



The Role Of Industrial Education In The Economic Development Of India: Revisiting Madan Mohan Malviya's Educational Philosophy

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Abstract: The economic development of India has been a central focus since independence, with various strategies implemented to achieve sustainable growth. This article revisits the educational philosophy of Mahamana Madan Mohan Malviya, a visionary leader who emphasized the importance of industrial education in building a prosperous nation. By integrating Malviya's ideals into contemporary industrial education, the article explores how these principles can be adapted to meet the challenges of the 21st century. This paper also delves into the current landscape of industrial education in India, and through a comprehensive analysis of historical and contemporary literature, it aims to provide insights into the integration of industrial education into India's development agenda, emphasizing innovation, skill development, and inclusive growth.

Keywords - Industrial education; Economic development; Inclusive growth; Educational philosophy; Mahamana Madan Mohan Malviya

I. INTRODUCTION

The most notable accomplishment of Malaviya is the creation of Banaras Hindu University (BHU) in 1916, which grew to become a prominent hub for higher learning in India. He saw BHU as a place where students would get a sophisticated scientific education with traditional Indian teachings. Despite financial difficulties, Malaviya succeeded in establishing BHU, which played a vital role in instilling nationalist ideals among Indian students. During the non-cooperation campaign, Malaviya first opposed the boycott of educational institutions out of concern that it would negatively impact students' prospects. But later on, as evidence of his adaptable approach to coordinating education with national interests, he backed youth involvement in the independence movement (Tiwari, 2021).

Madan Mohan Malaviya's ideas about education stemmed from his vision of a resurgent India that combined traditional knowledge with contemporary wisdom. Malaviya thought education was the key to reawakening national consciousness and restoring India to its glory. In his opinion, education was crucial to both independence and dignity. His dedication to education was clear from his earliest days as a teacher to his well-known remarks for educational reform (Dwivedi, 2011).

Malviya believed that industrial education was crucial to India's economic development. During the colonial period, he recognized that traditional education systems were inadequate for addressing the industrial and technological needs of the nation. He advocated an educational framework that brought together academic knowledge and practical skills to create a workforce competent enough to propel industrial development. Malviya's philosophy was based on the idea that industrial education had to instill moral principles and a feeling of patriotism while emphasizing technical abilities. He anticipated that industry would need to become self-sufficient since this would provide the groundwork for economic independence and the nation's prosperity.

Before independence, the British government was reluctant to promote technical education because of concern that there would be an excess of educated people without matching jobs, resulting in unemployment. Rather than encouraging advanced skills, the government emphasized limited technical training to fill short-term job shortages. Later on, the Swadeshi Movement, which promoted self-reliance and the boycott of British goods, significantly boosted the demand for technical education. Nationalists saw this as essential for industrial development and economic independence, leading to the emergence of indigenous institutions focused on technical and scientific training. However, a significant turning point was the formation of the Indian Industrial Commission, as influential individuals such as Madan Mohan Malaviya promoted comprehensive technical education as a solution to India's industrial and economic problems. The Commission's findings stressed the importance of government intervention in boosting industrial and technical education (Shah, 2014).

Malaviya's efforts, which include founding Banaras Hindu University (BHU) among other things, are indicative of his goal of integrating ancient Indian values with contemporary education and placing a strong emphasis on social responsibility, principles of ethics, and holistic development. He promoted all-encompassing education that fosters development on all levels—intellectual, moral, social, and emotional. He placed a strong emphasis on character development, inclusive education that is open to all societal segments, and the advancement of indigenous industries via practical and vocational training. His educational views are still relevant today, as educational policies stress values-based learning, cultural preservation, and practical skill development (Pandey & Mohanty, 2024).

