EFFECTS OF INDUSTRY – ACADEMIA COLLABORATION IN ENHANCING SKILLS DEVELOPMENT AND EMPLOYABILITY OF METALWORK STUDENTS IN LAGOS STATE TECHNICAL COLLEGES

Abstract

This study investigated the effects of industry-academia collaboration in enhancing skills development and employability of metalwork students in Lagos State Technical Colleges. A descriptive survey design was used, involving 51 participants—31 industry managers and 20 metalwork teachers. Since the population size was small, all were included without sampling. Data were collected using a structured 24-items questionnaire titled Effects of Industry–Academia Collaboration in Enhancing Skills Development and Employability of Metalwork Students in Lagos State Technical Colleges (EIACESDEMWS). It used a 4-point scale: Strongly Agree (4) to Strongly Disagree (1). The researchers with support from three assistants, administered and successfully retrieved all copies of the questionnaire. Two research questions and two hypotheses, tested at a 0.05 significance level, guided the study. Mean and standard deviation were used to answer the research questions, while t-tests were used to test the hypotheses. A mean score of 2.50 or above indicated agreement. For hypotheses testing, p-values ≤ 0.05 indicated significant differences. Findings revealed no significant difference in responses from industry managers and teachers regarding collaboration strategies for skill development and employability improvement. This suggests a shared understanding of the importance of partnership between schools and industry. The study recommends stronger industry participation, especially in training and retraining technical teachers in modern metalwork technologies, and ensuring the provision of adequate tools and equipment to support practical skill development in technical colleges.

Keywords: Industry-academia collaboration, skill development, employability.

Introduction

In today's rapidly changing industrial landscape, aligning educational outcomes with industry expectations is more critical than ever. This is particularly important in technical and vocational education, where students need practical, up-to-date skills to thrive in the job market. In regions like Lagos State, Nigeria, a notable challenge persists: the gap between what students learn in school and what industries actually need. This disconnect often leaves graduates underprepared for employment, contributing to high rates of joblessness and economic stagnation. Industry-academia collaboration has emerged as a solution to bridge this gap. As Keyton (2020) explains, collaboration involves individuals or organizations working together toward a shared goal. In this context, partnerships between technical colleges and industries aim to improve students' skills and make them more employable. These collaborations allow industries to influence curriculum design, provide internships, and share real-world problems that help shape students' learning (Smith & Jones, 2023; Oluwole & Adesanya, 2022). Abu (2014) adds that these partnerships help technical institutions stay current by introducing students to advanced equipment and methods that may be beyond the schools' capacities.

Such collaborations also promote innovation and problem-solving by engaging students in real-life projects (Ahmed, Fattanin, Alli & Enam, 2022). They offer opportunities for professional development, enabling teachers to remain up-to-date with current industry trends (Johnson, Adeyemi & Bello, 2020). Internships and apprenticeships allow students to gain valuable hands-on experience, expand their networks, and increase their employability (Obi & Hassan, 2021). Buligina and Sloka (2016) describe this model as a blend of academic learning and industry exposure, which strengthens practical skills and aligns school training with workplace demands.

Without such collaboration, schools often struggle to keep pace with evolving industry needs. Students may graduate without the skills necessary for modern workplaces. As Anindo, Mugambi, and Matula

(2016) emphasize, school-to-work transitions are smoother when students are trained in environments that mirror real industry conditions. Industry input also ensures that technical curricula are relevant and responsive to labor market demands (Nungse, Ugwoke, Ogbuanya & Shetima, 2020). When companies participate in curriculum reviews, students receive training that prepares them to contribute meaningfully to the workforce from day one.

The National Policy on Education (FRN, 2013) acknowledges the importance of these collaborations by requiring technical college curricula to include both theory and practice, including production units that simulate industrial settings. This combination ensures students are well-prepared, not just academically but practically.

