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# Fostering Sustainable Development through Adolescent Engagement in Vocational Education

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## ABSTRACT

*In this study, we evaluate the effectiveness of vocational education and training (VET) in linking education outcomes to employment needs, with a focus on integrating industry-specific internships into VET curricula. This research highlights a disparity in the perceived value of VET, especially among women, indicating a broader sociocultural issue. Results indicated a gap in understanding VET's role in sustainable development, suggesting a need for public awareness and policy reforms. We recommend modernizing VET systems to align more closely with economic and societal needs, involving the private sector and enhancing vocational curricula with practical experience. This study provides actionable insights for educational policy and administrative reform.*

**Keywords:** economic growth, employment, schools, sustainable development, vocational education

## INTRODUCTION

Education is a cornerstone of sustainable development and economic growth. It empowers individuals with essential skills and knowledge, facilitating their participation in the workforce and enabling societal progress. Among various educational frameworks, vocational education and training (VET) stands out for its direct impact on the labor market by equipping young individuals with practical

and industry-relevant skills. This is particularly critical in bridging the gap between education outcomes and employment needs, making VET a vital tool for economic stability and youth employment (Salimi, 2024).

Despite their potential, VET systems, especially in developing countries, face significant challenges. They are often criticized for being rigid and not in tune with the dynamic demands of the modern labor market. This critique is prominently voiced from neoliberal perspectives, including those from influential bodies such as the World Bank, which argue that VET systems are inefficient and yield low returns on investment (Filmer & Rogers, 2019). These systems are perceived as outdated and lack the flexibility to adapt to evolving industrial and economic landscapes, which ultimately affects the employability of graduates.

This research identifies a clear gap in the literature, which predominantly focuses on the policy design and implementation of VET without adequately addressing its alignment with current market needs and the integration of private sector requirements. There is a substantial need for empirical research that evaluates the effectiveness of VET programs not only in providing skills but also in enhancing the economic prospects of youth. The purpose of this study is to delve into how VET can contribute to what is termed 'successful globalization' and support sustainable development goals. It aims to assess how modernization of VET can better meet the socioeconomic needs of today's societies and evaluate the potential of integrating industry-specific internships into VET curricula. This approach is expected to bridge the educational-outcome-to-employment-needs gap more effectively, thereby enhancing the practical experience of students and their employability.

This research is anticipated to make significant contributions to the field of educational policy and vocational training. By providing a detailed analysis of the current status and potential improvements in VET, it aims to offer actionable insights and recommendations for policymakers and educational administrators. These findings are expected to guide significant reforms in VET systems, ensuring that they are more aligned with the needs of the workforce and can truly fulfill their role in economic and social development.

## LITERATURE REVIEW

The effectiveness of vocational education and training (VET) in promoting sustainable development has garnered considerable attention in recent years. This literature review synthesizes key findings from recent studies that explore various dimensions of VET including its adaptability to labor market demands, student engagement and the integration of technology in education.

Jeylan T. Mortimer (2016) explores the impact of adolescent work experiences on their personal development, focusing on how these experiences shape long-term career trajectories and socio-emotional maturity. Mortimer highlights how early work experiences contribute to skill acquisition,

independence, and future employability, yet also acknowledges the challenges of balancing work and education. The author also emphasizes the role of socioeconomic background in determining the quality of work experiences and their potential to foster or hinder academic and professional success. Mortimer advocates for supportive social policies that integrate work and education, ensuring adolescents can benefit from vocational opportunities without jeopardizing their educational goals.

Shanahan, Mortimer and Kruger (2022) examine the complex dynamics where educational pursuits and employment opportunities for teenagers often conflict, particularly highlighting the challenges faced in developing countries. This conflict arises as the immediate financial needs often overshadow the long-term benefits of education, leading to increased school dropout rates once teens start working, especially in the formal sector. In regions with less developed educational systems, parents, especially those from economically disadvantaged backgrounds, face tough choices. They must consider whether the short-term financial contributions of their children outweigh the long-term advantages of investing in their education, which is crucial for enhancing their future economic stability. Conversely, teenagers from middle-class and upper-class families in developed nations generally have more options, which might include working to gain financial independence from their families.

In line with this, Salimi (2024) highlights how global educational policies, particularly those promoted by institutions like the World Bank, intersect with local educational and vocational systems. Salimi emphasizes the importance of leveraging educational technology to bridge the gap between vocational training and formal education, particularly in under-resourced regions. This approach aligns with the broader need for integrating modern educational tools to support the career readiness of adolescents, especially in developing countries.

