

Exploring vocational and technical skills for decent work in diverse contexts

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Abstract: Vocational Education and Training (VET) plays a crucial role in equipping individuals with technical skills for the labor market. However, disparities exist in how VET programs align with labor market demands, particularly between high-income and low- and middle-income countries. This study analyzes global VET systems, focusing on training programs, competency assessment, certification, and employability. It highlights Germany's dual system as a model of industry-education collaboration, Finland and the Netherlands' structured yet flexible approaches, and South Korea's emphasis on industry integration. The findings underscore the need for strong industry partnerships, standardized certifications, and practical training to enhance employability and economic growth. Addressing these gaps is essential for fostering inclusive skill development and workforce readiness in diverse economic and cultural contexts.

Keywords: Vocational Education and Training (VET), Technical and Vocational Education and Training (TVET), Employability, Labor market alignment, Competency assessment, Certification

Date Submitted: January 29, 2025

Date Accepted: February 26, 2025

Date Published: March 26, 2025

INTRODUCTION

Vocational Education and Training (VET) serves as a critical pathway for individuals seeking to enhance their technical skills, enter the labor market, or prepare for higher education opportunities (OECD, 2019). VET programs are uniquely positioned to support diverse populations, including young people entering the workforce and adults aiming to improve their employability. However, a global analysis reveals significant disparities in the effectiveness and accessibility of these programs.

For instance, the KOF Education-Employment Linkage Index highlights the variation in how VET systems align with labor market demands across countries (Renold et al., 2018). This alignment is crucial for ensuring that VET graduates acquire skills relevant to employers' needs and the broader economic landscape. Yet, many low- and middle-income countries face systemic challenges in meeting these goals. Their TVET systems often lack the resources and strategic planning required to match skills development with labor market demands (Low- and Middle-income Countries Spend Less Than 0.2 Percent of GDP Compared to 0.46 Percent for High-income Countries., 2024).

Additionally, the growing global demand for VET programs poses a challenge for resource-constrained systems. High-income countries allocate nearly twice the percentage of

GDP to TVET systems compared to their lower-income counterparts, exacerbating the skills gap (Low- and Middle-income Countries Spend Less Than 0.2 Percent of GDP Compared to 0.46 Percent for High-income Countries., 2024). Addressing these discrepancies is essential to achieving sustainable development goals and fostering inclusive economic growth.

This study aims to explore the diversity of VET programs worldwide, emphasizing the need for tailored approaches that consider the unique cultural, economic, and institutional contexts in which these systems operate. By analyzing and comparing global TVET initiatives, this research seeks to provide insights into improving the relevance and effectiveness of VET systems, particularly in resource-constrained settings.

Statement of the problem

This research examines the global diversity of vocational and technical education and training (TVET) programs, focusing on their effectiveness in skills development and responsiveness to labor market demands. The study aims:

To analyze disparities in TVET systems across different economic and cultural contexts This objective explores variations in program structure, funding, and implementation, identifying gaps in access, quality, and outcomes among diverse populations

To evaluate the alignment between TVET programs and labor market needs This objective assesses how well TVET curricula and training methods match industry requirements, addressing skill shortages and employment opportunities in different regions

To investigate resource allocation and accessibility of TVET programs, particularly in low- and middle-income countries This objective examines financial investments, infrastructure, and policy support, identifying barriers that limit participation and the effectiveness of TVET initiatives

To assess the factors contributing to mismatches between skill development and employment opportunities This objective explores systemic challenges such as outdated curricula, lack of industry collaboration, and insufficient career guidance that hinder graduates' transition to the workforce

To propose evidence-based recommendations for improving TVET systems The goal is to develop strategies that enhance inclusivity, relevance, and adaptability of TVET programs, ensuring they effectively prepare individuals for current and future labor market demands

METHODOLOGY

Research design

This study employs a data mining approach to extract, organize, and analyze information on vocational and technical education and training (TVET) programs across different countries. By utilizing large datasets from government reports, academic studies, and international organizations, the research identifies patterns, disparities, and trends in how TVET systems address skills development and labor market demands. Key factors such as funding, curriculum structure, industry collaboration, and accessibility will be categorized for systematic analysis. The study integrates quantitative techniques to measure gaps and qualitative analysis to uncover institutional and policy influences on TVET effectiveness.