Metalwork, a key area within technical education, exemplifies the value of such partnerships. From fabrication to modern welding and machining, metalwork requires hands-on practice with specialized tools. Industry-academia collaboration provides access to this training and ensures students are competent in emerging technologies. According to Golden (2009), students need both practical and theoretical skills to navigate the complexities of modern metalwork practice.

In metalwork, tasks such as forging, welding, casting, and machining demand not just manual skills but also the ability to think critically and work efficiently. Mbah and Elobuike (2016) define skills as capabilities that allow individuals to perform specific tasks effectively—these are essential in today's technical fields. Okorie (2010) adds that skill development also involves communication, teamwork, and other soft skills that contribute to workplace success. Olabiyi, Aiyelabowo, and Keshinro (2013) note that mastering these skills requires ongoing, structured learning and practical exposure. Skill development is not just about performing tasks—it's about becoming competent enough to meet industry expectations. Bodnar (2020) and Magbagbeola (2020) stress the importance of blending theory with hands-on training, delivered by qualified instructors in well-equipped environments. Without this, students may lack the confidence or ability to perform effectively in real-world jobs.

In Nigeria, skill development is vital for building a productive workforce and competing globally (Audu, Yusri & Muhammad, 2013). It is a continuous process that must evolve with industry changes. While employability was once seen as an individual's responsibility, it is now understood as a shared goal involving both education systems and industry (Fugate, Kinicki & Ashforth, 2004; Rothwell & Arnold, 2007).

Today, employability encompasses much more than technical ability. Di Fabio (2017) describes it as including self-awareness, adaptability, and career management—traits necessary in a competitive, unpredictable job market. Bach and Sulikova (2019) emphasize that transferable skills—those that bridge school and work—are central to employability. Amadi (2013) reinforces that these competencies enable graduates to contribute effectively in their workplaces and sustain long-term careers. The industry-academia collaboration is not just beneficial—it is essential. For metalwork students and other technical learners in Lagos and beyond, such partnerships offer a pathway to real-world readiness, self-reliance, and sustainable employment.

Literature Review

Collaboration between industry and academia is vital for bridging the gap between theory and practice in technical education. According to Audu, Umar, and Idris (2013), such partnerships help align educational content with real-world demands. In metalwork education, Billett (2011) stresses the value of hands-on training through industry support, allowing students to gain exposure to current tools and techniques. He also notes that active industry input in curriculum design ensures programs reflect actual job requirements. Manwaring, Holloway, and Coffey (2020) propose a framework that promotes industry participation in curriculum review and staff development, enabling educators to create relevant, industry-aligned courses.Supporting this, Ogbuanya and Tongshuwal (2020) found that collaborative seminars, workshops, and teacher involvement in industrial production boost skill acquisition. Likewise, Ojo (2019) reported no significant difference between technical teachers' and

supervisors' views on collaboration in motor vehicle mechanics, suggesting a shared commitment to improving training quality.On employability, Adewale and Olufemi (2021) observed that employer involvement in curriculum design and student internships significantly enhances graduate employment outcomes. Agrawal (2014) and Andrews and Higson (2008) also found that such collaboration provides students with relevant experience and job-ready skills. Okoli, Igwe, and Elmo (2019) linked project-based learning with better job placement, while Edeh, Mbah, and Chigozie (2023) emphasized that a skilled workforce is crucial for utilizing modern technologies effectively. This study explores how industry-academia collaboration improves both skill development and employability for metalwork students in Lagos State Technical Colleges.

Statement of the Problem

Metalwork graduates from technical colleges are expected to acquire the necessary skills to thrive in various industries and professional settings. However, many technical colleges in Lagos State face significant challenges in equipping students with industry-relevant competencies. Despite the recognized benefits of industry-academia collaboration, these partnerships remain underutilized due to issues such as limited resources, inadequate infrastructure, and weak policy frameworks (UNESCO, 2015). Research highlights several key barriers to effective industry-aligned training in Nigeria's technical colleges. Okoye and Okwelle (2014) emphasize the lack of essential equipment and funding, while employability (Adewale & Olufemi, 2021) point to outdated curricula, inadequate collaboration frameworks, and insufficient engagement with industry stakeholders. Similarly, Okoli, Igwe, and Elmo (2019) argue that the absence of exposure to modern production methods hinders the development of employable skills among graduates. To bridge the gap between theoretical knowledge and practical application, stronger collaboration between industries and academia is essential. This study explores how effective partnerships can enhance skill development and improve employability among metalwork students in Lagos State Technical Colleges.