Andreas Juttler et al. (2021) explores the dichotomy within educational systems, which often categorizes academic pursuits into two primary tracks: general education and vocational education. As students conclude their lower secondary education and face decisions about their post-compulsory education pathways, they encounter a division into these two distinct streams. Historical career choice theories, notably the six-dimensional RIASEC model, suggest that an individual's career interests play a significant role in these educational and occupational transitions. Previous studies have focused primarily on the impact of socioeconomic background on the choice between general and vocational education tracks, underscoring the influence of family and economic factors on educational decisions. This area of study calls for a deeper investigation into how these educational tracks affect long-term career development and social mobility, particularly in varying economic contexts.

Di Maggio et al. (2020) examine the significance of career adaptability, the consideration of systemic challenges and the role of hope in improving investments in higher education. They argue that career adaptability is a crucial

factor in helping individuals navigate the uncertainties of the labor market, especially in the context of sustainable development. The study emphasizes that fostering hope and resilience in students can enhance their ability to respond to changing career landscapes. Furthermore, addressing systemic barriers is essential to ensure equitable access to education and opportunities. By aligning higher education with these adaptive skills, the study suggests that individuals will be better equipped to contribute to sustainable development goals.

Nouwen et al. (2022) explore the impact of work-based learning (WBL) on student engagement in vocational education and training (VET) through the lens of the self-system model of motivational development. The study emphasizes that WBL plays a crucial role in fostering student motivation by providing real-world learning experiences that enhance students' sense of competence, autonomy, and relatedness. These elements are key drivers of engagement in VET programs. The authors suggest that well-designed WBL opportunities can significantly improve student outcomes by making education more relevant to future career prospects, thereby enhancing both their educational experience and their transition into the labor market.

Pavlova (2008) emphasizes the critical role of technology in vocational education for achieving sustainable development. The book argues that vocational education systems must be reoriented to empower individuals with the skills necessary to address future challenges, particularly in relation to sustainable practices. Pavlova discusses how integrating technological advancements into vocational education can not only enhance employability but also contribute to broader societal goals by preparing individuals to engage in industries that prioritize sustainability. The text highlights the importance of equipping learners with the competencies required for the evolving demands of a knowledge-based and environmentally conscious economy.

The reviewed literature underscores the multifaceted role of vocational education in fostering sustainable development. By addressing the challenges faced by adolescents and integrating modern practices, such as work-based learning and technology, VET can significantly enhance student engagement and employability. The insights from these studies emphasize the necessity of aligning vocational education with labor market demands while empowering students to navigate their career paths effectively, ultimately contributing to broader societal and economic goals.

## RESEARCH METHOD

The research employed quantitative methods to explore diverse perspectives on technical and vocational education. The study design included two distinct phases: data collection and analysis, which leveraged the strengths and addressed the potential limitations of each methodological approach. The participants were randomly selected from two secondary schools to ensure a broad range of

viewpoints. One of the schools previously served as a center for technical and vocational education but currently does not offer courses typically associated with this focus. The other school has fully integrated technical and vocational education into its curriculum, aiming to maximize academic success and potential of students. This diverse selection was critical to gathering comprehensive insights from different educational contexts. The quantitative data were gathered through surveys distributed to a wider array of participants who were either familiar with the respondents or had access to pertinent information that could enrich the research findings. The data were analyzed statistically to identify trends and correlations, providing a broader context for the qualitative insights. This comprehensive analysis aimed to evaluate the impact of technical and vocational education on the academic trajectories and broader educational outcomes of students.

## RESULTS

The primary cause of unwillingness of communities to develop programs that deliver technical and vocational education stems from a general lack of understanding of the subject. A notable pattern emerged, with a significant portion of the participants, particularly women, expressing that they did not see the value in learning technical and vocational skills. This is an important factor to consider for future educational initiatives, especially when addressing gender-specific barriers. According to Everett Roger's diffusion of innovations theory, for individuals to adopt a new concept, they must first become aware of it and understand its benefits (Rogers, 2003). The survey results reinforce this idea, suggesting that the low uptake of technical and vocational education is due, in part, to a lack of awareness and comprehension regarding the advantages of these skills for sustainable development and personal growth.

