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THE ROLE OF VOCATIONAL EDUCATION AND TRAINING (VET) IN ACHIEVING SUSTAINABLE DEVELOPMENT GOAL 4: A POLICY-ORIENTED LITERATURE REVIEW

O PAPEL DA EDUCAÇÃO E FORMAÇÃO PROFISSIONAL (VET) NA CONCRETIZAÇÃO DO OBJETIVO DE DESENVOLVIMENTO SUSTENTÁVEL 4: UMA REVISÃO DE LITERATURA ORIENTADA POR POLÍTICAS

EL PAPEL DE LA EDUCACIÓN Y FORMACIÓN PROFESIONAL (EFP) EN EL LOGRO DEL OBJETIVO DE DESARROLLO SOSTENIBLE 4: UNA REVISIÓN DE LA LITERATURA ORIENTADA A LAS POLÍTICAS

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ABSTRACT: This study aims at identifying the role of Vocational Education and Training (VET) in achieving Sustainable Development Goal 4 (SDG 4). For this purpose, a policy-focused literature review was conducted to examine the relationship between Vocational Education and Training (VET) and Sustainable Development Goal 4 (SDG 4: Quality Education), part of the United Nations' 2030 Agenda for Sustainable Development. In the study, articles published between the year of 2015-2025 were searched using the key terms of "technical and vocational education", "sustainable development", "development goals in education". The accessed resources were analysed using content analysis method. The results indicate that VET is not limited to vocational skills acquisition; it also promotes social inclusion, contributes to reducing youth unemployment, and strengthens economic development by addressing skill mismatches. As a result, it is emphasized that national policies should be strengthened and international cooperation should be increased in order for VET to become a more effective tool in achieving the targets of SDG 4.

KEYWORDS: Vocational Education and Training. VET. SDG 4. Policy.

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RESUMO: Este estudo visa identificar o papel da Educação e Formação Profissional (EFP) na consecução do Objetivo de Desenvolvimento Sustentável 4 (ODS 4). Para este propósito, foi realizada uma revisão bibliográfica focada em políticas para examinar a relação entre a Educação e Formação Profissional (EFP) e o Objetivo de Desenvolvimento Sustentável 4 (ODS 4: Educação de Qualidade), parte da Agenda 2030 das Nações Unidas para o Desenvolvimento Sustentável. No estudo, foram pesquisados artigos publicados entre 2015 e 2025 usando os termos-chave “educação técnica e profissional”, “desenvolvimento sustentável” e “objetivos de desenvolvimento na educação”. Os recursos acessados foram analisados usando o método de análise de conteúdo. Os resultados indicam que a EFP não se limita à aquisição de competências profissionais; também promove a inclusão social, contribui para a redução do desemprego juvenil e fortalece o desenvolvimento econômico ao abordar a incompatibilidade de competências. Como resultado, enfatiza-se que as políticas nacionais devem ser fortalecidas e a cooperação internacional deve ser aumentada para que a EFP se torne uma ferramenta mais eficaz para atingir as metas do ODS 4.

PALAVRAS-CHAVE: Educação e Formação Profissional. EFP. ODS 4. Política.

RESUMEN: Este estudio tiene como objetivo identificar el papel de la Educación y Formación Profesional (EFP) en el cumplimiento del Objetivo de Desarrollo Sostenible 4 (ODS 4). Con este propósito, se realizó una revisión bibliográfica centrada en políticas para examinar la relación entre la Educación y Formación Profesional (EFP) y el Objetivo de Desarrollo Sostenible 4 (ODS 4: Educación de Calidad), parte de la Agenda 2030 de las Naciones Unidas para el Desarrollo Sostenible. En el estudio se revisaron artículos publicados entre 2015 y 2025 utilizando los términos clave “educación técnica y profesional”, “desarrollo sostenible” y “objetivos de desarrollo en la educación”. Los materiales consultados se analizaron mediante el método de análisis de contenido. Los resultados indican que la EFP no se limita a la adquisición de competencias profesionales; también promueve la inclusión social, contribuye a reducir el desempleo juvenil y fortalece el desarrollo económico al abordar la desalineación de competencias. En consecuencia, se enfatiza que las políticas nacionales deben fortalecerse y la cooperación internacional debe ampliarse para que la EFP se convierta en una herramienta más eficaz para alcanzar las metas del ODS 4.

PALABRAS CLAVE: Educación y Formación Profesional. EFP. ODS 4. Política.

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INTRODUCTION

Vocational education is seen as a concept that shapes individuals' living standards and determines their future lives in many ways. In today's world, knowledge is constantly evolving and expanding, so professionals need continuous self-education. Developing oneself within a specific plan throughout one's life, and most importantly, in the areas one desires, is one of the factors that facilitates an individual's adaptation to today's living conditions (Kovalchuk et al., 2022).

Providing quality education in vocational and technical education (VET) institutions through vocational and technical education also helps meet many sustainable development goals. Providing quality vocational and technical education can be achieved by improving the physical infrastructure of schools, ensuring that the education provided meets sectoral needs, fostering school-sector collaboration, and transforming vocational education so that it becomes a first choice for students, not a last resort (Souto-Otero, 2023). Therefore, the realization of SDG-4 contributes directly and indirectly to the achievement of other goals (Legusov et al., 2022).