II. Malviya's Vision for Industrial Education-

Madan Mohan Malaviya's advocacy for extensive technical education had a profound and lasting impact on India's educational reforms, particularly in the context of economic and industrial development. His vision and efforts laid the groundwork for the integration of technical and scientific education into the broader educational system, with implications that continue to influence modern educational policies. He advocated the following-

1. Shift from Theoretical to Practical Education-

1.1 Pre-Malaviya Era: Education in India during the colonial period was largely focused on literary and philosophical studies, with limited emphasis on practical skills. This approach was designed to create clerks and administrators who would serve the colonial administration.

1.2 Mahamana's Influence: His insistence on technical education emphasized the need for practical skills that could directly contribute to industrial and economic development. He believed that education should not only impart knowledge but also prepare individuals to apply that knowledge in practical, real-world settings.

1.3 Modern Implications: This shift has influenced modern education systems, where there is now a greater emphasis on STEM (Science, Technology, Engineering, and Mathematics) education. Technical and vocational training programs have become integral to curricula, reflecting Malaviya's vision of education as a tool for economic empowerment.

2. Establishing Institutions Focused on Science and Technology-

2.1 Establishment of Banaras Hindu University: Pandit Malaviya's establishment of Banaras Hindu University (BHU) as a center for both classical and modern education was a landmark in Indian education. BHU's focus on integrating scientific and technical education with traditional studies was innovative at the time.

2.2 Influence on Modern Institutions: Today, many of India's leading educational institutions, such as the Indian Institutes of Technology (IITs) and Indian Institutes of Science Education and Research (IISERs), follow a similar model, blending technical education with research and development (R&D). His model for BHU set a precedent for the creation of these institutions, which now play a critical role in India's global competitiveness in science and technology.

3. Promoting Industrial Growth through Education-

3.1 Eminent role in the Indian Industrial Commission (1916): Malaviya's advocacy for technical education was closely linked to his desire to see India become industrially self-sufficient. He argued that without a robust system of technical education, India would remain economically dependent on the West.

3.2 Impact on Modern Industrial Policies: This connection between education and industrial growth has influenced modern educational reforms, particularly in policy-making. Governments now recognize the importance of aligning educational outputs with industry needs, leading to policies that encourage industry-academia collaboration, internships, and practical training programs in technical fields.

4. Inclusivity in Education-

4.1 Malaviya's Broader Vision: While Malaviya focused on technical education, he also advocated for a holistic educational approach that included moral and ethical training. He believed in creating well-rounded individuals who were not only skilled but also socially responsible.

4.2 Modern Educational Reforms: This vision has impacted the broader field of education, where there is now a growing emphasis on values education, social responsibility, and the inclusion of ethics in technical curricula. Modern educational systems are increasingly focused on developing not just skilled professionals, but also conscientious citizens.

III. Integrating Malviya's Ideals into Contemporary Industrial Education-

- 1. Holistic Development-** Malviya focused on the combination of culture, ethics, and technical education as a means of promoting holistic development. A curriculum that emphasizes technical proficiency along with ethics, leadership, and social responsibility might help modern industrial education in India. This would be in line with Malviya's goal of producing well-rounded people who make moral and ethical contributions to society.
- 2. Linking Education with Industry Needs-** Mahamana illustrated forward-thinking by supporting an educational system that directly addresses business demands. Stronger ties between industry and academics are now a means of realizing this, as curricula are created in partnership with industry leaders to guarantee that graduates possess marketable skills.
- 3. Emphasizing Self-Reliance-** Malviya's idea of economic independence is especially pertinent in light of the "Make in India" campaign. Programs for industrial education ought to encourage creativity and entrepreneurship, motivating students to launch their businesses as opposed to focusing just on finding work.