**Table 1: Perceptions of the Role of VET in Sustainable Development**

| Sex | Strongly Agree | Agree | Disagree | Strongly Disagree | Total |
|---|---|---|---|---|---|
| Male | 0 | 4 | 4 | 0 | 8 |
| Female | 1 | 2 | 7 | 2 | 12 |
| Total | 1 | 6 | 11 | 2 | 20 |

Note. Percentages for each response category are calculated based on the total number of respondents (n=20). Disagreement is the most common response, with 55% of participants indicating either "Disagree" or "Strongly Disagree" regarding the importance of VET in sustainable development. This suggests a critical gap in understanding the potential role of vocational education in promoting sustainability.

The data in Table 1 highlights that the majority of respondents (55%) expressed disagreement with the importance of Vocational Education and Training (VET) in sustainable development. Only 5% strongly agreed with its significance, while 30% showed some level of agreement. This trend underscores the need for better education and advocacy around the role of VET in promoting sustainability, particularly in addressing the existing scepticism.

**Figure 1: Participant distribution by gender and awareness levels of VET in sustainable development.**

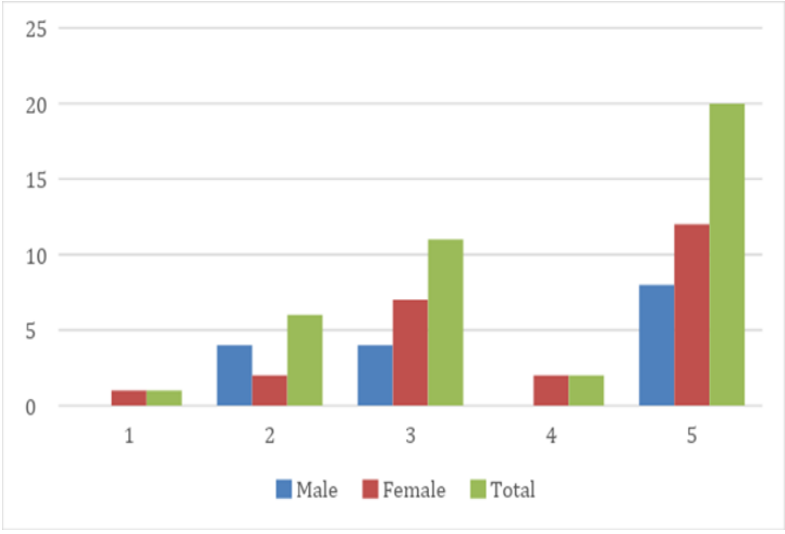



Figure 1 depicts the distribution of male and female participants across varying levels of awareness regarding the significance of Vocational Education and Training (VET) in the context of sustainable development. The data reveals that a majority of both male and female respondents exhibit low levels of awareness, particularly in the lower tiers of understanding. Specifically, most participants are clustered in the categories indicating either “Disagree” or “Strongly Disagree” with the importance of VET, aligning with the findings from Table 1 where 55% of participants expressed skepticism toward VET’s role in sustainability. Notably, while male participants display a steady increase in awareness levels as they progress through the categories, female participants exhibit more variability, peaking at level 3 but showing a decline in higher awareness levels. This pattern reinforces the critical gap in awareness and understanding of VET’s potential to contribute to sustainable development, highlighting an urgent need for targeted educational initiatives to address this deficit among both sexes.

**Table:2 Availability of VET Facilities in Schools**

| Type of School | Strongly Agree | Agree | Disagree | Strongly Disagree | Total |
|---|---|---|---|---|---|
| Vocational and Technical School | 1 | 6 | 3 | 0 | 10 |
| Non-Vocational and Technical School | 0 | 0 | 4 | 6 | 10 |
| Total | 1 | 6 | 7 | 6 | 20 |

Note**.** Percentages for each response category are calculated based on the total number of respondents (n=20). The data reveals a significant perception that educational institutions lack sufficient resources for effective VET programs. Notably, 15% of respondents from vocational and technical schools reported inadequate facilities, indicating an urgent need for infrastructure improvements to enhance the effectiveness of VET in promoting sustainable development.

The findings from Table 2 highlight that the majority of participants (65%) express concerns regarding the availability of essential resources for Vocational Education and Training (VET). The lack of agreement on the presence of adequate facilities, particularly among non-vocational and technical schools, underscores the necessity for enhancements in infrastructure to support VET's role in fostering sustainable development.

