplify optimal strategies for bridging skill deficiencies and fostering growth in local economies.

**Sandeep Talluri (22 June 2025)** focuses on the significance of industry-academia collaborations in the context of vocational education integration and skill deficit mitigation within the framework of NEP 2020. The paper underscores that joint endeavours have the potential to augment the pertinence of curricula, elevate the standard of training, stimulate creativity, thereby bolstering the efficacy of skill enhancement endeavours and employability within India.

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The above all studies converge on one central theme that, India's skill gap can only be effectively addressed through sustained, structured, and innovative collaborations between academia, industry, and government.

### *Objectives*

1. To analyse the role of industry partnerships in vocational education.
2. To evaluate the impact of such collaborations on employability outcomes.
3. To propose recommendations for strengthening vocational education in India.

## **METHODOLOGY**

The scholar has compiled secondary data sourced from governmental publications, NSDC reports, scholarly articles, and case analyses. Examination encompassed NSDC and Ministry of Skill Development and Entrepreneurship (MSDE) reports, along with information retrieval from academic periodicals focusing on vocational education and workforce readiness. Furthermore, policy directives such as NEP 2020 and PMKVY guidelines were consulted.

### *Study Materials and discussion*

The collaboration between industry partners and vocational education holds significant importance in the economic landscape. By 2026, the strategic alignment of industrial leaders with vocational institutions has emerged as a definitive strategy in addressing India's substantial employment issues. The annual influx of approximately 12 million young individuals into the labour market poses a challenge to the conventional academic framework, which often falls short in delivering the specific technical proficiencies demanded by contemporary employers. These partnerships effectively address this predicament by redefining vocational education from a theoretical concept to a commercially oriented catalyst for economic advancement. By 2026, this cooperative approach has propelled India's overall employability rate to a record high of 56.35%, primarily attributable to the collaborative design of training programs by the prospective employing entities.

The principal significance of such collaborations resides in their capacity to address the issue of "skills mismatch." Through partnerships between industrial enterprises and vocational institutions, the curriculum is adapted to incorporate cutting-edge technologies such as Artificial Intelligence, sustainable energy, and advanced robotics. This adaptation ensures that students are equipped with current and relevant skills rather than antiquated ones, allowing them to master the in-demand competencies expected in the year 2026. Moreover, these partnerships grant students access to state-of-the-art industrial equipment and specialized facilities known as "Centers of Excellence," which would typically be beyond the financial reach of educational establishments independently. The practical experience gained through structured apprenticeships like the National Apprenticeship Promotion Scheme (NAPS-2) is crucial, as it exposes students to real-world factory or office settings prior to their graduation.

In addition to providing technical instruction, these collaborations function as direct channels for recruitment. Vocational initiatives led by the industry often yield placement rates of up to 80%, with employers displaying a preference for candidates deemed "job-ready" and requiring minimal orientation. This approach not only facilitates social inclusivity but also empowers demographic segments that have historically faced marginalization. Notably, by 2026, the employability of women in India has risen to 54%, surpassing that of men for the first time, attributable to targeted vocational alliances within the digital and service domains.

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Ultimately, these partnerships transcend mere job provision; they cultivate a robust workforce capable of propelling India's GDP expansion and positioning the country as a global epicentre for skilled labour during the mid-2020s. The collaboration between industry and vocational institutions plays a crucial role in improving the employability of individuals by imparting practical, immediately applicable skills in diverse fields, supplanting obsolete theoretical knowledge. Through apprenticeship schemes, these endeavours provide invaluable practical exposure, connecting learners directly to potential employment prospects and ensuring that the training offered is in line with the dynamic needs of the market. By 2026, these partnerships are the primary catalyst for enhancing the preparedness of India's workforce, with joint initiatives yielding employment rates of up to 80%, a significant increase compared to the 41% observed in programs lacking ties to industry. Such partnerships transcend conventional pedagogy to foster a "skill-centric" economy that caters to present-day market requirements.



### *The immediate effects of these cooperative endeavours on job readiness encompass:*

- The objective is to address the skills gap by collaborating with industry stakeholders to co-create and frequently revise educational programs, ensuring their relevance to the dynamic demands of rapidly advancing fields such as artificial intelligence, robotics, and sustainable energy.
- The enhancement of infrastructure, exemplified by initiatives such as PM-SETU, involves industrial support to upgrade Industrial Training Institutes (ITIs) by outfitting their laboratories with sophisticated equipment such as CNC machines and mechatronics systems that educational institutions may lack the resources to procure independently.
- The implementation of programs such as the National Apprenticeship Promotion Scheme (NAPS-2), with a goal of accommodating 1.3 million apprentices by 2026, offers systematic hands-on training, leading to decreased hiring expenses for companies and enhanced immediate efficiency of newly graduated individuals.
- Collaborative initiatives such as direct placement pipelines, integrating "learn and earn" dual approaches and specialized job recruitment events, typically result in graduates from industry-affiliated programs securing placement packages that are on average 25–40% higher.
- Collaborations with industry professionals enhance instructor competence, enabling them to deliver up-to-date technological knowledge, moving away from antiquated theoretical approaches in their teaching methodologies.

