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Research Article

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The Role of the Technical and Vocational Education and Training (TVET) Curriculum in Enhancing Workforce Readiness

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Abstract

The Technical and Vocational Education and Training (TVET) curriculum is essential for producing a skilled labor force, many graduates continue to experience disconnect between their learned skills and the demands of the job market. This discrepancy restricts economic productivity and damages employability. This study looks at how integrating theoretical and practical instruction, fostering both technical and soft skills, and matching learning outcomes with industry requirements can all help a well-structured TVET curriculum overcome these obstacles. The study emphasizes how important curriculum design is in improving graduates' flexibility, problem-solving skills, and capacity for lifelong learning qualities necessary for navigating quickly changing technological and economic landscapes. A strong TVET program enhances organizational performance, boosts individual career prospects, and advances socioeconomic development by giving students industry-relevant competencies. The report promotes ongoing cooperation between academic institutions, decision-makers, and industry stakeholders and emphasizes the significance of strategic curriculum planning as a remedy for workforce under preparedness. The results ultimately show that a strong TVET program not only lays the groundwork for employability but also serves as a stimulant for long-term economic expansion and national competitiveness.

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Introduction

Technical and Vocational Education and Training (TVET), or technical and vocational education and training, is essential for giving people the knowledge and skills they need to meet the demands of the labor market. It is now more important than ever to make sure that TVET programs meet the demands of the workforce, both now and in the future, given the speed at which industry is changing and technology is developing [1], [2], [3]. Many graduates still struggle with employability because of the discrepancies between the competencies they learned in training and what employers require, even with the global expansion of TVET programs.

To address this issue, a well-designed TVET curriculum that emphasizes experiential learning, fosters critical soft skills, and integrates industry-relevant technical skills is essential. The use of digital tools and emerging technologies

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improve graduates' adaptability and readiness for challenging modern work environments [4], [5].

By examining their design, implementation, and effects on graduate employability, this study seeks to understand how TVET curricula contribute to improving workforce readiness. The study aims to provide practical insights for curriculum development that aligns education with labor market demands by highlighting the advantages and disadvantages of current practices. In the end, the study emphasizes how important TVET is for fostering social progress, economic expansion, and long-term career paths for people.

Background of Study

It has long been acknowledged that one of the most important approaches to creating a workforce with the knowledge and abilities to meet the demands of contemporary economies is Technical and Vocational Education and Training (TVET) [6]. The goal of TVET programs is to give students both theoretical understanding and real-world skills that they can use right away in the workplace. However, many nations still face a skills mismatch, where graduates' competencies do not match industry requirements, limiting employability and economic productivity Sudarsono, *et al.* [7], Hamid, *et al.* [8], despite global investments in vocational education.

To address this issue, the TVET curriculum's caliber and applicability are crucial. Graduates' preparedness to enter a variety of work environments can be improved by a curriculum that incorporates digital literacy, problem-solving techniques, soft skills, and technical skills [9]. Additionally, a dynamic approach to curriculum development is required to ensure that TVET programs remain responsive and adaptive due to the rapid advancements in technology and changes in labor market demands [10].

The idea behind this study is that workforce readiness can be greatly increased by improving curriculum design and implementation. Developing policies, strategies, and instructional practices that lessen skills mismatches and promotes national socioeconomic development requires an understanding of how the TVET curriculum equips students with pertinent competencies.

Literature Review

The efficacy of Technical and Vocational Education and Training (TVET) in producing a skilled workforce has been extensively covered in recent research, which shows that a close match between curriculum design and industry demands is essential for enhancing graduate employability [11]. Affandi, *et al.* [1] highlights that employability skills, such as flexibility, problem-solving, and teamwork, are important factors that determine workforce readiness among TVET graduates, and Mariano and Tantoco [2] emphasize that combining theoretical knowledge with practical training improves students' technical competencies and equips them for real-world challenges.

Another important component of workforce readiness has been found to be the inclusion of digital literacy and soft skills in the TVET curriculum. Badawi, *et al.* [4] shows that career readiness skills like communication and critical thinking are crucial for successful workplace integration, while Kholifah, *et al.* [3] contends

that graduates with digital competencies can adjust to quickly changing technological environments. The importance of ongoing curriculum review and industry collaboration is further highlighted by several studies. By involving employers in curriculum development, TVET programs are kept current and adaptable to changing demands in the labor market [7], [8]. Furthermore, studies indicate that experiential learning techniques, such as internships and apprenticeships, and competency-based approaches are useful tactics for giving students employable skills [9]. By decreasing skill mismatches and raising workforce productivity, a well-designed TVET curriculum not only improves individual employability but also advances larger socioeconomic development, according to the body of research [10].

