

Industrial Education as a Tool for Developing Vocational Skills

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Abstract

Industrial education has emerged as a crucial strategy for developing vocational skills, particularly in contexts where traditional academic pathways fail to meet the demands of modern labour markets. By integrating theoretical knowledge with hands-on, practical training, industrial education equips learners with competencies necessary for employability, entrepreneurship, and industrial productivity. This literature-based study systematically examines existing research on industrial education and vocational skill development, highlighting its significance in bridging the gap between education and industry. The study identifies key challenges hindering its effectiveness, including inadequate funding, outdated curricula, poor infrastructure, weak industry-school collaboration, and societal undervaluation of vocational training. Comparative insights from developed and developing countries reveal that nations with robust industrial education systems, such as Germany and South Korea, achieve higher employment rates, enhanced productivity, and stronger innovation ecosystems. Strategies for strengthening industrial education are proposed, including curriculum modernization to reflect emerging technologies, increased investment in infrastructure and instructional resources, integration of information and communication technology (ICT) in training, and the promotion of partnerships between educational institutions and industries. Policy reforms, public awareness campaigns, and targeted interventions are also emphasised as critical measures for enhancing the relevance, accessibility, and quality of vocational education. The study concludes that industrial education is not only a tool for individual empowerment but also a catalyst for national economic growth and sustainable development.

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Introduction

Industrial education has gained renewed attention in both global and local contexts due to the increasing recognition that knowledge-based economies thrive on practical, technical, and vocational competencies rather than mere theoretical knowledge. In the twenty-first century, economies are experiencing rapid transformation driven by industrialisation, digitalisation, and globalisation, creating unprecedented demand for skilled labour that can adapt to evolving technologies and industrial processes (UNESCO, 2021). Industrial education, often referred to as the systematic preparation of individuals with the technical, mechanical, and vocational skills necessary for industrial growth, has thus become a cornerstone of sustainable development. Vocational skills, on the other hand, encompass the abilities, techniques, and hands-on expertise that enable individuals to function effectively in specific trades and occupations. Together, industrial education and vocational skills provide the workforce with practical competencies that not only enhance employability but also stimulate innovation, entrepreneurship, and national competitiveness (Okoye & Okwelle, 2017).

Globally, countries that have prioritised industrial education have demonstrated stronger economic resilience and lower unemployment rates. For example, Germany's dual system of vocational education, which integrates classroom learning with workplace training, has been lauded as a model that aligns education with industry needs and reduces youth unemployment (Euler, 2013). Similarly, in East Asia, nations like South Korea and Singapore have leveraged technical and vocational education to accelerate industrialisation and technological advancement (Lee, 2016). In contrast, many developing countries, including Nigeria, continue to grapple with skill mismatches and underdeveloped vocational training systems that undermine their capacity to produce technically competent manpower. This mismatch between educational outputs and labour market needs contributes to rising unemployment, underemployment, and reliance on expatriates for technical expertise (Ezeani & Oladejo, 2012).

The problem is particularly acute in Nigeria and other sub-Saharan African nations, where the emphasis on formal academic education has historically overshadowed the development of vocational and industrial skills. Graduates from universities and secondary schools often lack practical training relevant to industries, leading to a persistent skills gap and widespread unemployment among youths (Okolie, Igwe, & Elom, 2019). According to the National Bureau of Statistics (2020), Nigeria's unemployment rate exceeded 33% in 2020, with youth unemployment even higher. This alarming trend has been attributed partly to the inadequacy of industrial education systems that fail to equip learners with marketable vocational skills. Moreover, the weak technical manpower base poses a challenge to national development, as industries frequently rely on foreign expertise to operate advanced machinery, implement modern production techniques, and sustain innovation in critical sectors such as manufacturing, construction, and energy (Ayonmike, Okwelle, & Okeke, 2015).