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- Participation in training programs that provide exposure to corporate practices, opportunities for professional networking, and attainment of international certifications substantially enhances students' preparedness for careers and their competitive edge in the international labour market.
- Facilitating entrepreneurship through collaboration enables vocational students to gain industry access, mentorship, and skills necessary for initiating their enterprises, empowering them to become creators of employment opportunities.

### *The Influence of Industry-Education Partnerships on Employability Metrics in 2026.*

Metric	2026 Outcome	Trend/Source
National Employability Rate	56.35%	Up from 54.81% in 2025
ITI Graduate Employability	45.95%	Gaining ground in manufacturing
Hiring Intent (FY 2026-27)	40%	Up from 29% previous year
AI Talent Share	16% of global pool	Reaching 1.25M experts by 2027
Gender Gap	Women (54%) > Men (51.5%)	Historic first in job readiness

**Source:** Ministry of Skill Development and Entrepreneurship (MSDE) and PMKVY guidelines.

The table presented above underscores notable favourable developments within the Indian labor market projected for 2026, largely propelled by enhanced convergence between educational provisions and the requirements of the industrial sector. The statistical information elucidates an overall positive progression in India's capacity to cultivate a workforce adequately prepared for employment.

Enhancing vocational education in India in 2026 necessitates a comprehensive strategy that transcends theoretical instruction to prioritize industry-immersed, demand-driven training. Informed by the National Education Policy (NEP) of 2020 and contemporary economic dynamics, the ensuing suggestions hold paramount importance for the specified year, they are,

- The goal is the prompt and obligatory inclusion of vocational disciplines commencing at the sixth-grade level to standardize artisanal professions and eliminate societal biases at an early stage of students' educational experience. Initiatives such as the "10-day bagless period" should be expanded to facilitate middle school students in gaining practical exposure to regional handicrafts and advancing technologies.
- The objective is to enhance the implementation of the hub-and-spoke framework by establishing a comprehensive system in which proficient Advanced Institutes of Technology and Polytechnics (serving as hubs) collaborate with adjacent secondary schools (as spokes) to optimize the utilization of specialized laboratories, equipment, and skilled instructors.
- One objective involves the implementation of a Credit-Based Mobility Framework to expedite the integration of the National Credit Framework (NCrF), facilitating smooth transitions both horizontally and vertically. This initiative empowers vocational learners to accrue credits transferable to higher education, thereby guaranteeing unrestricted career progression.
- The objective is to enhance public-private partnerships by providing tax incentives or Corporate Social Responsibility (CSR) benefits to firms engaging in collaborative

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curriculum development and large-scale apprenticeship initiatives within the framework of NAPS-2.

- The objective is to concentrate on "gold-collar" occupations that are primed for the future, emphasizing training in burgeoning sectors like Green Hydrogen, Semiconductors, and AI to equip young individuals for the fourth industrial revolution.
- The proposal recommends augmenting governmental investment in vocational education from the present approximate 3% to align more closely with global standards of 10-13%. An essential aspect of this suggestion is to tie the allocation of funds to institutional achievements, such as confirmed job placements and the advancement of student incomes.
- The objective is to institute specialized training centers for the formation of a committed group of accredited vocational educators. It is recommended that these instructors engage in frequent "industry immersion" experiences to remain abreast of contemporary technological advancements.
- The strategy involves implementing nationwide media initiatives and utilizing digital channels such as MY Bharat to highlight achievements of proficient individuals, aiming to enhance the perception of vocational education as an esteemed and lucrative primary occupational route.

### CONCLUSION

The interconnection between industrial collaboration and vocational education yields a mutually beneficial association, as education cultivates individuals prepared for the workforce, while industry furnishes the requisite setting, assets, and avenues for employment, thereby propelling economic advancement. Ongoing endeavours like the Skill India Mission and the National Apprenticeship Promotion Scheme (NAPS) hinge on these collaborative ventures to enhance workforce preparedness for numerous young professionals by 2026. This strategic shift, emphasizing the mastery of skills over mere acquisition of degrees, has substantially diminished the disparity in employability, elevating the national job readiness quotient to above 56%. Through collaborative endeavours wherein industries and educational institutions jointly devise educational frameworks and offer practical apprenticeship avenues, as exemplified by programs like NAPS-2, a resilient and forward-looking workforce is cultivated, equipped to steer the trajectory of the fourth industrial revolution. Ultimately, the establishment of a robust vocational ecosystem stands as the cornerstone in India's pursuit of evolving into a global epicentre of human resources and realizing its ambition of attaining a \$5 trillion economy. Sustained cooperation among governmental bodies, academic establishments, and businesses is essential to guaranteeing that every student in India is provided with the necessary competencies to excel in contemporary society.

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### ***Conflict of Interest***

The author(s) declared no conflict of interest.

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