Research Methods

In order to investigate the function of the TVET curriculum in improving workforce readiness, this study used a qualitative research design that was exclusively based on document analysis. Curriculum frameworks, curricula, training materials, and policy documents can all be evaluated and interpreted systematically using document analysis to determine their structure, relevance, and alignment with labor market demands [12].

A. Data Sources

With an emphasis on technical and vocational programs in fields like engineering, information technology, and applied sciences, the study examined a variety of official curriculum documents from particular TVET institutions [13].

B. Data Analysis

Curriculum objectives, learning outcomes, and skill requirements were examined using content and thematic analysis techniques. Coding made it easier to find trends, areas of strength, and weaknesses in digital competencies, soft skills, technical skills, and alignment with industry standards [12].

C. Ethical Considerations

All documents were cited appropriately, and any proprietary content was handled with institutional permission. Since the study relied solely on publicly available or institutional documents, ethical risks were minimal.

Results and Discussion

A. Research Results

Regarding their function in improving workforce readiness, the document analysis of a few chosen TVET curricula produced several significant findings:

1. Conformity to Industry Standards: Most curricula contained precisely specified technical competencies that matched national occupational standards. Engineering programs, for instance, had learning objectives pertaining to electrical systems, machinery operation, and quality control methods. Nonetheless, some curricula showed only a partial alignment with the demands of the modern industry by omitting

emerging technologies like automation, Industry 4.0 practices, or renewable energy systems [2], [3].

2. Focus on Practical Skills: Laboratory exercises, workshops, and supervised projects are just a few of the modules that make up the practical training that is a crucial part of all examined curricula. The purpose of these elements is to close the gap between theoretical understanding and practical application. However, there were differences in the amount and length of practical experience; some programs provided little hands-on training, which could have an impact on graduates' ability to function well in the workplace [3], [4].
3. Integration of Soft Skills: Most curricula included soft skills like critical thinking, problem-solving, communication, and teamwork, either as stand-alone courses or integrated into technical modules. Although students are exposed to soft skills, their proficiency is not consistently measured, as evidenced by the fact that assessment strategies for these skills were either nonexistent or mainly informal [4].
4. Digital Literacy and Technology Skills: Digital literacy, fundamental IT skills, and emerging technology competencies were only briefly covered in a few curricula. Given the growing dependence on digital tools in contemporary workplaces, this disparity is crucial. Graduates' capacity to adjust to evolving technology and innovative work environments may be hampered by a lack of formal training in digital skills [7].
5. Competencies in Entrepreneurship and Lifelong Learning: Entrepreneurship and lifelong learning modules were infrequently included in curricula. As a result, graduates are less equipped for ongoing upskills or self-employment, both of which are critical in flexible and dynamic labor markets [14].
6. Consistency and Standardization: The curricula of the various institutions differed noticeably. While some programs were more general and theory-focused, others were competency-based and extremely detailed. Graduates from various institutions may not be equally prepared for the workforce because of this discrepancy [11].

B. Discussion

The results of the document analysis highlight how important TVET curricula are in determining workforce preparedness. The traditional focus of vocational education is reflected in the strong emphasis on technical and practical skills, which guarantees that graduates have the fundamental skills needed for immediate employment [2], [3]. Workshops, labs, and supervised projects are examples of hands-on modules that offer experiential learning, which is vital for closing the gap between theoretical knowledge and real-world application [15], [16].

But the analysis also found several important gaps. One issue with preparing graduates for contemporary, tech-driven workplaces is the undervaluation of digital literacy and emerging technology skills. Curricula that do not include these competencies run the risk of producing graduates

who are less able to adjust to innovation and industry trends, as industries depend more on automation, artificial intelligence, and digital tools [16].

Workforce preparedness is further limited by the incomplete incorporation of soft skills like problem-solving, collaboration, and communication. Students may not be proficient in these areas without organized assessment procedures, which would limit their ability to work cooperatively and solve problems [14]. Furthermore, graduates' capacity to pursue self-employment or ongoing skill development is weakened by the lack of entrepreneurial and lifelong learning competencies, which is crucial in dynamic labor markets [17].

The observed variation in curricula also points to different institutions' graduates' varying levels of preparation. While theory-heavy programs might not sufficiently prepare students for real-world challenges, competency-based, well-structured programs yield more graduates who are prepared for the workforce [11], [18].

C. Implications

The findings highlight several key implications for strengthening the Technical and Vocational Education and Training (TVET) curriculum to enhance workforce readiness. First, aligning graduates with the rapidly changing labor market requires greater emphasis on digital literacy and technology-oriented training. Second, integrating structured soft skill development and systematic assessment contributes to improved workplace efficacy and employability. Third, embedding lifelong learning and entrepreneurial education fosters adaptability, creativity, and long-term career sustainability. Finally, curriculum standardization accompanied by regular review ensures consistency in the workforce readiness across institutions, thereby supporting a more competitive and resilient labor force.