Against this backdrop, the aim of this paper is to critically examine industrial education as a viable tool for developing vocational skills that can bridge the gap between education and the labour market. Specifically, the paper seeks to highlight the role of industrial education in promoting skill acquisition, analyse the challenges hindering its effective implementation, and propose strategies for strengthening its relevance in the context of national and global development. By focusing on literature-based insights, the paper will provide a holistic understanding of how industrial education can be repositioned to foster employability, productivity, and innovation. The objectives include defining the relationship between

industrial education and vocational skill acquisition, examining its significance for employability, and identifying policy and institutional measures that can enhance its effectiveness.

The relevance of this study cannot be overstated. In education, industrial education serves as a paradigm shift from rote learning and theoretical instruction toward hands-on training and applied knowledge. This not only benefits learners by making them more employable but also enhances their adaptability in an ever-changing global economy. For industry, vocational skills development ensures a steady supply of competent workers capable of handling technical tasks, thereby reducing dependence on expatriates and improving local capacity for innovation. Nationally, industrial education contributes directly to economic development by aligning human capital with the needs of the labour market, thereby addressing unemployment, reducing poverty, and enhancing social stability (Odu, 2011). Furthermore, in line with the Sustainable Development Goals (SDG 4 and SDG 8), which advocate inclusive, equitable, quality education and the promotion of decent work and economic growth, industrial education emerges as a strategic tool for achieving both educational and developmental aspirations (UNESCO, 2021).

In conclusion, the integration of industrial education into mainstream education systems is critical for addressing pressing socio-economic challenges such as youth unemployment, skill mismatch, and weak technical manpower. By examining its role in vocational skill development, this paper contributes to the discourse on how education systems can be reformed to meet contemporary labour market demands. The findings will be relevant to educators, policymakers, and industry leaders who are tasked with developing sustainable strategies for bridging the gap between education and employment. Ultimately, industrial education represents not only a tool for individual empowerment but also a catalyst for national competitiveness and global relevance in the twenty-first century.

Methodology

This study adopted a qualitative literature review methodology, which involved the systematic collection, evaluation, and synthesis of existing scholarly works on industrial education and vocational skills development. Relevant sources, including journal articles, books, policy documents, reports from international organisations, and online databases, were critically examined to identify key trends, patterns, and insights into the role of industrial education in enhancing vocational competencies. The study focused on publications from both national and international contexts to provide a comprehensive understanding of the subject matter, highlighting successes, challenges, and practical strategies for improving vocational skill acquisition. Emphasis was placed on identifying recurring themes and evidence-based practices that demonstrate the effectiveness of industrial education as a tool for workforce preparation, employability, and entrepreneurial development.

Conceptual Clarifications

Industrial education has been described as a form of organised learning that prepares individuals for gainful employment in industries by equipping them with technical knowledge and practical skills necessary to perform tasks in the production and service sectors. It involves both classroom instruction and hands-on experiences in workshops, factories, or laboratories where learners are exposed to real-life applications of theoretical concepts. According to Okoro (2020), industrial education is not restricted to training artisans but

extends to the broader preparation of technicians, technologists, and industrial workers who can contribute meaningfully to national development. It is designed to bridge the gap between education and the labour market by providing competencies that align with industrial demands. In many countries, including Nigeria, industrial education has been positioned as a catalyst for human capital development, particularly in addressing unemployment and promoting industrial growth (Aina & Adeyemi, 2021).

Vocational skills, on the other hand, refer to the specific abilities, techniques, and competencies that individuals acquire to perform tasks in particular trades or occupations. These skills may include carpentry, tailoring, welding, computer programming, catering, and other practical activities that demand both manual dexterity and technical know-how. UNESCO (2019) defines vocational skills as those abilities that enable individuals to engage in productive work, improve their livelihoods, and contribute to the economy. They are largely occupation-specific and transferable, enabling individuals to adapt to changing labour market conditions. In Nigeria, the growing emphasis on vocational skills is linked to the need to reduce dependency on white-collar jobs and to foster entrepreneurship among youths (Ogunode, 2022).

