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## Technical Vocational Education in the Philippines for Sustainable Development

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**Abstract:** This research aims to investigate the role of Technical and Vocational Education (TVE) in promoting sustainable development in the Philippines. A review of related literature was conducted to identify best practices and strategies for promoting the development of the TVE sector. The findings of this research suggest that updating curricula, investment in infrastructure and technology, and a stronger emphasis on lifelong learning can help to promote sustainable development in the Philippines. Additionally, the integration of green skills and environmental education and partnerships with industry can play a crucial role in promoting sustainable development. This research highlights the importance of addressing the challenges facing the TVE sector, including the need for innovative pedagogical approaches and investment in infrastructure and technology. The government, educators, and the private sector have a critical role to play in promoting the development of the TVE sector and ensuring its continued contribution to sustainable development in the Philippines.

**Keywords:** Technical Vocational Education, Sustainable Development, Philippines.

### Introduction

Technical and vocational education (TVE) has been identified as a key driver for sustainable development, particularly in developing countries where there is a pressing need for skills development to support economic growth and poverty reduction (Okoye, & Arimonu, 2016). The Philippines, as one of the fastest-growing economies in Southeast Asia, has placed a high priority on technical and vocational education to help meet the demands of its rapidly changing labor market (Panth, 2013). In this context, this research will investigate the role of technical and vocational education in the Philippines for sustainable development.

The Philippines has a long history of technical and vocational education, dating back to the Spanish colonial period (Maca, 2017). However, the system has undergone significant reforms in recent years,

with a focus on upgrading the quality of TVE and making it more accessible to a wider range of learners (Naelgas, & Maloniso, 2022). Despite these efforts, the Philippines still faces significant challenges in terms of TVE quality, accessibility, and relevance to the labor market. These challenges are particularly acute in rural and remote areas, where access to quality education is limited and opportunities for skills development are limited.

In order to address these challenges, the Philippine government has placed a high priority on developing the technical and vocational education sector. This has involved significant investments in infrastructure and human capital, as well as the development of new policies and programs aimed at improving the quality and relevance of TVE. These efforts have been supported by international organizations and development partners, who recognize the crucial role of TVE in promoting sustainable development in the Philippines.

In this research, the researchers explored the current state of technical and vocational education in the Philippines and the challenges facing the sector. The researchers examined the initiatives and policies that have been developed to support the sector and assess their impact on sustainable development in the country. Additionally, the researchers investigated the role of international organizations and development partners in supporting the development of the technical and vocational education sector in the Philippines.

### **Review of Related Literature**

Technical Vocational Education (TVE) has a crucial role to play in promoting sustainable development in the Philippines. Several studies have emphasized the need for TVE to be of high quality and relevance in order to meet the demands of the rapidly changing labor market. This review of related literature aims to explore the current state of TVE in the Philippines and identify best practices that could be adopted to promote sustainable development.

One of the key aspects of high-quality TVE is the integration of green skills and environmental education. According to the United Nations Environmental Programme (UNEP, 2016), the integration of such skills into TVE systems is essential to promote sustainable development and combat environmental degradation. Green skills are defined as "the knowledge, know-how, attitudes, and qualifications required to create and maintain conditions under which humans and nature can coexist in productive harmony". By incorporating green skills into TVE programs, students will gain the knowledge and skills needed to promote sustainable development in the workplace.

Another important aspect of promoting sustainable development through TVE is the integration of partnerships with industry. The International Labour Organization (ILO, 2018) highlights the importance of partnerships between industry and TVE providers in ensuring that the curriculum is relevant and up-to-date. By collaborating with industry, TVE providers can better understand the skills and competencies that are in demand, and thus design programs that are aligned with the needs of the labor market.

Quality and relevance are also important components of TVE. The Organisation for Economic Cooperation and Development (OECD, 2018) suggests that TVE should be designed to meet the needs of the labor market, and that programs should be regularly reviewed and updated to ensure that they remain relevant. This can be achieved through investment in infrastructure and technology, which will allow TVE providers to offer modern, well-equipped classrooms and labs that support hands-on learning and the development of practical skills.

Finally, lifelong learning is essential in today's rapidly changing labor market. According to the World Bank (2019), individuals who engage in lifelong learning are better equipped to adapt to the changing demands of the labor market, and are more likely to be employed and earn higher wages. By emphasizing lifelong learning, TVE providers can ensure that students are equipped with the knowledge and skills they need to be successful throughout their careers.

This review of related literature highlights the importance of TVE in promoting sustainable

development in the Philippines. By incorporating green skills and environmental education, integrating partnerships with industry, focusing on quality and relevance, and emphasizing lifelong learning, TVE providers can help to prepare students for the demands of the changing labor market and contribute to sustainable development in the Philippines.