Research analyses procedure

The research follows a structured data mining process, beginning with data collection from academic publications, policy reports, and databases on TVET programs across diverse economic and cultural contexts. Key variables, including program structure, funding

distribution, and employment outcomes, will be identified and grouped for analysis. Quantitative techniques, such as statistical modeling and trend analysis, will assess disparities in TVET accessibility and labor market alignment, while qualitative methods will analyze case studies and policy frameworks. Findings will be compared to detect regional differences, global trends, and systemic challenges. Finally, insights from both qualitative and quantitative analyses will be synthesized to develop evidence-based recommendations for improving TVET systems, ensuring they are inclusive, relevant, and responsive to labor market needs.

FINDINGS AND DISCUSSION

Training Programs

The study identifies that Germany and South Korea lead in integrating practical training with formal education through robust collaborations with industries. Germany's dual system stands out as a gold standard, where companies not only design and implement training programs but also finance them. This close alignment ensures that students acquire relevant skills directly applicable to their industries. South Korea follows a similar model, emphasizing practical training and fostering enterprise involvement to raise the prestige of vocational professions. Finland's vocational programs, though less industry-centric, prioritize individualized learning plans and allow students to balance academic and professional aspirations. Conversely, the Netherlands takes a structured approach, channeling students into vocational tracks based on early aptitude testing, providing a tailored path to specialization. Hungary's system, while effective in developing trade-specific skills, struggles with diminishing demand for vocational education, reflecting changing societal preferences toward academic tracks.

Competency Assessment

Competency assessment methods highlight the importance of standardization and industry relevance. Germany's reliance on professional chambers ensures consistency and alignment with labor market requirements. Finland employs a credit-based system, blending general and professional education, while the Netherlands integrates practical assessments tied to professional sectors. South Korea's competency assessments align with industry standards, ensuring that students meet specific professional demands. Hungary's assessments focus heavily on trade-specific expertise but lack broader academic recognition, limiting pathways to further education.

Certification

Certification processes are critical in determining the portability and recognition of vocational qualifications. Germany's certifications are highly standardized and respected, offering direct pathways to employment. Finland's system balances immediate employability with opportunities for further education, maintaining flexibility for graduates. The Netherlands integrates certifications with sector-specific training and higher education progression, ensuring adaptability. Hungary's certifications cater primarily to niche markets, while South Korea's system ties certifications directly to industry requirements, resulting in high employment rates.

Employability

Employability outcomes underscore the effectiveness of vocational systems in bridging education and employment. Germany's model, with strong industry involvement, results in a

youth unemployment rate significantly lower than that of the Eurozone and the United States. South Korea achieves similar success, with over 80% of graduates securing jobs within their specialties. Finland balances workforce preparation with academic advancement, while the Netherlands ensures career readiness through work placements. Hungary's vocational graduates, despite gaining niche trade skills, face challenges due to the declining interest in trade-specific education.

CONCLUSIONS AND RECOMMENDATIONS

This comparative study illustrates how vocational education systems reflect broader economic, social, and cultural priorities. Germany's dual system and South Korea's industry-integrated model exemplify the benefits of close collaboration between education providers and employers. These systems ensure strong employability outcomes by aligning curricula with labor market needs and offering students practical, real-world experiences.

Finland and the Netherlands prioritize flexibility, enabling students to balance vocational training with academic pursuits. Such models cater to diverse student aspirations, providing options for either immediate workforce entry or further education. However, these systems rely less on direct industry involvement, which may impact their ability to meet specific labor market demands as effectively as Germany or South Korea.