Although industrial education, vocational training, and technical education are closely related, they are not synonymous. Industrial education is a broader concept that encompasses both vocational and technical education but with a specific focus on preparing individuals for work in industries. It combines general education with training in industrial practices and processes, aiming at producing a skilled workforce for manufacturing, construction, and related sectors (Okolie et al., 2019). Vocational training, in contrast, is more occupation-specific and involves systematic instruction in a trade or craft, usually at the secondary or post-secondary level, designed to produce individuals who can perform specific jobs effectively. Technical education, however, focuses on equipping individuals with the theoretical and scientific knowledge required to operate advanced machinery, design systems, or manage industrial processes. It often serves as the foundation for engineering education and is broader in scope compared to vocational training (Bashir & Yakubu, 2021). While vocational training may produce artisans and craftsmen, technical education produces technicians and technologists, and industrial education integrates these approaches within an industrial framework to meet the labour needs of the economy.

The importance of vocational skills in today's economy cannot be overstated, as globalisation and technological advancement continue to redefine the structure of labour markets. Vocational skills provide individuals with employability and entrepreneurial capabilities that are essential for survival in competitive economies. In developing countries like Nigeria, where unemployment and underemployment are pressing issues, vocational skills are seen as pathways to self-reliance and job creation (Emeh & Okafor, 2020). They enable individuals to start small and medium-scale enterprises, thus reducing the overdependence on government employment and contributing to economic diversification. Furthermore, vocational skills are critical for fostering innovation, as they often involve problem-solving, creativity, and the ability to adapt to new technologies. For instance, ICT-based vocational skills such as coding, graphic design, and digital marketing have become central to the modern knowledge economy, creating opportunities that transcend geographical boundaries (ILO, 2021).

Moreover, vocational skills play a vital role in reducing poverty and promoting social inclusion. Individuals with relevant skills can participate productively in the economy, thereby improving their standard of living and contributing to community development. The

World Bank (2020) emphasises that vocational skills are key drivers of economic resilience, particularly in the post-COVID-19 recovery era, as they empower individuals to adapt to shifting labour demands. In the context of industrial development, vocational skills complement industrial education by ensuring that workers not only understand industrial processes but also possess the practical competencies to operate machines, manage resources, and maintain productivity. Therefore, the synergy between industrial education and vocational skills is indispensable for national growth, as it provides both the knowledge and the capabilities required to meet the challenges of modern economies.

In conclusion, while industrial education provides a comprehensive framework for preparing individuals for industrial roles, vocational skills represent the tangible abilities required to carry out specific occupations. Differentiating between industrial education, vocational training, and technical education helps to clarify their unique contributions to workforce development. In today's rapidly evolving economy, the acquisition of vocational skills has become crucial not only for employment but also for entrepreneurship, innovation, and sustainable development. For countries seeking to bridge the gap between education and industry, prioritising industrial education alongside vocational skills development remains a strategic imperative.

Industrial Education as a Tool for Developing Vocational Skills

Industrial education has become increasingly central to conversations about preparing individuals for the modern workforce, where the demand for practical, adaptable, and job-ready skills has never been greater. Unlike purely theoretical education, industrial education focuses on equipping learners with vocational and technical skills that are essential for industry, commerce, and entrepreneurship. By merging classroom learning with hands-on practice, industrial education nurtures skill acquisition, productivity, and employability in ways that respond directly to the challenges of contemporary labour markets. This approach makes it a powerful tool for addressing unemployment, bridging skills gaps, and enhancing innovation across societies.

The role of industrial education in promoting skill acquisition is evident in its emphasis on experiential learning and competency-based training. Through workshops, laboratories, and industry placements, students develop practical abilities that can be immediately applied in professional contexts. Okoro (2020) observed that industrial education is distinct in its capacity to move learners beyond rote memorisation toward mastery of skills such as machine operation, technical drawing, carpentry, electrical installation, and computer-based applications. These are not only vocational in nature but transferable across sectors. Similarly, Eze and Ofoha (2018) highlighted that industrial education provides students with opportunities to acquire problem-solving and critical thinking competencies that are essential for adapting to workplace dynamics. In contexts where unemployment rates remain high, particularly among young people, such skill-oriented training gives graduates a competitive edge by enabling them to meet the expectations of industries in need of technically proficient workers.