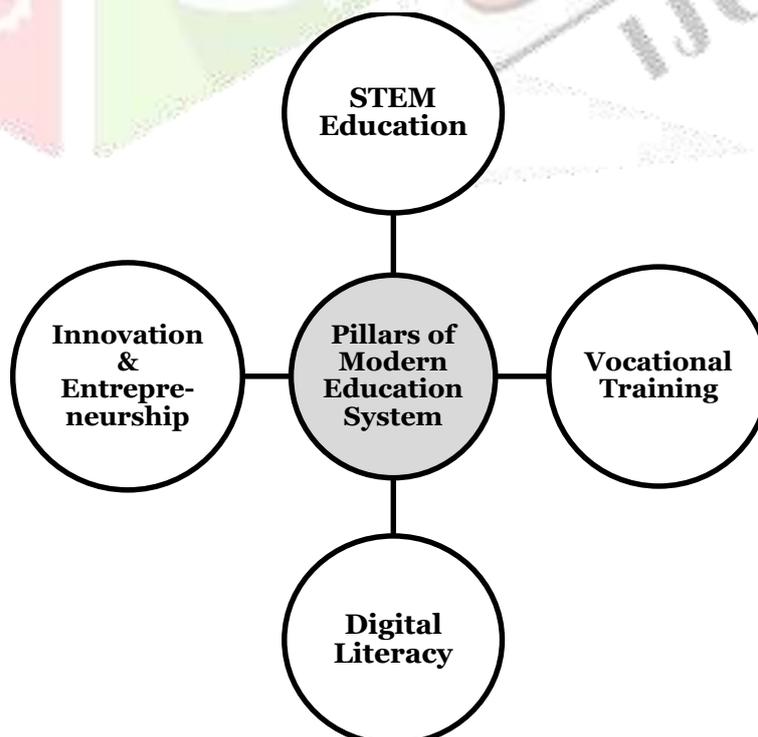


Figure 1: Pillars of Modern Education System

IV. Incorporating Traditional Knowledge into Technical Education in Modern Institutions-

By utilizing a multidisciplinary approach that connects traditional knowledge with modern scientific and technological processes, today's educational institutions may integrate traditional knowledge into technical education. Including traditional knowledge systems like *Ayurveda*, *Vaastu Shastra*, or old Indian metallurgy with technological courses like materials science, architecture, and medicine is one efficient approach. This integration can be fostered by specialist courses, workshops, and seminars that examine the historical and cultural contexts of ancient practices as well as their present applications.

Another strategy is to foster innovation and research that draws on traditional knowledge to find long-term solutions to modern problems. Engineering and technology programs, for instance, can inspire students to research and develop conventional approaches to agriculture, renewable energy, and water conservation. In doing so, students utilize contemporary methods to improve the effectiveness and relevance of old practices, while developing a deeper appreciation for their inventiveness.

One way to offer practical learning experiences is through collaborative initiatives with traditional craft and industry practitioners. Institutions can collaborate with local healers, agriculturists, and craftspeople to develop opportunities for experiential learning where students can work hands-on with conventional approaches. This preserves and revitalizes traditional knowledge while adding useful, real-world insights to students' technical education.

Curriculum designers may also help to incorporate traditional knowledge into technical education by emphasizing sustainable and ethical methods that draw from historical wisdom. For example, lectures on environmental ethics, community-centred development, and holistic health can be included in technical courses to foster a more thorough knowledge of how technology can benefit society.

Finally, students in technical professions may find traditional knowledge easier to obtain if it is documented and shared through digital media. Establishing digital archives, virtual laboratories, and interactive materials that demonstrate conventional techniques and their scientific foundations might improve education and stimulate the creative use of established approaches in contemporary settings.

V. Current Landscape of Industrial Education in India-

Industrial education in India includes various technical and vocational training programs to prepare students for specific trades and industries. These programs are offered through Industrial Training Institutes (ITIs), polytechnics, engineering colleges, and other vocational training centers.

ITIs play a crucial role in imparting skills related to industrial trades. ITIs have been instrumental in providing short-term, job-oriented training to a large segment of the population, especially those from economically weaker sections.

Polytechnic colleges provide diploma courses in engineering and technology, offering a practical approach to education. They focus on hands-on training in various engineering disciplines, catering to the middle-level technical workforce.