Purpose of the Study

This study aims to investigate the effects of industry-academia collaboration in enhancing skills development and employability of metalwork students in Lagos State Technical Colleges. Specifically, the study seeks to:

1. Identify industry-academia collaboration strategies that can enhance the skills development of metalwork students in Lagos State Technical Colleges.
2. Identify industry-academia collaboration strategies that can improve the employability of metalwork students in Lagos State Technical Colleges.

Research Questions

The study is guided by the following research questions:

1. What industry-academia collaboration strategies can enhance the skills development of metalwork students in Lagos State Technical Colleges?
2. What industry-academia collaboration strategies can improve the employability of metalwork students in Lagos State Technical Colleges?

Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

H_{01}: There is no significant difference between the mean responses of industrial managers and metalwork teachers regarding strategies to enhance collaboration between technical colleges and industries for the skills development of metalwork students in Lagos State, Nigeria.

H_{02}: There is no significant difference between the mean responses of industrial managers in metalwork industries and metalwork teachers regarding strategies to improve collaboration between technical colleges and industries for enhancing the employability of metalwork students in Lagos State, Nigeria.

Methodology

This study investigates theeffects of industry-academia collaboration in enhancing skills development and employability of metalwork students in Lagos State Technical Colleges. Descriptive survey research design was adopted, which involves using a representative sample to describe opinions, beliefs, and attitudes about a particular phenomenon (Manjunatha, 2019). The study population consisted of 51 participants, comprising 31 industrial managers and 20 metalwork technical college teachers in Lagos State. Due to the manageable population size, no sampling was conducted. A structured questionnaire titled Effects of Industry–Academia Collaboration in Enhancing Skills Development and Employability of Metalwork Students in Lagos State Technical Colleges (EIACESDEMWS) was developed for data collection. The questionnaire employed a four-pointscale: Strongly Agree (SA) – 4, Agree (A) – 3, Disagree (D) – 2, Strongly Disagree (SD) – 1. It comprised 24 items aligned with the research questions and was face-validated by three experts, achieving a Cronbach's Alpha reliability coefficient of 0.78, indicating high reliability. Data collection was conducted by the researcher with the assistance of three research assistants. All the51 copies of the questionnaire were successfully retrieved. For data analysis, mean (X) and Standard Deviation (SD) were used to answer the research questions, while t-test statistics were employed to test the hypotheses at the 0.05 level of significance. The decision criteria were as follows: a mean score of 2.50 or higher was considered as agreement (strong or moderate), while a score below 2.50 was considered disagreement. For the t-test, a p-value ≤ 0.05 led to the rejection of the null hypothesis, whereas a p-value > 0.05 resulted in its retention.

Findings

Research Question 1: What industry-academia collaboration strategies can enhance the skills development of metalwork students in Lagos State Technical Colleges?

Table 1: Mean and Standard Deviation of Respondents on Industry-Academia Collaboration Strategies for Enhancing Skill Development of Metalwork Students in Lagos State Technical Colleges.