D. Recommendations

The following suggestions are put forth to improve the efficacy of TVET programs in preparing a workforce that satisfies the demands of contemporary industry in light of the findings and discussion.

1. Integrate Emerging Technology Skills and Digital Literacy: TVET programs ought to incorporate organized modules on automation, cybersecurity, Industry 4.0 technologies, and digital tools. This guarantees that graduates can successfully utilize digital innovations and adjust to workplaces that are driven by technology.
2. Enhance the Development of Soft Skills: The curriculum should specifically include soft skills like problem-solving, communication, teamwork, and critical thinking. To systematically evaluate and develop these competencies, formal assessment procedures and well-defined learning objectives should be put in place.
3. Encourage Entrepreneurship and Lifelong Learning: Entrepreneurial education and learning techniques that support flexibility, innovation, and ongoing skill development should be incorporated into curricula. Graduates are better prepared to pursue opportunities for self-employment or engage in ongoing professional development.

4. Expand Opportunities for Practical Training: All institutions should provide practical instruction through labs, workshops, and industry internships. Increasing hands-on experience guarantees that graduates can successfully implement their theoretical knowledge in practical work settings.
5. Promote Industry Collaboration: Programs are designed and reviewed in close coordination with employers and industry experts to ensure that they meet occupational standards, emerging technologies, and labor market demands. The creation of pertinent assessment instruments can also be guided by industry input.
6. Implement Regular Curriculum Review and Standardization: To update content, align with occupational standards, and preserve consistency across institutions, TVET programs should be subjected to regular curriculum review and standardization. This ensures that every graduate is equally prepared for the workforce.
7. Track and Assess Curriculum Outcomes: To continuously enhance curricula, educational institutions should keep tabs on industry satisfaction, employability of graduates, and skills gaps. TVET education will continue to adapt to changing labor market demands thanks to data-driven changes.

Conclusion

The importance of the TVET curriculum in preparing graduates for successful workforce participation is highlighted by this study. Technical and practical skills are typically adequately covered in TVET curricula, but there are notable gaps in digital literacy, soft skills, entrepreneurial competencies, and adaptability to new industry trends. These disparities restrict graduates' preparedness for dynamic labor markets and contemporary, tech-driven workplaces. The study highlights the need for a comprehensive TVET curriculum that incorporates digital competency modules, entrepreneurial education, structured soft skills development, and technical training. To guarantee alignment with present and future labor market demands, cooperation with industry stakeholders and a methodical curriculum review are crucial. Program uniformity amongst institutions promotes fair workforce preparedness even more. TVET curricula can improve employability, lessen skill mismatches, and support wider socioeconomic development by addressing these issues. The knowledge and technical skills graduates need for immediate employment are only one aspect of strategic curriculum development; another is the flexibility, problem-solving skills, and attitude toward lifelong learning that are essential for long-term professional success in a world economy that is changing quickly.

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Author Contributions

Geleta Buraka Teferi conceptualized the study and developed the methodology, conducted data collection and analysis and also, contributed to data interpretation and visualization. Professor Qiaolun Gu and Professor Zhen Wu contributed to the writing, reviewing, and editing of the manuscript and approved the final version for submission.

Availability of data and materials

All data are available from the authors.

Competing interests

The authors declare no competing interest.

Additional information

No additional information from the authors.

References

[1] Affandi, H. M., Sohimi, N. E., Subri, U. S., Herrera, L. M., & Yunus, F. A. N. "An Analysis of How TVET is Playing a Significant Role in Fostering Students' Skills and Competencies in South Africa", *JESR*, vol. 14, no. 3, p. 293, May 2024, doi: 10.36941/jesr-2024-0074.

[2] R. P. Mariano and L. F. Tantoco, "Assessment of Employability Skills of Technical-Vocational Education and Training (TVET) Graduates: Basis for an Enhancement Program," *International Journal of Multidisciplinary: Applied Business and Education Research*, vol. 4, no. 5, pp. 1734–1747, 2023. https://doi.org/10.11594/ijmaber.04.05.34

[3] Kholifah, N., Nurtanto, M., Sutrisno, V. L. P., Majid, N. W. A., Subakti, H., Daryono, R. W., & Achmadi, A. "Unlocking workforce readiness through digital employability skills in vocational education Graduates: A PLS-SEM analysis based on human capital Theory". *Social Sciences & Humanities Open*, vol. 11, pp. 101625, 2025. https://doi.org/10.1016/j.ssaho.2025.101625