The link between industrial education and employability is equally significant. Global labour markets increasingly demand workers who are not only academically qualified but also practically skilled. Industrial education therefore provides a pathway for learners to transition smoothly into the workforce. In Nigeria, for instance, many graduates from conventional universities struggle to find employment because their programmes emphasise theory over practical applications (Aina & Olanipekun, 2021). Conversely, graduates of

technical and vocational institutions often secure jobs more quickly due to their hands-on training. Industrial education enhances productivity by equipping workers with skills that increase efficiency, reduce waste, and foster innovation in production processes. According to the International Labour Organization (ILO, 2020), countries that prioritise vocational and industrial education enjoy higher rates of labour productivity because their workforce is equipped with practical competencies that align with industrial demands. This suggests that industrial education is not just about personal empowerment but also about national economic competitiveness.

Beyond employability, industrial education also enhances entrepreneurship and innovation. Many graduates from industrial education programmes venture into self-employment, establishing small and medium-scale enterprises that contribute to local economies. For instance, individuals trained in carpentry, tailoring, or auto-mechanics often create businesses that employ others, thereby reducing unemployment. In addition, entrepreneurship education, when integrated into industrial education curricula, equips learners with financial literacy, business management, and marketing skills necessary for sustaining enterprises (Ogunyinka, 2019). Innovation also thrives in contexts where students are encouraged to experiment with technologies and develop context-specific solutions. Adebayo and Lawal (2022) reported that industrial education has been instrumental in driving grassroots innovations in renewable energy and agricultural mechanisation in Nigeria, where graduates have designed locally adaptable machines to address community needs. Such innovations not only demonstrate creativity but also provide scalable solutions for national development. The entrepreneurial dimension of industrial education highlights its dual function as a driver of job creation and as a stimulus for technological advancement.

A comparative insight into industrial education across developed and developing contexts further illustrates its transformative potential. In developed countries, industrial education is often seamlessly integrated into mainstream education systems. Germany's dual system of vocational training, which combines classroom instruction with apprenticeship in industries, is widely regarded as a global benchmark (Euler, 2017). This system ensures that learners acquire both theoretical knowledge and practical skills simultaneously, leading to high employability rates and a smooth school-to-work transition. In contrast, developing countries such as Nigeria often face challenges in implementing industrial education effectively. These challenges include underfunding, inadequate infrastructure, outdated curricula, and societal perceptions that undervalue vocational training compared to traditional academic pathways (Odukoya, 2021). The disparity highlights a systemic issue where developing countries continue to produce graduates who are poorly matched to industry needs, while developed nations successfully leverage industrial education to sustain industrial growth and innovation.

Nevertheless, progress is being made in many developing contexts to strengthen industrial education. In South Africa, the government has invested heavily in technical and vocational education and training (TVET) colleges to address youth unemployment (Powell, 2019). Similarly, in Nigeria, the National Board for Technical Education (NBTE) has been working to reform curricula to align with modern industrial requirements. While these reforms are ongoing, significant gaps remain, particularly in ensuring adequate collaboration between educational institutions and industries. Without such collaboration, graduates may still find themselves underprepared for evolving labour markets. By contrast, developed countries demonstrate that when industrial education is supported by strong policies, sufficient

funding, and robust industry partnerships, it becomes a powerful driver of economic sustainability and social development.

In conclusion, industrial education stands out as a vital tool for developing vocational skills that are critical in today's knowledge-driven, technology-oriented economies. Its role in promoting skill acquisition through practical, hands-on training ensures that learners are not only knowledgeable but also competent in executing technical tasks. Its strong connection with employability and productivity underlines the importance of aligning education with labour market demands. Moreover, its contribution to entrepreneurship and innovation demonstrates its broader societal impact, creating opportunities for self-employment, job creation, and technological advancement. Comparative insights reveal that while developed countries have optimised industrial education as a catalyst for growth, developing nations still face structural and policy challenges that undermine its effectiveness. Strengthening industrial education, especially in developing contexts, therefore requires strategic investment, curriculum reform, and closer ties between schools and industries. Only then can industrial education realise its full potential as a tool for sustainable vocational skill development, economic empowerment, and societal progress.