N=51 Industrial Based Manager (31) Metalwork Teacher (20)

S/N	Items Statements	Industrial Managers Mean	SD	Decision	Metalwork Teachers Mean	SD	Decision
1.	Partnering with school in research/Development activities	3.90	.30	Agreed	3.60	.50	Agreed
2.	Organising workshop/seminars by industries on contemporary issues in the industry	3.84	.45	Agreed	3.75	.44	Agreed
3.	Encouraging joint development projects initiation between school and industry	3.90	.40	Agreed	3.50	.83	Agreed
4.	Narrowing the gap between theory and practical through excursion /Field trip/SIWES	3.74	.68	Agreed	3.60	.60	Agreed
5.	Improving collaboration between school and industry through periodic meetings on new technology innovation	3.58	.77	Agreed	3.75	.55	Agreed
6.	Upgrading the curriculum to meet the labour market demand through industry participation	3.77	.49	Agreed	3.60	.82	Agreed
7.	Provision of internship and on-the- job training by the industry	3.65	.76	Agreed	3.55	.64	Agreed
8.	Exposing metalwork teachers to industry practices to update them knowledge and skills	3.61	.76	Agreed	3.60	.60	Agreed
9.	Assessment of training facilities						

/Equipment to ensure adequate background requirement in industry	3.48		.89	Agreed	3.60	.75	Agreed
10. Curriculum review and design with industry participation	3.87		.34	Agreed	3.75	.44	Agreed
11. Granting industry visit to technical colleges for relevant exposure in practical	3.87		.43	Agreed	3.45	.83	Agreed
12. Allowing industry representatives in planning with management of technical colleges skill development activities.	3.80		.40	Agreed	3.65	.88	Agreed
Cluster Mean	**3.75**		**.56**	**SA**	**3.62**	**.59**	**SA**

Table 1: highlights the impact of industry-academia collaboration strategies on skill development in metalwork in Lagos State technical colleges. The data shows strong agreement between industrial managers and metalwork teachers on all listed items, as reflected in the responses from the two major stakeholders—industrial managers and metalwork teachers.The results revealed that industrial managers had a cluster mean score of 3.75 with a standard deviation of 0.56, indicating a strong agreement on the effectiveness of industry-academia collaboration strategies. The low standard deviation suggests a high level of agreement among respondents. Similarly, metalwork teachers reported a cluster mean of3.62 and a standard deviation of 0.59, which also falls within the "strongly agree" category. This confirms a shared perception among academic personnel regarding the value of collaboration with industry in enhancing students' practical skills. These strategies are perceived as critical in bridging the gap between classroom instruction and real-world industrial expectations.

Research Question 2: What industry-academia collaboration strategies can improve the employability of metalwork students in Lagos State Technical Colleges?

Table 2: Mean and Standard Deviation of Respondents on Industry-Academia Collaboration Strategies for Improving Employability of Metalwork Students in Lagos State Technical Colleges.

N=51 Industrial Based Manager (31) Metalwork Teacher (20)

S/N	Items Statements	Industrial Managers			Metalwork Teachers		
		Mean	SD	Decision	Mean	SD	Decision
13.	Irrelevance of the programme curriculum to the needs of industry	3.70	.70	Agreed	3.55	.63	Agreed
14.	Rigidity of the system due to resistance to change	3.41	.92	Agreed	3.60	.68	Agreed
15.	Lack of modern equipment and facilities for collaboration implementation	3.77	.50	Agreed	3.75	.55	Agreed
16.	Lack of appropriate skills by the metalwork teachers	3.68	.60	Agreed	3.50	.83	Agreed
17.	Skill mismatch between skills acquired in the technical colleges and the industry requirement	3.36	.91	Agreed	3.75	.55	Agreed
18	Limited industry engagement with technical colleges	3.42	.92	Agreed	3.50	.89	Agreed
19.	Lack of fund for	3.80	.48	Agreed	3.80	.52	Agreed

collaboration implementation						
20.Obsolete teaching methods and learning facilities	3.77	.50	Agreed	3.70	.57	Agreed
21.Non upgrading of the curriculum to meet the labour market demand	3.84	.45	Agreed	3.75	.44	Agreed
22.Lack on the job training for metalwork teachers	3.48	.8	Agreed	3.55	.83	Agreed
23.Materials for practical demonstration and training is limited or not available	3.94	.25	Agreed	3.75	.44	Agreed
24.Lack of preparation of skill training programme that will suit employability	3.74	.51	Agreed	3.65	.59	Agreed
Cluster Mean	**3.66**	**.63**	**SA**	**3.65**	**.65**	**SA**