**Figure 2: Distribution of Schools by Type and Frequency**

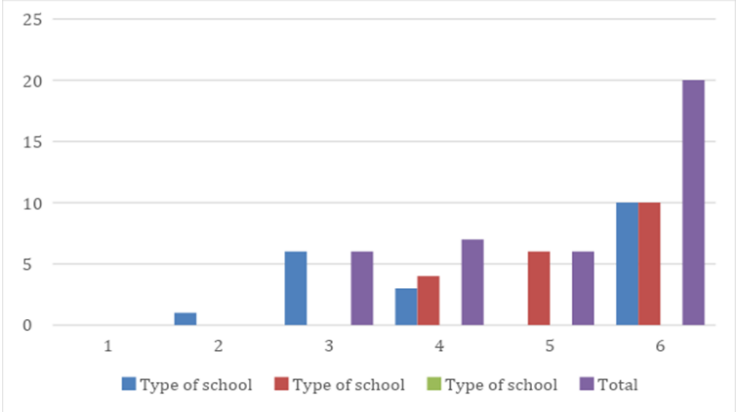



Figure 2 illustrates the distribution of participants across various types of schools and their reported frequency of resources available for Vocational Education and Training (VET). The graph shows that vocational and technical schools are more likely to have the necessary resources for VET, while non-vocational and technical

schools report a significantly lower frequency of resource availability. This disparity highlights the need for targeted investments to improve facilities in non-vocational schools, as the lack of resources is likely contributing to the lower uptake of VET programs in these institutions.

**Table 3: Respondents' Preferences: Academic vs. Vocational Skills**

| Type of School | Agree | Disagree | Total |
|---|---|---|---|
| Vocational and Technical School | 5 | 3 | 10 |
| Non-Vocational and Technical School | 6 | 0 | 9 |
| Total | 11 | 3 | 15 |

Note. Percentages are calculated based on the total number of respondents (n=15). A total of 55% of respondents across both school types agree that academic merit is valued more than technical and vocational skills. This indicates a cultural preference for academic success over the acquisition of practical skills for sustainable development.

**Figure 3. Preferences for Academic Merit vs. Vocational Skills by School Type**

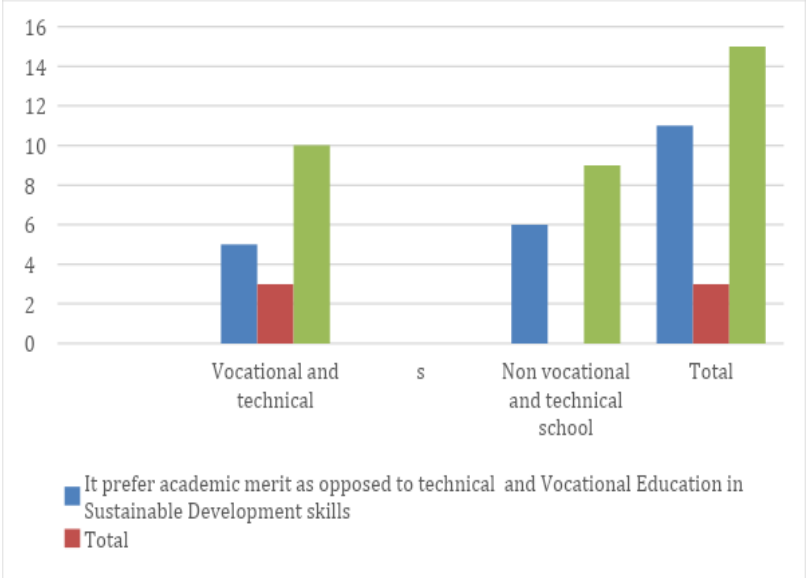



Figure 3 shows the cross-tabulation of respondents' preferences for academic merit over vocational skills across different school types. The graph reveals that while vocational and technical schools show a more balanced distribution between those

who value academic merit and those who value vocational skills, non-vocational schools exhibit a strong bias toward academic merit. This further reinforces the challenge of promoting vocational education, especially in non-vocational settings where traditional academic success is still seen as the primary path to personal and professional advancement.

Table 3 highlights a significant preference for academic merit over technical and vocational skills, with 55% of respondents agreeing with this sentiment. This is especially pronounced in non-vocational and technical schools, where all respondents agree that academic merit is more valued. These findings suggest that cultural biases towards academic achievement may be a major barrier to the growth and acceptance of vocational education, particularly in promoting sustainable development.