Challenges Hindering Industrial Education in Developing Vocational Skills

Industrial education has long been recognised as an essential foundation for vocational skills acquisition, particularly in developing countries where the demand for skilled manpower continues to outpace supply. Despite its potential to reduce unemployment, enhance productivity, and drive economic development, several challenges hinder its effectiveness. Among the most significant barriers are funding and resource inadequacy, the poor perception of vocational and industrial education, policy and curriculum weaknesses, lack of industry-school collaboration, as well as infrastructural and technological limitations. Each of these challenges undermines the quality and relevance of industrial education, reducing its ability to deliver the vocational skills urgently needed in today's labour market.

Funding and resource inadequacy remain one of the foremost challenges affecting industrial education across many developing contexts. Adequate funding is critical for procuring instructional materials, modern equipment, training workshops, and qualified personnel. However, governments in many developing nations often allocate a disproportionately low percentage of their education budget to technical and vocational education compared to other academic programmes. For instance, UNESCO (2021) reported that many African countries spend less than 5% of their education budgets on vocational and technical education, leaving institutions poorly resourced. This lack of funding results in obsolete equipment, inadequate teaching aids, and poorly maintained workshops, which in turn hinders the acquisition of practical skills by students (Okoye & Okwelle, 2014). Without adequate investment, industrial education programmes struggle to bridge the gap between theoretical learning and practical skill application, leaving graduates underprepared for the demands of the labour market.

Another major barrier is the poor perception of vocational and industrial education within society. In many countries, particularly in Africa and Asia, vocational education is often regarded as inferior compared to academic or professional tracks such as medicine, law, or engineering (Olaitan, 2020). This perception discourages students from enrolling in industrial education programmes, as many view them as a "last resort" for those who are unable to succeed in more prestigious academic pathways. Parental attitudes also reinforce this bias, as families frequently pressure their children to pursue university education instead of vocational training. The result is a shortage of motivated learners in industrial education

programmes, which undermines both the quality of learning and the long-term supply of skilled manpower (Eze & Okorafor, 2019). Changing this perception requires sustained advocacy and policies that elevate the status of vocational education to match its critical role in national development.

Policy and curriculum weaknesses also present significant obstacles to industrial education. In many developing nations, industrial education policies are outdated, inconsistently applied, or poorly aligned with the realities of the modern labour market. Okoye and Atata (2019) noted that many vocational curricula are still based on outdated industrial processes, failing to reflect contemporary technological advancements and the needs of employers. Furthermore, weak policy implementation results in frequent curriculum gaps, inadequate teacher training, and limited evaluation mechanisms. The mismatch between what is taught in vocational institutions and the actual skills required by industries perpetuates a cycle where graduates are ill-equipped for available jobs, thereby worsening unemployment rates. Without robust policies and regularly updated curricula, industrial education cannot fulfil its mandate of equipping learners with relevant and marketable skills.

A further challenge lies in the lack of collaboration between industries and schools. Effective industrial education requires close partnerships with industries to ensure that training programmes are aligned with labour market demands and that students receive opportunities for practical, hands-on experiences. However, in many developing contexts, this collaboration is minimal or entirely absent. Employers often complain that vocational graduates lack the competencies needed in real workplaces because they were trained in isolation from industry practices (Adedeji & Bamidele, 2019). Similarly, schools frequently operate without input from employers, resulting in a disconnect between training and job requirements. This gap undermines the employability of graduates and reduces the willingness of industries to invest in or support vocational education initiatives. Strengthening industry-school collaboration through apprenticeship programmes, internships, and joint curriculum design is therefore essential for making industrial education more effective.