The impact of VET on individuals goes beyond equipping them with specific skills for a specific occupation; it contributes to lifelong learning, social mobility, and economic development. The role of VET becomes even more critical in countries with high youth unemployment, widening skills mismatches, and rising inequalities (Bolli et al., 2021). However, VET policymakers face significant challenges: programs must be accessible, inclusive, and of high quality, while also being responsive to a rapidly evolving labor market (Annen et al., 2025).

This research aims to explore the contributions of vocational and technical education to achieving SDG 4 by reviewing policy-focused literature. The research focuses on three fundamental questions:

- 1) How does VET support SDG 4 in the context of inclusiveness, equity, and lifelong learning?
- 2) What policy approaches have been adopted to ensure VET's alignment with SDG 4?
- 3) What are the opportunities and challenges VET faces for SDG 4?

The findings in this article are expected to contribute to current discussions and provide necessary policy recommendations to policymakers. Therefore, recommendations will be shaped regarding international collaborations, national strategies, and the implementation of mechanisms to make vocational education more effective in achieving inclusive and high-quality education.

METHOD

The study adopted a policy-focused literature review was conducted. Literature review methodology can be described as a systematic way of collecting and synthesizing previous research (Baumeister & Leary, 1997).

In the study, articles published between the year of 2015-2025 were searched using the key terms of “technical and vocational education,” “sustainable development,” “development goals in education.” The data obtained were analyzed using content analysis method.

RESULTS AND DISCUSSION

SDG 4: Quality Education

Sustainable development is a field that has gained international attention, particularly since the 2000s, and has evolved to ensure the balanced use of limited resources in the face of unlimited needs (Boeren, 2019). The concept of sustainable development, established through an approach that prioritizes the living standards of future generations while avoiding overuse of natural resources, encompasses environmental, social, and economic dimensions. In this context, the UN adopted the Sustainable Development Goals, a universal call to ensure environmental, social, and economic sustainability, ensuring no one is left behind. Many countries have heeded this call and are implementing the 17 SDGs through policy documents, strategy documents, and annual plans (Küfeoğlu, 2022).

Quality education, the fourth of the sustainable development goals, aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.” It consists of 10 goals generally focused on access to education, equality, and lifelong learning. Achieving the goal of quality education is expected to advance almost all goals, including decent work and economic growth, as well as poverty reduction and gender inequality (Nazar et al., 2018).

SDG-4 “Quality Education” aims to ensure free and fair education for all individuals, leaving no one behind, and to encourage lifelong learning opportunities (Adipat & Chotikapanich, 2022). Quality education prioritizes eliminating all inequalities worldwide, particularly gender inequality, and ensuring that all people have equal access to all educational opportunities, including vocational training (Unterhalter, 2005). Therefore, SDG-4 is built on three main components: equality, accessibility and justice (Ferguson & Roofe, 2020).

SDG-4, which prioritizes improving and improving quality education, is key to achieving other Sustainable Development Goals designed to address social, economic, and environmental problems (Adipat & Chotikapanich, 2022). Achieving the goal of quality education not only

helps achieve goals such as ending hunger and poverty, eliminating gender inequality, and ensuring decent work and economic growth, but also raises public awareness of other sustainable development goals.

Vocational Education and Training (VET)

A profession is defined as the work an individual undertakes to achieve economic self-sufficiency. To sustain their life, a person must have a profession and consistently perform a specific task. The skills, abilities, and interests a person possesses when choosing a profession are considered essential for continued participation in that profession (Li & Pilz, 2023).

Vocational training, on the other hand, refers to education provided to equip individuals with the knowledge, skills, and practicality related to a specific profession and to make them successful in business. In this regard, it is beneficial to consider technical education alongside vocational training (Harris & Clayton, 2020). Technical education encompasses advanced numerical courses and the knowledge, skills, and job adaptability of the upper and middle levels within the occupational hierarchy (Beer & Mulder, 2020). Generally, based on these definitions, vocational and technical education is defined as the all-around development of an individual, equipped with all the necessary skills for a specific field of work that is both individually and socially essential (Salvador et al., 2022).

The preparation process for a profession is defined as technical education. The training provided in the process of acquiring all the necessary equipment for a profession is called technical education (Kovalchuk et al., 2022).

The Role of VET in Achieving SDG 4

Vocational education is seen as a concept that shapes people's living standards and determines their future lives in many ways. In today's world, as knowledge is constantly evolving and expanding, professionals need continuous self-education. Self-improvement, within a specific plan, throughout one's life, and most importantly, in the fields of one's choice, is among the factors that facilitate an individual's adaptation to today's living conditions (Rokeman & Rok, 2024).

Several studies have been conducted or are being conducted in the field of vocational and technical education to enhance the quality of education and increase employment through sector collaborations (Barbosa et al., 2020). The sub-objectives highlighted in this research, which aims to determine the role of vocational and technical education in achieving the Sustainable Development Goals, are as follows (United Nations, 2015):

Target 4.3: "By 2030, ensure equal access for all women and men to affordable and quality vocational and technical training and higher education, including university education."