**Table 4: Learners and Educators Preferences: Academic vs. VET**

| Title | Strongly Agree | Agree | Disagree | Total |
|---|---|---|---|---|
| Learner | 4 | 6 | 0 | 10 |
| Educator | 1 | 5 | 3 | 9 |
| Total | 5 | 11 | 3 | 19 |

Note. Percentages are calculated based on the total number of respondents (n=19). The data reveals that learners are more inclined to prioritize academic merit over vocational education, with 100% of learners either strongly agreeing or agreeing with this sentiment. Educators are slightly more divided, with 30% disagreeing with the idea that academic merit should be prioritized over vocational training.

Table 4 shows a clear preference for academic merit among learners, with 100% of them either agreeing or strongly agreeing that academic success is more important than vocational training. Educators are more split, with 30% of them disagreeing with this preference. This indicates a disconnect between learners' perceptions and educators' beliefs, highlighting the need for better communication and advocacy around the benefits of vocational education, particularly in fostering sustainable development.

Figure 4 shows the preferences of learners and educators for academic merit over vocational training. The data reveals that learners are overwhelmingly in favor of academic success, with all participants either agreeing or strongly agreeing with this sentiment. Educators, on the other hand, are more divided, with a notable portion disagreeing with the emphasis on academic merit. This gap between learners and educators underscores the need for educational reforms that balance the value of both academic and vocational pathways in promoting sustainable development.

**Figure 4: Preferences for Academic vs. VET**

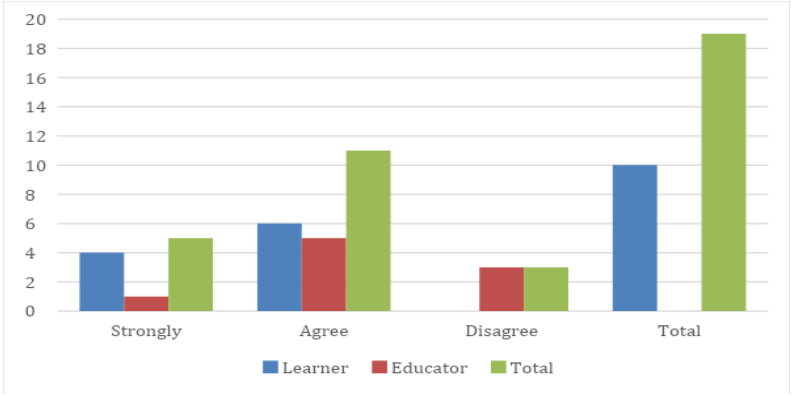


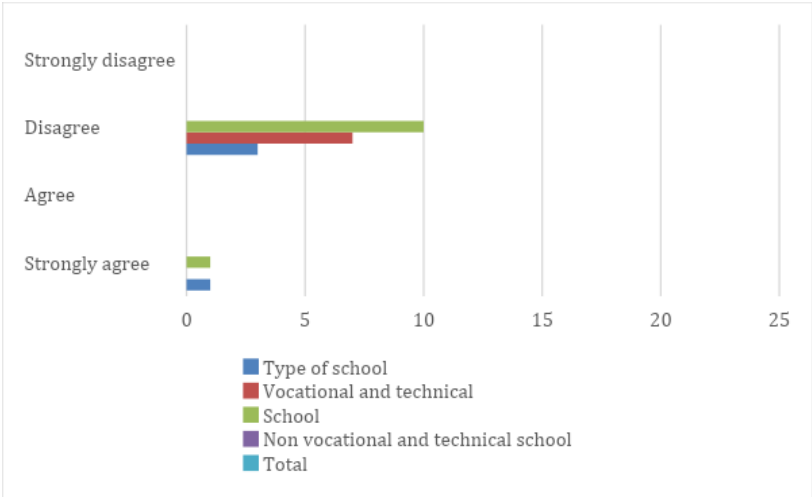

**Table 5: Educators ability to provide VET Skills**

| Type of School | Strongly Agree | Agree | Disagree | Strongly Disagree | Total |
|---|---|---|---|---|---|
| Vocational and Technical School | 1 | 0 | 3 | 6 | 10 |
| Non-Vocational and Technical School | 0 | 0 | 4 | 6 | 10 |
| Total | 1 | 0 | 7 | 12 | 20 |

Note. Percentages are calculated based on the total number of respondents (n=20). According to the data presented in Table 5, the largest group of respondents, representing 35% of the total, believes that their schools do not have sufficient numbers of teachers who are capable of effectively passing on technical and vocational skills to students.