Finally, infrastructural and technological limitations severely restrict the capacity of industrial education to produce competent graduates. Many vocational training centres operate with dilapidated buildings, outdated machinery, and inadequate access to modern tools or digital technologies (Oviawe, 2018). In a rapidly changing global economy characterised by automation, artificial intelligence, and digitalisation, students trained with outdated equipment are disadvantaged, as they lack exposure to current industrial practices. This creates a persistent skills gap, as graduates are unable to meet the evolving technological demands of employers. Moreover, inadequate infrastructure discourages enrolment and lowers the morale of both students and teachers, further weakening the overall effectiveness of industrial education. Addressing these infrastructural and technological deficits requires not only increased funding but also partnerships with private industries and international development agencies to modernise training facilities.

In conclusion, industrial education faces multiple interlinked challenges that hinder its capacity to effectively develop vocational skills in many developing countries. Funding inadequacies deprive schools of the resources needed to maintain high-quality training, while societal perceptions continue to undermine its attractiveness. Weak policies and outdated curricula fail to align education with labour market realities, and the lack of collaboration with industries perpetuates the disconnect between training and employment needs.

Additionally, infrastructural and technological shortcomings limit the relevance of training to contemporary industrial practices. Unless these challenges are systematically addressed through improved funding, modernised curricula, societal reorientation, and stronger partnerships with industry, industrial education will continue to fall short of its potential as a vital tool for vocational skills development.

Strategies for Strengthening Industrial Education for Vocational Skills Development

Strengthening industrial education is essential for developing vocational skills that meet the demands of modern economies. Several strategies have been identified to enhance the effectiveness of industrial education in fostering vocational competencies. Curriculum reform and modernization are pivotal in ensuring that educational programs remain relevant to current industry needs. Updating curricula to include emerging technologies and industry practices ensures that students acquire the skills necessary for the modern workforce. For instance, the integration of artificial intelligence and robotics into training programs has been shown to improve graduates' employability and wage prospects (Buehler, 2024).

Increased funding and infrastructural investment are critical for providing the resources needed to deliver high-quality vocational education. Financial support enables the acquisition of modern equipment, the development of training facilities, and the recruitment of qualified instructors. The integration of Information and Communication Technology (ICT) and modern technologies into vocational education can significantly enhance learning experiences and outcomes. Utilizing digital tools and platforms allows for interactive learning, access to a wide range of resources, and the development of digital literacy skills. Research indicates that incorporating ICT in vocational education improves student engagement and prepares them for technology-driven industries (Banagiri, 2021).

Strengthening partnerships between industries and educational institutions ensures that training programs are aligned with real-world job requirements. Collaborations can take the form of internships, apprenticeships, and joint curriculum development, providing students with practical experience and industry insights. Such partnerships have been found to enhance the relevance of vocational training and improve employment outcomes for graduates (Mariah, 2025). Policy reforms and government interventions play a crucial role in creating an enabling environment for vocational education. Implementing policies that promote skill development, allocate funding, and establish standards for vocational training ensures consistency and quality across programs. The Karnataka State Skill Development Policy 2025-32, for example, aims to transform the state into a skilled talent hub by integrating vocational education in academic institutions and expanding industry collaboration (Times of India, 2025).

In conclusion, a multifaceted approach involving curriculum reform, increased investment, technological integration, industry partnerships, and supportive policies is essential for strengthening industrial education and developing vocational skills. By implementing these strategies, educational institutions can better equip students with the competencies needed to thrive in the dynamic job market.