Hungary's vocational education system faces challenges in remaining competitive, with a societal shift toward academic tracks and declining interest in trade-specific roles. This trend highlights the need for modernization and alignment with evolving labor market needs to sustain its relevance.

The findings underscore the critical role of vocational education in building a skilled workforce and reducing unemployment. Key success factors include strong partnerships with industries, standardized certification processes, and practical training opportunities. As economies evolve, these systems must adapt to changing demands, ensuring that vocational education remains a vital pathway to both employment and lifelong learning.

To enhance the effectiveness, accessibility, and relevance of vocational and technical education and training (TVET) programs globally, several key recommendations should be considered. First, governments and educational institutions must collaborate closely with industries to align TVET curricula with labor market needs. Regular industry consultations and labor market assessments can ensure that training programs remain up to date with evolving job demands. Expanding access to TVET programs is also crucial, particularly for marginalized groups such as women, low-income individuals, and people with disabilities. This can be achieved through targeted scholarships, flexible learning options, and outreach initiatives that promote inclusivity.

Additionally, enhancing the quality assurance and recognition of TVET certifications is essential for improving graduates' employability. Standardized competency assessment frameworks and mutual recognition agreements between countries can strengthen the credibility and portability of TVET qualifications. Investments in TVET infrastructure and resources, particularly in low- and middle-income countries, should also be prioritized to modernize training facilities, equip workshops with up-to-date technology, and expand digital learning platforms.

Public-private partnerships play a significant role in improving TVET outcomes by facilitating hands-on training opportunities, apprenticeships, and job placements. Encouraging stronger collaboration between TVET institutions and industries can provide students with valuable real-world experience and increase employment prospects. Furthermore, integrating soft skills and entrepreneurship training into TVET curricula is vital, as communication, adaptability, and problem-solving abilities are increasingly valued in today's workforce.

Finally, the implementation of continuous monitoring and evaluation systems is necessary to assess the effectiveness of TVET programs, identify existing gaps, and guide policy improvements. By adopting these recommendations, TVET systems can become more inclusive, relevant, and responsive to the demands of both global and local labor markets, ultimately contributing to economic growth and workforce development.

REFERENCES

Abdulkareem, I., & Ali, M. (2012). Vocational education and poverty reduction: A tool for sustainable development. *Developing Country Studies*, 2(2), 67–73.

Ayeni, A. O. (2015). Worldwide comparison of technical and vocational education: Lessons for Nigerian technical and vocational education sector (I). *Journal of Education and Practice*, 6(30), 103–110.

Low- and middle-income countries spend less than 0.2 percent of GDP compared to 0.46 percent for high-income countries. (2024). World Economic Forum. <https://www.weforum.org/agenda/2023/09/technical-vocational-training-systems-sustainable-development-goals/>

Organisation for Economic Co-operation and Development (OECD). (2020). How do vocational education systems differ around the world? In *Education at a glance 2020: OECD indicators*. OECD Publishing. <https://doi.org/10.1787/dd4be6f7-en>

Renold, U., Bolli, T., Caves, K., Bürgi, J., Egg, M. E., Kemper, J., & Rageth, L. (2018). Comparing international vocational education and training programs: The KOF education-employment linkage index. National Center on Education and the Economy.

Sirkin, H. L. (2013, April 29). What Germany can teach the U.S. about vocational education. *Bloomberg Businessweek*. <http://www.businessweek.com/articles/2013-04-29/what-germany-can-teach-the-u-dot-sdot-about-vocational-education>

Краснова, А. (2024, February 8). Vocational education: Colleges in Germany, Finland, China and other countries. *EdDesign*. <https://eddesignmagazine.com/vocational-colleges-in-germany-finland-china/#:~:text=Germany's%20SVE%20system%20is,a%20guarantee%20of%20future%20employment>