Table 2: Illustrates how industrial-academia collaboration strategies contribute to improve employability in metalwork in technical colleges in Lagos State. The data indicate that both industrial managers and metalwork teachers agree with all the listed items, as reflected in mean values 2.50as the cut-off point. This consensus is further supported by the grand mean scores industrial managers (3.66) and metalwork teachers (3.65) have mean scores that fall within the range of 3.50–4.00, indicates strong agreement. This suggests that both groups strongly agree that the identified industry-academia collaboration strategies are effective in improving the employability of metalwork students in Lagos State Technical Collegesof 3.66 for industrial managers and 3.65 for metalwork teachers. Additionally, the standard deviations for both groups are relatively low (0.63 and 0.65), indicating a high level of consensus among respondents within each group. The low variability also strengthens the reliability of the mean scores as representative of the groups' perspectives.

Hypothesis 1: There is no significant difference between the mean responses of industrial managers and metalwork teachers regarding strategies to enhance collaboration between technical colleges and industries for the skills development of metalwork students in Lagos State, Nigeria.

Table 3:

A t-test analysis comparing the mean responses of industrial managers and metalwork teachers on enhancing collaboration between technical colleges and industries for metalwork students' skills development in Lagos State, Nigeria.

Group	Mean	SD	N	df	t-cal	t-crit(2 tailed)	Decision
Industry Managers	3.75	.56	31				
				49	**0.78**	**±2.01**	Accept
Metalwork Teachers	3.62	.59	20				

An independent samples t-test was conducted to compare the mean responses of industrial managers and metalwork teachers. The results are shown in Table 3.Since the t-calculated (0.78) is less than the t-critical (±2.01) at the 0.05 level of significance,therefore we fail to reject the null hypothesis that states “There is no significant difference between the mean responses of industrial managers and metalwork teachers regarding strategies to enhance collaboration between technical colleges and industries for the skill development of metalwork students in Lagos State, Nigeria.The analysis revealed that the difference in mean responses was not statistically significant, $t(49) = 0.78$, $p > .05$. Therefore, the null hypothesis was retained. Therefore,There is no

significant difference between the mean responses of industrial managers (M = 3.75, SD = 0.56) and metalwork teachers (M = 3.62, SD = 0.59) regarding strategies to enhance collaboration between technical colleges and industries. This implies thatboth groups have similar views on the strategies that can enhance collaboration between technical colleges and industries for the skills development of metalwork students in Lagos State, Nigeria

Hypothesis 2: There is no significant difference between the mean responses of industrial managers in metalwork industries and metalwork teachers on strategies for improving collaboration between technical colleges and industries to enhance the employability of metalwork students in Lagos State, Nigeria.

Table 4: t-test analysis of the mean difference between the responses of industrial managers and metalwork teachers on strategies for enhancing collaboration between technical colleges and industries for improving metalwork students' employability in Lagos State, Nigeria.

Group	Mean	SD	N	Df	t-cal	t-crit(2 tailed)	Decision
Industry Managers	3.66	.63	31				
				49	**0.055**	**±2.009**	Accept
Metalwork Teachers	3.65	.65	20				

The,t-calculated=0.055 and t-critical (df=49, two-tailed at α=0.05) = ±2.009. The results revealed that the mean response of industrial managers (M = 3.66, SD = 0.63, n = 31) was very similar to that of metalwork teachers (M = 3.65, SD = 0.65, n = 20). An independent samples t-test showed that the difference in means was not statistically significant, t(49) = 0.06, p > .05.Therefore,Since |t-cal| < t-crit, the null hypothesis,which states that "There is no significant difference between the mean responses of industrial managers in metalwork industries and metalwork teachers on strategies for improving collaboration between technical colleges and industries to enhance the employability of metalwork students in Lagos State, Nigeria". wasnot rejected.These findings suggest that both groups hold similar perceptions regarding effective strategies to improve collaboration between technical colleges and the metalwork industry, which could enhance the employability of students