[4] Badawi, B., Hakiki, M., Sahroni, S., Prihatmojo, A., & Hidayah, Y. "Aligning Principal Leadership and Teacher Roles with the Demographic Bonus Towards Golden Indonesia 2045: The Case Study of a Vocational High School". *TEM Journal,* vol. 13, no. 3, pp. 2226-2236. 2024. https://doi.org/10.18421/tem133-50

[5] Novianti, Ismanto, B., & Trisatyawati, S. "Optimizing Financial Management to Enhance Curriculum Delivery and Student Development in Vocational High Schools". *Journal of Teaching and Learning*, vol. 1, no. 2, pp. 109–124. 2025. https://doi.org/10.71305/jtl.v1i2.123

[6] Dougherty, S. M., & Lombardi, A. R. "From Vocational Education to Career Readiness: The Ongoing Work of Linking Education and the Labor Market". *Review of Research in Education*, vol. 40, no. 1, pp. 326-355. 2016 https://doi.org/10.3102/0091732X16678602

[7] Sudarsono, B., Listyaningrum, P., Tentama, F., & Ghozali, F. A. "Developing learning and training within industry model to improve work readiness of

vocational high school students". *International Journal of Evaluation and Research in Education*, vol. 13, no. 3, pp. 1731-1739. 2024. http://doi.org/10.11591/ijere.v13i3.26175

[8] Hamid, M. A., Sudira, P., Triyono, M. B., Rizqillah, M. A., Irwanto, Setiawan, D., Desmira, Martias, Hakiki, M., Subramaniam, T. S., & Abdurrahman. "Variable frequency drive trainer kits for electronic control system subjects in vocational secondary schools". *International Journal of Evaluation and Research in Education, vol .13*, no. 5, pp. 3036–3046. 2024. https://doi.org/10.11591/ijere.v13i5.29333

[9] Oluwatoyin, K. G., Olamide, L. P., & Olumakinde, K. K. "Bridging the Gap Between TVET Academics and Industry: Strategies for Economic Growth and Development in Nigeria", *International Journal of Science, Architecture, Technology and Environment.* Vol. 2. No. 9. 2025. https://doi.org/10.63680/ijsate0525158.26

[10] Affandi, L., Indriayu, M., & Totalia, S. A. "Vocational School Level Learning Model for Work Readiness: A Systematic Literature Review". *International Journal of Research and Community Empowerment*, vol. 3, no. 2, pp. 58–71. 2025. https://doi.org/10.58706/ijorce.v3n2.p58-71

[11] Suroto, S., Sunyono, S., Sukirlan, M., Winatha, I. K., Yuliyanto, R., & Rahmawati, F. "Factors Affecting the Work Readiness of Vocational School Students: A Systematic Literature Review". *Jurnal Pendidikan Progresif*, vol. 14, no. 3, pp. 1831-1846. 2024. https://doi.org/10.23960/jpp.v14.i3.2024124

[12] Creswell, J. W. *Research designs. Qualitative, quantitative, and mixed methods approach*. 2019.

[13] Kothari, C. R. *Research methodology: Methods and techniques*. New Age International. 2004.

[14] Yoto, Suyetno, Agus, Wibawa, Aji Prasetya, Paryono, and Romadin, Achmad. "Unveiling the Distinctive Impact of Vocational Schools Link and Match Collaboration with Industries for Holistic Workforce Readiness" *Open Education Studies*, vol. 6, no. 1, 2024, pp. 20240045. https://doi.org/10.1515/edu-2024-0045

[15] Dahal, R. K., Ghimire, B., Sharma, D. R., Karki, D., & Joshi, S. P. "Bridging the gap: How career development learning mediates higher education and employability outcomes in Nepal". *Problems and Perspectives in Management*, vol. *23*, no. 1, pp. 643. 2025. http://dx.doi.org/10.21511/ppm.23(1).2025.48

[16] Prasetya, F., Fortuna, A., Samala, A. D., Latifa, D. K., Andriani, W., Gusti, U. A., ... & García, J. L. C. "Harnessing artificial intelligence to revolutionize vocational education: Emerging trends, challenges, and contributions to SDGs 2030". *Social Sciences & Humanities Open*, vol. 11, pp. 101401. 2025. https://doi.org/10.1016/j.ssaho.2025.101401

[17] Khamdamovna, K. S. "Enhancing Professional Readiness in Vocational Education Through an Integrative Approach Aligned with the Sustainable Development Goals (SDGs)". *ASEAN Journal for Science Education*, vol. 4, no. 2, pp. 143-154. 2025.

https://www.ejournal.bumipublikasinusantara.id/index.php/ajsed/article/view/705

[18] Inderanata, R. N., & Sukardi, T. Investigation study of integrated vocational guidance on work readiness of mechanical engineering vocational school students. *Heliyon*, vol. 9, no. 2. 2023. https://doi.org/10.1016/j.heliyon.2023.e13333