Target 4.4: “Significantly increase the number of youth and adults with the necessary skills, including technical and vocational skills, for employment, decent work, and entrepreneurship.”

Within the scope of Targets 4.3 and 4.4, individuals receiving vocational and technical education are expected to graduate with basic vocational skills and be compatible with the world of work. In this direction, vocational education and training is directly related not only to the quantitative objectives of SDG 4, but also to its qualitative dimensions. Access to education and educational inclusion are key indicators of the contribution of vocational education and training to SDG 4 (Plance, 2020). In many regions of the world, young people living in rural areas or low-income environments face significant barriers to accessing traditional forms of education (Pateman et al., 2021). By expanding educational opportunities and improving accessibility for this young population, vocational education and training (VET) programs significantly contribute to educational inclusion and, consequently, SDG 4, the fourth Sustainable Development Goal (SDG) (Organisation for Economic Co-operation and Development [OECD], 2021). Dual systems in Switzerland and Germany provide young people with both school-based and workplace learning opportunities, facilitating students’ access to education (Lassnigg, 2023). These models are crucial in the context of SDG 4, which is directly related to the “right to education for all.” Promoting lifelong learning opportunities is another vital dimension of vocational education and training.

Rapid changes in the global labor market require individuals to constantly acquire new skills (Jagannathan, 2019). Vocational education and training supports the development of vocational competencies by offering diverse approaches to the education of youth and adults. The equality and gender dimension of SDG 4 is also crucial for vocational education and training. Employment equality issues for women, migrants, and individuals with disabilities, particularly in developing countries, are among the key challenges facing the labor market. Vocational education and training programs can contribute to achieving equality in both education and employment, provided they include specialized training and employment support mechanisms for these groups (Ray & Zarestky, 2022). Some VET projects implemented in Africa and South Asia have aimed to increase the economic participation of girls and women (Gyimah, 2020).

Policy Perspectives

While Vocational Education and Training (VET) is a key driver for achieving SDG 4, its effectiveness clearly depends on the political context and implementation capacity. International organizations, governments, and civil society organizations have developed various policies and strategies to make VET systems accessible, inclusive, and of high quality. This

research outlines government and civil society organization policy positions expressed at both the international and national levels (Unterhalter, 2019).

Organizations with comprehensive frameworks supporting VET at the international level, such as UNESCO, ILO, and the OECD, have published a number of documents recognizing authority on the subject (Klassen, 2025). UNESCO's Global Report on Vocational Education and Training (2016) emphasized the vital relationship between VET and the Sustainable Development Goals, recommending that programs be aligned with labor market needs and that equal opportunities in education be ensured. The International Labour Organization (ILO) (2019) highlighted the importance of VET strategies, particularly in the context of increasing social inclusion and reducing youth unemployment. OECD's Strengthening the Governance of Skills Systems report (2020) emphasized the need for flexible and practice-based VET systems that support lifelong learning.

Challenges and opportunities

In the changing world order, human resources are considered among the most important resources. In this process, the profile of a well-equipped individual, a source of knowledge, has become increasingly prominent. In an increasingly competitive environment, the role assigned to people is increasing daily. With the accelerating globalization of higher education, people's perspectives on higher education positions have begun to shift negatively. This has also impacted on vocational training, leading to prejudices against becoming a technical worker (Ferguson & Roofe, 2020). Similarly, the coefficient requirement introduced for vocational education caused even those with aptitude for this field to avoid vocational education and exacerbated the country's technical staff shortage. As a result of this deepening, the labor market also suffered significant damage (Prasetya et al., 2025).

While vocational training provides a significant advantage in terms of employment, it has long been underrepresented. There is a linear relationship between education and development. A qualified workforce is expected to emerge as a result of a quality education. Meeting this need facilitates the necessary steps to achieve development goals and modern civilization, creating positive impacts on society and contributing to the country's prosperity.

CONCLUSIONS

This study conducted a policy-focused literature review, examined the role of Vocational Education and Training (VET) in achieving Sustainable Development Goal 4 (SDG 4). The results indicate that VET directly contributes to SDG 4 sub-targets such as access to education, inclusiveness, equality, and lifelong learning, as well as vocational skills. VET supports social mobility

and economic growth by increasing the employability of disadvantaged groups and youth. However, the policy framework, resource use, quality assurance mechanisms, and stakeholder collaboration significantly impact the success of VET systems. Key challenges limiting VET's potential include a mismatch between quality and skills, barriers to access, and a lack of social prestige. However, digitalization, green skills, and lifelong learning opportunities offer significant opportunities to enhance VET's contribution to the sustainable development goals. Therefore, strengthening VET is crucial for the success of SDG 4. Implementing effective policies at national and international levels, increasing collaboration with the private sector and educational institutions, and adopting inclusive education strategies will enable VET to realize its full potential. Future research could offer more concrete and actionable recommendations for policymakers by comparing implementation models of VET systems across countries.

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