Discussion of Findings

Results from Research Question One show that industrial managers reported a cluster mean of 3.75 (SD = 0.56), while metalwork teachers had a mean of 3.62 (SD = 0.59). Both scores fall within the "strongly agree" range on the four-point scale, indicating strong support for industry-academia collaboration strategies. The low standard deviations suggest a high level of consensus among respondents. This shared perception reinforces the value of collaboration in bridging the gap between classroom instruction and real-world industry expectations.Despite the agreement on its importance, findings suggest industries provide limited support for the training and retraining of technical teachers, particularly in emerging metalwork technologies. This may be due to the lack of clear government policy mandating industry involvement in technical education. Banka and Okwori (2019) stressed that continuous teacher training is essential for professional development, innovation, and effective skills delivery.In Research Question Two, industrial managers and teachers again strongly agreed on the impact of collaboration on student employability, with mean scores of 3.66 and 3.65 respectively. Both groups recognized the importance of strategies such as SIWES, internships, curriculum alignment, industry-led workshops, and mentorships. These are seen as key in preparing students for labor market demands.This aligns with Audu, Umar, and Idris (2013), who advocate for more industry and NGO involvement in technical education funding and infrastructure. Manwaring, Holloway, and Coffey (2020) support stronger curriculum collaboration, while Osuyi and Owenvbiugie (2015) highlight industry reluctance to accept students for industrial training. Additionally, findings confirm that industry involvement in curriculum development remains low in Lagos, echoing concerns by Nunge et al. (2020) and Ojo (2019) about the exclusion of industries from TVET curriculum planning processes.

Conclusion

Collaboration between industry and academia is vital for enhancing the quality and relevance of technical education in Lagos State. Addressing the existing challenges and adopting best practices will better equip

students for successful careers in the metalwork industry, ultimately contributing to the region's economic development. This study revealed a lack of adequate collaboration between technical colleges and industries in key areas such as the training and retraining of technical teachers on emerging technologies, the provision of teaching and learning facilities, support for students' industrial work experience schemes, and participation in curriculum development for employability in the metalwork sector. Given the rapid advancement of technology, it is crucial to integrate industry-relevant innovations into the curriculum and teaching materials to keep students updated with evolving trends.

The findings highlight that industry involvement in curriculum design enhances students' learning experiences, improves skill acquisition, and boosts confidence. Exposure to real-world practical training leads to better examination performance and increases job readiness among graduates. Furthermore, industry partnerships provide students with insights into various career pathways, making them more competitive in the job market.

Recommendations

To strengthen industry-academia collaboration in metalwork technology education, the following recommendations are proposed:

1. There should be a stronger industry participation, especially in training and retraining technical teachers in modern metalwork technologies, and ensuring the provision of adequate tools and equipment to support practical skill development in technical colleges
2. Providing adequate materials for practical training.
3. Promoting collaborative seminars, conferences and workshops to enhance students work force readiness.
4. The Federal and State Ministry of Education should mandate industry participation in curriculum planning and review to align technical education with current industry standards.
5. Technical colleges should establish formal collaborations with industry stakeholders to ensure curriculum relevance and increase training opportunities.
6. The Public and Private sectors should boost funding and resource allocation to technical colleges to modernize facilities and equipment, ensuring students have access to the latest technologies.
7. There should be clear and comprehensive policy framework to guide industry-academia collaboration, including incentives for industry participation and regular curriculum updates.
8. Regular Professional Development Programmmes should be implemented to equip technical teachers with the latest industry knowledge and teaching methodologies.

By implementing these recommendations, technical colleges in Lagos State can be significantly improved in terms of equipment, training materials, curriculum review in line with market demand, skill development programme among others to ensure that metalwork graduates are better prepared for employment in the metalwork industry.