Engineering education in India is a significant component of industrial education, with over 3,000 engineering colleges producing around 1.5 million engineers annually. These colleges offer undergraduate and

postgraduate programs in various branches of engineering, including mechanical, electrical, civil, and computer science.

Moreover, various public and private vocational training centers offer short-term courses on specific skills. These centers provide flexible, industry-relevant training, often in collaboration with private companies, to cater to the immediate demands of the job market.

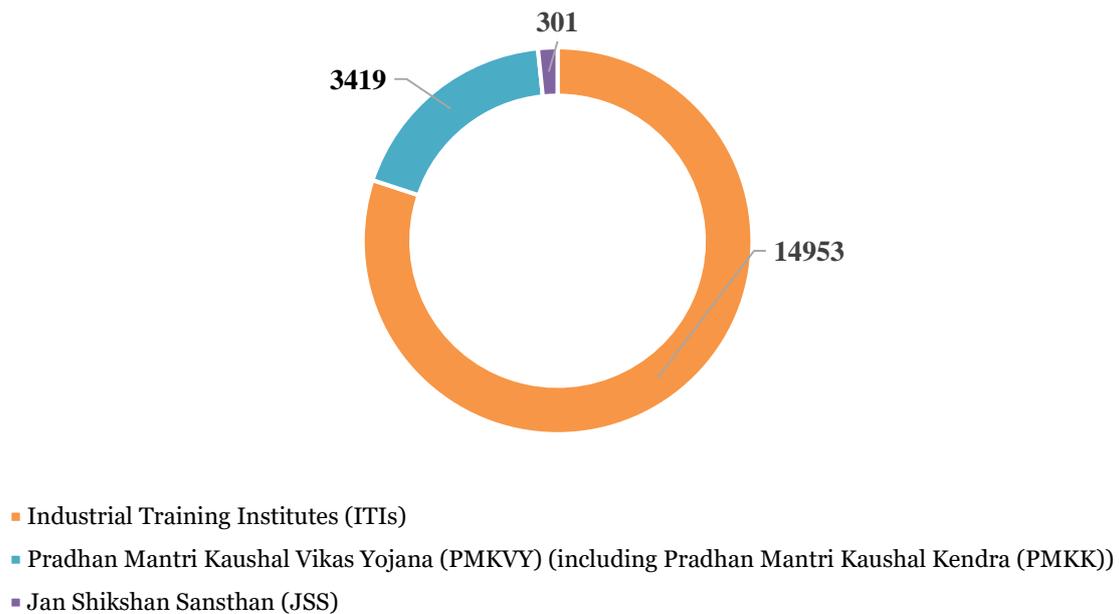
India, which has one of the youngest populations in the world, may benefit from its demographic dividend by having a workforce with 'employable' skills and industrial readiness hence, it is being called the 'Skill Capital of the world'. To maximize this potential and turn it into a driving force for progress, the Ministry of Skill Development and Entrepreneurship (MSDE) has collaborated with state and central governments, industries, non-profit organizations, and academic institutions to coordinate and expedite skill-building initiatives across national boundaries. The combined efforts of all parties involved have led to significant progress in skill training and favorable results.

Over one crore youth have been participating in and gaining from the Ministry's Skill India Initiative each year, which aims to provide youth with the skills they need for improved employment opportunities. Recent years have strongly emphasized skill development, driven by the 'Skill India Mission', an umbrella scheme through which the government aimed to train more than 40 crores (400 million) people in India in various skills by 2022. In addition, the government has also introduced several other schemes to ensure this initiative is implemented throughout the country namely, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Jan Shikshan Sansthan (JSS), Pradhan Mantri YUVA (PM YUVA) Yojana, SANKALP (Skills Acquisition and Knowledge Awareness for Livelihood Promotion), Skills Strengthening for Industrial Value Enhancement (STRIVE).