Conclusion and Recommendations

Industrial education remains a vital instrument for the development of vocational skills, serving as a bridge between theoretical knowledge and practical competence. Its role in equipping individuals with the technical expertise, problem-solving abilities, and hands-on experience necessary for the modern workforce cannot be overstated. By providing learners with opportunities to engage in practical tasks, industrial education fosters critical thinking,

creativity, and self-reliance, all of which are essential for employability and entrepreneurial success. In an era marked by rapid technological advancement and global competition, the capacity to acquire and apply vocational skills through structured industrial education is indispensable for both personal and national development. Beyond individual benefits, industrial education contributes to the economic growth of a nation by producing a skilled workforce capable of meeting the demands of industries, reducing unemployment, and supporting innovation in various sectors. Its impact is particularly significant in developing countries, where formal employment opportunities are limited, and vocational competence can serve as a catalyst for self-employment and sustainable livelihoods.

Despite its importance, industrial education faces numerous challenges that limit its effectiveness in developing vocational skills. Inadequate funding, outdated curricula, poor infrastructure, and weak collaboration between educational institutions and industries hinder the capacity of industrial education to meet contemporary workforce needs. Additionally, societal perceptions often undervalue vocational training compared to academic education, further discouraging enrolment and investment in industrial programs. These limitations underscore the urgent need for reforms and strategic interventions aimed at enhancing the relevance, accessibility, and quality of industrial education. Strengthening policy frameworks, modernising curricula to align with current industry standards, and integrating technology into training programs are essential steps toward revitalising industrial education. Equally important is the promotion of public awareness regarding the value of vocational skills and the opportunities they present for economic empowerment and personal development.

To maximise the benefits of industrial education, educators, policymakers, and industry stakeholders must adopt a collaborative and proactive approach. Educators should focus on developing practical, hands-on learning experiences that reflect real-world industry practices, while continuously updating teaching methods to incorporate emerging technologies. Policymakers must prioritise adequate funding, policy reforms, and regulatory frameworks that support vocational education and encourage partnerships between schools and industries. Industry stakeholders, on their part, should actively participate in curriculum design, provide internship opportunities, and support skill acquisition initiatives that ensure graduates are workforce-ready.

References

- Adebayo, T., & Lawal, O. (2022). Industrial education and grassroots innovation in Nigeria: Prospects and challenges. *Journal of Vocational Studies*, 14(2), 88–103.
- Adedede, S. O., & Bamidele, R. O. (2019). Vocational education and skill acquisition for economic growth in Nigeria. *Journal of Technical Education and Training*, 11(3), 45–56.
- Aina, J. A., & Olanipekun, D. (2021). Graduate unemployment and the relevance of technical education in Nigeria. *African Journal of Technical Education*, 9(1), 55–67.
- Aina, J. K., & Adeyemi, M. O. (2021). Industrial education and skills development for sustainable economic growth in Nigeria. *International Journal of Vocational and Technical Education*, 13(2), 25–34.
- Ayonmike, C. S., Okwelle, P. C., & Okeke, B. C. (2015). Towards quality technical vocational education and training (TVET) programmes in Nigeria: Challenges and improvement strategies. *Journal of Education and Learning*, 4(1), 25–34.
- Banagiri, R. (2021). Use of ICT in teaching vocational subjects. ERIC.