References

1. Abu, R. (2014). Collaboration between TVET institutions and industries in Bangladesh to enhance employability skills. *International Journal of Engineering and Technology Research, 1*(2), 50–55.
2. Adekunle, A., & Williams, M. (2021). Innovation and creativity in technical education: The role of industry collaboration. *African Journal of Technical Education, 8*(1), 67–79.
3. Adewale, K. O., & Olufemi, T. A. (2021). Industry-driven curriculum development in mechanical technology. *Journal of Technical Education and Training, 8*(1), 78–89.
4. Agrawal, T. (2014). Effectiveness of industry-academia collaboration in enhancing employability of students in India. *Journal of Vocational Education & Training, 66*(4), 1–19.
5. Ahmed, F., Fattanni, M. I., Alli, S. R., & Enam, R. N. (2022). Strengthening the gap between academic and industry through academic-industry collaboration. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2022.875940

6. Andrews, J., & Higson, H. (2008). Graduate employability, 'soft skills' versus 'hard' business knowledge: A European study. *Higher Education in Europe, 33*(4), 411–422.
7. Anindo, J., Mugambi, M. N., & Matula, P. D. (2016). Training equipment and acquisition of employable skills by trainees in public technical and vocational education and training institutions in Nairobi County, Kenya. *Journal of Advanced Research in Education and Technology, 3*(4), 103–110.
8. Amadi, U. P. N. (2013). Appraising work-based learning experiences of technical vocational (teacher) educational and training (TVET) programmes in Nigeria. *Mediterranean Journal of Social Sciences, 4*(5), 137–146.
9. Audu, R., Umar, I. Y., & Idris, A. M. (2013). Facilities provision and maintenance: Necessity for effective teaching and learning in technical vocational education. *Journal of Research & Method in Education, 3*(1), 28–32.
10. Audu, R., Yusri, B., & Muhammad, S. B. S. (2013). Acquisition of employability skills in technical vocational education: Necessity for the 21st-century workforce. *Australian Journal of Basic and Applied Sciences, 7*(6), 9–14.
11. Bach, C, & Sulikova, R. (2019). Competence development in theory and practice: Competence, meta-competence, transfer competence and competence development in their systematic context. *Management, 14*, 289–304. https://doi.org/10.26493/1854-4231.14.289-304
12. Banka, S. N., & Okwori, A. (2019). Re-training of teachers for effective knowledge and skill acquisition in Nigeria. *Benue State University Journal of Educational Management, 1*(1), 116–125.
13. Billet, S. (2011). *Learning in the workplace: Strategies for effective practice*. Sydney: Allen & Unwin.
14. Bodnar, K. (2020). The role of skill development in vocational education: A case study. *International Journal of Educational Development, 76*, 102245.
15. Buligina, I., & Sloka, B. (2016). Strategic partnerships for the development of competitive labour force through vocational education and training. *Entrepreneurship and Business Economics Review, 3*(1), 229–244.
16. Di Fabio, A. (2017). A review of empirical studies on employability and measures of employability. In J. G. Maree (Ed.), *Psychology of career adaptability, employability and resilience* (pp. 107–123). Springer.
17. Edeh, I. L., Mbah, E. N., & Chigozie, P. (2023). Skilled manpower and organizational performance in manufacturing firms in South East Nigeria. *Advanced Journal of Arts, Humanities and Social Sciences, 6*(1), 1–28.
18. Federal Republic of Nigeria. (2013). *National policy on education* (4th ed.). Lagos: NERDC Press.
19. Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65*, 14–38. https://doi.org/10.1016/j.jvb.2003.10.005
20. Golden, M. (2009). Updating educational assessments to measure 21st-century skills. Retrieved from https://www.microsoftontheissues.com
21. Johnson, P., Adeyemi, O., & Bello, R. (2020). Bridging the gap in continuous professional development for educators through industrial collaboration. *Journal of Educational Research and Development, 12*(4), 85–93.
22. Keyton, J. (2020). Collaboration. *ResearchGate*. Retrieved from https://www.researchgate.net
23. Magbagbeola, N. O. (2020). Theoretical and conceptual issues in economic reforms: Application to Nigeria's downstream petroleum sector. *Central Bank of Nigeria Economic and Financial Review, 42*(4), 41–57.