As of 2022-23 (shown in Fig.2), the number of operational training centres across the country's Training Centres (TCs), is 3,419 under Pradhan Mantri Kaushal Vikas Yojana (PMKVY) (including Pradhan Mantri Kaushal Kendra (PMKK)), 301 Jan Shikshan Sansthan (JSS) (including newly sanctioned) and 14,953 Industrial Training Institutes (ITIs).

The ambitious strategy for education, employment, and skill development outlined in the Union Budget 2024–25 aims to boost economic growth and provide many possibilities for the youth of India. Bridging the skills gap, increasing employability, and ensuring that the country's youth are prepared for the future are the obvious goals of the central government. The budget included a comprehensive scheme that provides internship opportunities at 500 leading firms to 10 million youth over the next five years. Those aged between 21 and 24 who are neither enrolled in full-time education nor employed are eligible to apply. The program offers a one-time assistance of Rs 6,000 and a monthly internship allowance of Rs 5,000.

Number of operational training centres across the country under Skill India Mission (2022-23)



Source: Annual Report 2022-23, Ministry of Skill Development and Entrepreneurship

Figure 2- Number of Operational Training Centers across the country under Skill India Mission (2022-23)

TABLE 1: Skill India Network across the Country as on 30.06.2024

Name of Scheme	Name of the Training Centre	Total number
Pradhan Mantri Kaushal Vikas Yojana 4.0 (PMKVY 4.0)	PMKVY Training centre	12,257
Pradhan Mantri Kaushal Kendra (PMKK)	PMKK Training Centre	508
Jan Shikshan Sansthan (JSS)	JSS centres	290
National Apprenticeship Promotion Scheme (NAPS)	Establishments	49,927
Craftsmen Training Scheme (CTS)	Industrial Training Institutes (ITIs)	15,034

Source: PIB

Another effort that piqued the public's interest is the scheme to upgrade 1,000 Industrial Training Institutes (ITIs) using a hub-and-spoke approach, connecting course material with industry demands to bridge the skill gap. The plan calls for an expenditure of Rs 60,000 crore spread over five years to construct 200 hubs and 800 spoke ITIs. The industry (including CSR funds) will contribute Rs 10,000 crore, the state governments Rs 20,000 crore, and the central government Rs 30,000 crore.

Hence these continued efforts by the government to improve the quality, accessibility, and industry relevance of these programs will be essential to achieving the goals of a self-reliant and economically prosperous India.

VI. New Education Policy 2020 and its Alignment with Mahamana Malviya's Vision-

- 1. Multidisciplinary and Holistic Education:** NEP 2020 encourages a multidisciplinary strategy incorporating science, arts, and vocational education. This is akin to Malviya's vision of holistic development, which advocates the integration of cultural and ethical knowledge with technological education. This policy change is anticipated to produce well-rounded people who can contribute to several economic sectors, aligned with Malviya's ideals (NEP, 2020).
- 2. Skill Development and Vocational Education:** Vocational education is a major focus of NEP 2020, which aims to integrate it into the curriculum from the onset of schooling. Malviya's emphasis on industrial education and skill development corresponds to this strategy. By 2025, the policy seeks to expose at least 50% of learners to vocational education, ensuring they gain job-market-relevant skills (NEP, 2020).
- 3. Focus on Self-Reliance and Entrepreneurship:** The policy supports self-reliance and entrepreneurial abilities and aligns with Mahamana's aim of achieving economic independence via education. NEP 2020 seeks to produce graduates who can contribute to India's industrial sector and economic growth by encouraging entrepreneurial spirit and encouraging initiatives like 'Make in India' (NEP, 2020).
- 4. Strengthening Industry-Academia Linkages:** NEP 2020 highlights the importance of cooperation between academics and the industry sector, similar to Mahamana's call for collaboration between educational institutions and companies. This approach aims to match industry demands with the academic curriculum so that students may obtain hands-on expertise during their education (NEP, 2020).