- Bashir, U., & Yakubu, M. A. (2021). Technical and vocational education in Nigeria: Issues, challenges and prospects. *Journal of Technical Education and Training*, 13(4), 67–78.
- Buehler, A. F. (2024). Curriculum updates in vocational education and changes in graduates' skills and wages. *Journal of Vocational Education & Training*, 76(1), 1–20.
- Euler, D. (2013). Germany's dual vocational training system: A model for other countries? Bertelsmann Stiftung.
- Euler, D. (2017). The German vocational education and training system: Its institutional configuration and challenges. *WZB Discussion Paper, SP I 2017-501*.
- Emeh, I. E., & Okafor, O. C. (2020). Vocational skills acquisition as a tool for youth empowerment and poverty reduction in Nigeria. *African Journal of Education and Practice*, 6(8), 12–23.
- Eze, S. C., & Ofoha, D. (2018). Technical and vocational education as a tool for sustainable skill acquisition in Nigeria. *International Journal of Educational Research*, 6(4), 112–124.
- Eze, T. I., & Okorafor, A. O. (2019). Repositioning vocational education in Nigeria for sustainable national development. *International Journal of Vocational and Technical Education*, 11(1), 1–7.
- Ezeani, N. S., & Oladejo, M. A. (2012). Marketing of technical and vocational education: A strategic option for Nigerian universities. *Journal of Business Administration and Education*, 1(1), 33–54.
- International Labour Organization (ILO). (2020). *Skills and employability report: The role of vocational education in productivity growth*. ILO Publishing.
- International Labour Organization (ILO). (2021). *Skills development in the digital economy*. Geneva: ILO.
- Lee, J. (2016). Vocational education and training in Korea: Challenges and future directions. *Asian Education and Development Studies*, 5(4), 401–418.
- Mariah, S. (2025). The role of industry partnerships in advancing vocational training programs: Challenges and opportunities. *The Journal of Applied Sciences*, 12(3), 45–58.
- National Bureau of Statistics. (2020). *Labour force statistics: Unemployment and underemployment report (Q2 2020)*. Abuja: NBS.
- Odu, K. O. (2011). Human capital development in science and technology education: Challenges and new responsibilities of the teacher. *Contemporary Educational Technology*, 2(3), 238–249.
- Odukoya, J. A. (2021). Challenges of vocational and industrial education in Nigeria: Policy perspectives. *Nigerian Journal of Educational Policy*, 18(3), 34–49.
- Ogunode, N. J. (2022). Vocational skills acquisition and entrepreneurship development in Nigeria. *Global Journal of Educational Research*, 21(1), 23–30.
- Ogunyinka, O. (2019). Entrepreneurship integration into vocational education: A panacea for youth unemployment in Nigeria. *Journal of Educational Development*, 7(2), 72–83.
- Okolie, U. C., Igwe, P. A., & Elom, E. N. (2019). Improving graduate employability: Social and institutional support mechanisms for enhancing skills acquisition and utilisation in Nigeria. *Higher Education, Skills and Work-Based Learning*, 9(2), 171–185.
- Okolie, U. C., Igwe, P. A., & Nwosu, H. E. (2019). Technical, vocational education and training (TVET) and employability in sub-Saharan Africa. *Educational Studies*, 45(6), 715–732.
- Okoro, C. (2020). Industrial education and the development of 21st-century competencies. *International Journal of Technical Education*, 15(1), 44–60.

- Okoro, P. O. (2020). Industrial education and workforce preparation in Nigeria. *Nigerian Journal of Industrial Education*, 5(1), 44–59.
- Okoye, K. R. E., & Atata, S. N. (2019). Industrial education and national development: Issues and prospects. *Journal of Educational Review*, 12(2), 89–101.
- Okoye, K. R. E., & Okwelle, P. C. (2014). Technical and vocational education in Nigeria: Issues, challenges and prospects. *Journal of Education and Practice*, 5(24), 47–52.
- Okoye, K. R. E., & Okwelle, P. C. (2017). Technical and vocational education and training (TVET) in Nigeria: Issues, challenges and prospects. *Journal of Education and Practice*, 8(32), 95–101.
- Olaitan, S. O. (2020). Refocusing vocational education for national development in Nigeria. *African Journal of Vocational Education*, 8(2), 12–23.
- Oviawe, J. I. (2018). Revamping technical and vocational education and training through public-private partnerships for skill development in Nigeria. *Contemporary Vocational Education*, 3(1), 1–19.
- Powell, L. (2019). Re-imagining technical and vocational education and training in South Africa. *Journal of Vocational Education & Training*, 71(2), 181–201.
- UNESCO. (2019). *Vocational education and training for the future of work*. Paris: UNESCO Publishing.
- UNESCO. (2021). *Global education monitoring report 2021: Non-formal and vocational education in developing countries*. Paris: UNESCO.
- UNESCO. (2021). *UNESCO strategy for technical and vocational education and training (TVET) 2022–2029*. Paris: UNESCO.
- World Bank. (2020). *Skilling up the workforce for post-COVID-19 recovery*. Washington, DC: World Bank.

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