24. Manjunatha, N. (2019). Descriptive research. *Journal of Emerging Technologies and Innovative Research, 6*(6), 863–867.
25. Manwaring, R., Holloway, J., & Coffey, B. (2020). Engaging industry in curriculum design and delivery in public policy teaching: A strategic framework. *Teaching Public Administration, 38*, 46–62.
26. Mbah, C. O., & Elobuike, H. U. (2016). Achieving quality assurance in informal automobile apprenticeship training system for sustainable self-employment of trainees in foreign metropolis. *Journal of Research in Science and Technology Education, 6*(1), 146–155.
27. Mbah, C. O., Obi, C. U., & Ehimen, T. E. (2018). Improving school-industry partnership skill development of TVET students for matching skill demands in Anambra State. *CETVETAR, University of Nigeria, Nsukka*.
28. Nungse, N. I., Ugwoke, C. K., Ogbuanya, T. C., & Shetima, A. (2020). Enhancing school-industry collaboration for effective skill development of technical education students in South-East, Nigeria. *Vocational and Technical Education Journal, 2*(1), 22–29.
29. Obi, N., & Hassan, Y. (2021). The impact of internship on employability in technical colleges. *Journal of Vocational Education Studies, 14*(2), 123–139.
30. Ogbuanya, T. C., & Tongshuwal, J. M. (2020). Improving skill acquisition of electrical installation and maintenance work students through collaboration between technical colleges and industries in Plateau State. *Vocational and Technical Education Journal, 2*(2), 102–122.
31. Ojo, T. O. (2019). Analysis of collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works in Osun State (M.Ed. project). Department of Vocational and Technical Education, University of Benin.
32. Okoli, U., Igwe, P., & Elmo, E. (2019). Improving graduates' outcomes for technical colleges in Nigeria. *Australian Journal of Career Development, 28*(1), 40–51.
33. Okorie, E. U. (2010). Secondary schools chemistry curriculum reforms in the 21st century: Implication for Nigerian educational system. *Curriculum and Media Technology Research Journal (CUDIMAC), 2*(1), 108–119.
34. Okoye, K. R. E., & Okwelle, P. C. (2013). Technical and vocational education and training (TVET) in Nigeria and energy development, marketing and national transformation. *Journal of Education and Practice, 4*(14), 134–138.
35. Olabiyi, O. S., Aiyelabowo, O. P., & Keshinro, O. (2013). Relevance of computer-assisted instruction (CAI) for effective skill development among technical education students in Nigeria. *Journal of Education and Practice, 4*(21), 80–89.
36. Oluwole, T., & Adebayo, K. (2022). Industry partnership in technical education: A case study of Lagos State. *International Journal of Vocational Education and Training, 10*(3), 102–118.
37. Osuyi, S. O., & Owenvbiugie, R. O. (2015). Replacing SIWES with open apprenticeship scheme for electrical and electronics technology students in technical colleges in Edo State for sustainable livelihood. *Journal of Educational Policy and Entrepreneurial Research, 2*(5), 29–37.
38. Rothwell, A., & Arnold, J. (2007). Self-perceived employability: Development and validation of a scale. *Personnel Review, 36*, 23–41. https://doi.org/10.1108/00483480710716704
39. Smith, J. O., & Jones, L. (2023). Enhancing technical education through industry-academic collaboration. *Journal of Technical Education, 15*(2), 45–58.
40. UNESCO. (2015). *Revised recommendations concerning technical and vocational education and training*. Paris: UNESCO Press

542