This suggests a significant gap in the availability of qualified educators, which may hinder the effectiveness of vocational education programs in fostering sustainable development. The findings from Table 5 indicate that while some educators recognize the need for vocational training, there remains a disconnect between the perceived availability of qualified teachers and the importance of technical education in sustainable development.

**Figure 5: Crosstabulation of Vocational Education and Sustainable Development Skills**




This research reveals that when learners and educators are contrasted in terms of their preference between academic merit and technical and vocational education in sustainable development, only the educators stated that they would select the latter option if given the choice between the two options. It appears that the great majority of students are unaware of the advantages that might be obtained by earning a technical or vocational education. The pursuit of academic excellence was identified as ideal by twenty-five percent of the educators questioned, in contrast to training in technical and vocational fields. It is probable that the existence of educators who place greater value on academic merit than they do on technical and vocational education in sustainable development is to blame, at least in part, for the lack of investment in facilities for technical and vocational education in sustainable development. This is because academic merit is often regarded as a better indicator of future success.

## DISCUSSION AND CONCLUSION

The findings of this study provide important insights into the role of VET in promoting sustainable development, particularly among adolescents. One of the key observations is the gender disparity in the perception of VET, with many female participants showing less interest in vocational education. This reflects deeper societal stereotypes that associate vocational and technical fields with men, creating barriers for young women to explore opportunities in these areas. Addressing these disparities requires interventions that challenge these

stereotypes, encouraging female participation through mentorship programs, gender-inclusive curricula, and public awareness campaigns that showcase successful women in vocational fields. Partnerships with private industries offering internships and apprenticeships can also help bridge this gender gap (OECD, 2018).

Another significant finding is the cultural preference for academic merit over vocational skills, which was most evident in non-vocational schools. Both students and educators in these environments believe that academic success is the primary path to future economic stability, downplaying the importance of vocational education (Pilz, 2012). This reflects a broader societal bias, where academic credentials are valued more than practical skills. This bias limits students' career options and fails to recognize the adaptability required in modern economies. To counter this, vocational education needs to be elevated in status, with educational policies that promote the integration of vocational skills into general education. Dual education systems that balance academic learning with vocational training could provide a more holistic approach to student development.

The study also highlights resource gaps in non-vocational schools, which lack the necessary infrastructure, facilities, and trained educators to offer vocational education. This resource deficiency presents a major barrier to expanding VET programs and incorporating sustainable development principles into technical training. Addressing these resource constraints will require significant investment in educational infrastructure and training programs for educators, with a focus on ensuring that all schools can provide high-quality vocational education. Collaboration between governments, international organizations, and the private sector will be critical to closing these gaps.

An important revelation from the data is the general lack of understanding about the link between VET and sustainable development. Many students, and even educators, did not perceive vocational education as relevant to sustainability. This highlights the need to modernize VET curricula to include sustainability as a core element, aligning vocational skills with global efforts to combat climate change and promote eco-friendly practices. By incorporating practical projects that engage students in sustainable activities within their chosen fields, vocational education can be reoriented to meet future challenges through innovation and technology. Raising awareness about the role vocational skills play in achieving broader societal goals will also enhance the value of VET in the eyes of students and educators alike (McGrath & Powell 2016).

A further observation from the study is the disconnect between educators and learners regarding the value of vocational training. While some educators acknowledge its importance, many students prioritize academic success, viewing it as more valuable than vocational skills. This disconnect may stem from a lack of clear communication about the long-term benefits of VET and its relevance to the current job market. Teachers have a pivotal role in reshaping these perceptions. By participating in professional development programs that equip them with the

tools to advocate for vocational education, teachers can influence students' career choices and emphasize the importance of adaptability in today's labor market.

## CONCLUSION

The integration of values and the incorporation of scientific, sociocultural and philosophical topics into the classroom are essential for fostering education aimed at sustainable development. This approach not only nurtures awareness of environmental issues but also encourages individuals to engage actively with their communities and respond effectively to challenges such as climate change. However, it is important to acknowledge that the returns on investment in vocational education and training are typically low, and government provision of these services can often be inefficient. Therefore, a significant shift towards privatization in the vocational education and training system is recommended.

These findings support previously proposed theories and provide deeper insights into the interactions among these components. The implications of this study offer actionable solutions for educational institutions, counselors and policymakers. Practical applications derived from these findings include personalized career exploration programs, initiatives to promote mentorship, and strategies to increase parental engagement. These approaches are crucial for enhancing equitable access to resources and fostering vocational maturity among adolescents.

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