VII. Policy Implications and Recommendations-

- 1. Incorporation of Ethical Education in Technical Curricula:** NEP 2020 may enhance its emphasis on ethical teaching in technical and industrial training programs by taking inspiration from Malviya's vision. This will generate graduates who are socially conscious in addition to being technically skilled.
- 2. Promotion of Indigenous Knowledge Systems:** To fully realize Mahamana's vision, NEP 2020 could focus more on Indigenous knowledge and traditional industries, integrating them with modern industrial methods to develop a distinct educational model customized to India's cultural and economic setting.
- 3. Enhanced Support for Industry-Academia Initiatives:** More robust mechanisms for industry-academia collaboration, such as industry-sponsored labs, internships, and cooperative research projects, can help educate students about the workforce and promote innovation in the industrial sector.

VIII. Challenges in Industrial Education-

- 1. Quality of Education:** Despite the large number of institutions, the quality of industrial education in many ITIs and polytechnic colleges remains a concern. Issues such as outdated curricula, lack of infrastructure, and inadequate faculty training affect the overall quality of education.
- 2. Mismatch Between Skills and Industry Needs:** There is often a gap between the skills imparted by educational institutions and those required by the industry. This mismatch leads to unemployment among technically trained graduates and underutilization of the industrial workforce.
- 3. Limited Access and Inclusivity:** While there has been progress in expanding access to industrial education, marginalized groups, including women and rural populations, still face barriers to entry. Ensuring inclusivity and equitable access remains a challenge.
- 4. Perception and Stigma:** Vocational and industrial education is often perceived as a less prestigious option compared to mainstream academic education. This societal stigma affects enrolment rates and the overall attractiveness of industrial education programs.

IX. Opportunities and Future Directions-

- 1. Policy Reforms and Implementation:** The successful implementation of NEP 2020 and initiatives like Skill India can significantly enhance the landscape of industrial education in India. Focusing on outcome-based education and regular curriculum updates will ensure that the education system remains relevant to the needs of the economy.
- 2. Digital and Online Learning Platforms:** The growth of digital learning platforms offers an opportunity to expand the reach of industrial education, especially in remote and underserved areas. Online courses and e-learning modules can supplement traditional classroom learning and provide students with access to industry-relevant skills.
- 3. Enhancing Industry Partnerships:** Enhancing cooperation between academic institutions and industry sectors may guarantee that students receive hands-on training and exposure to actual industrial settings. Additionally, this relationship can aid in curriculum development, improving education's alignment with what the industry wants.
- 4. Promoting Innovation and Entrepreneurship:** Within the scope of industrial education, fostering innovation and entrepreneurship can result in establishing new companies and sectors of the economy, propelling growth. A culture of entrepreneurship may be promoted in technical and vocational institutions through support for companies and incubation centers.

X. CONCLUSION-

Malaviya, an eminent Indian educator and social reformer, was crucial in founding Banaras Hindu University (BHU) and influencing India's educational philosophy during the colonial era. His approach was a synthesis of traditional Indian values and contemporary scientific knowledge, with a focus on holistic development and national growth (Ahmad & Showkat, 2023). Malaviya's educational ideology is still very applicable in the current environment since inclusive practices and value-based education are becoming increasingly important. The academic achievements of Madan Mohan Malaviya continue serving as an inspiration for those working to develop a fair, inclusive, and morally-based education system compatible with domestic and international trends. His commitment to using education as a tool for social and personal transformation has left a lasting legacy demonstrating the significance of his ideas for influencing education in India and elsewhere (Ahmad & Showkat, 2023).

Malaviya further advocated for extensive technical education as a means to find a solution to India's industrial growth and economic challenges. He observed how critical it was to provide students with real-world skills that could assist the nation to develop (Singh & Singh, 2012). Thus, by revisiting and adopting his educational philosophy, India can create a model of industrial education that not only meets the needs of today but also sets the groundwork for Viksit Bharat by 2047. Industrial education has the potential to be a key component of India's economic development and ascent to global leadership by emphasizing innovation, ethical education, and skill development.

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