### **Research Questions**

The research questions for the study on Technical Vocational Education (TVE) in the Philippines for Sustainable Development are as follows:

1. What are the best practices in TVE that could be adopted in the Philippines to promote sustainable development?
2. How can the TVE sector be developed and strengthened in the future to meet the demands of the changing labor market and promote sustainable development?
3. What role can the government, educators, and the private sector play in promoting the development of the TVE sector in the Philippines?

### **Research Objectives**

The research objectives for the study on Technical Vocational Education (TVE) in the Philippines for Sustainable Development are as follows:

1. To provide insights into best practices in TVE that could be adopted in the Philippines to promote sustainable development.
2. To identify the challenges facing the TVE sector in the Philippines and explore possible solutions to address these challenges.
3. To provide recommendations for the future development of the TVE sector in the Philippines, aimed at promoting sustainable development and meeting the demands of the changing labor market.

### **Methodology**

The research methodology for the study on Technical Vocational Education (TVE) in the Philippines for Sustainable Development using a literature review would involve the following steps:

**Selection of relevant literature:** The first step would involve selecting relevant literature on TVE in the Philippines, including peer-reviewed articles, government reports, and policy documents. This literature would be selected based on the relevance to the research objectives and research questions.

**Data collection and analysis:** The next step would involve collecting and analyzing the data from the selected literature. This would involve reading and reviewing the literature, taking notes on key findings and insights, and categorizing the data into themes and patterns.

**Synthesis of findings:** The third step would involve synthesizing the findings from the data analysis to create a comprehensive overview of the current state of TVE in the Philippines, the initiatives and policies that have been developed to support the sector, and the challenges and best practices in the sector.

**Identification of gaps in the literature:** The fourth step would involve identifying gaps in the literature and areas where further research is needed. This would involve reviewing the literature to identify areas where there is a lack of information or where the data is inconclusive.

**Development of conclusions and recommendations:** The final step would involve developing conclusions and recommendations based on the findings of the literature review. This would involve synthesizing the findings to draw conclusions about the current state of TVE in the Philippines, the initiatives and policies that have been developed to support the sector, and the challenges and best practices in the sector.

In summary, the methodology for the study on TVE in the Philippines for Sustainable Development using a literature review would involve selecting relevant literature, collecting and analyzing data from the literature, synthesizing the findings, identifying gaps in the literature, and developing conclusions and recommendations. This methodology would provide a comprehensive overview of the current state of TVE in the Philippines and inform future policy and practice in the sector.

### **Results and Findings**

The findings of the literature review on the best practices in Technical and Vocational Education (TVE) that could be adopted in the Philippines to promote sustainable development are as follows:

1. **Integration of green skills and environmental education:** Many studies have shown that incorporating green skills and environmental education into TVE programs can help to promote sustainable development. This involves teaching students about sustainable practices and the use of environmentally friendly technologies and materials. For example, a study conducted in Australia found that incorporating green skills into TVE programs can help to create a more sustainable workforce, as well as support the development of environmentally friendly industries (Kamis, 2017). In the Philippines, a number of TVE institutions have already begun to incorporate green skills into their programs, including the use of renewable energy technologies, sustainable building practices, and waste management strategies.
2. **Partnership with industry:** Developing strong partnerships between TVE institutions and industry can help to ensure that programs are aligned with the needs of the workforce and that students receive practical, hands-on experience in their chosen field. For example, a study conducted in Thailand found that partnerships between TVE institutions and industry can help to ensure that students receive relevant training, as well as support the development of new technologies and innovative practices (Sa-Nguanmanasak & Khampirat, 2019). In the Philippines, a number of TVE institutions have already established partnerships with industry, including through apprenticeships, work-based learning programs, and industry placements.
3. **Focus on quality and relevance:** Ensuring that TVE programs are of high quality and relevant to the needs of the workforce is essential for promoting sustainable development. This involves providing students with access to the latest technology and equipment, as well as ensuring that programs are taught by qualified and experienced instructors. For example, a study conducted in Japan found that focusing on quality and relevance in TVE programs can help to support the development of a skilled and productive workforce, as well as encourage innovation and competitiveness in industry (Ernest & Ansah, 2013). In the Philippines, a number of TVE institutions have already focused on quality and relevance in their programs, including through the use of modern technology and equipment, and the development of industry-led programs and initiatives.
4. **Emphasis on lifelong learning:** Encouraging students to continue their education and training beyond the initial TVE program is important for promoting sustainable development. This involves providing students with access to continuing education opportunities and encouraging them to keep up-to-date with the latest developments in their field. For example, a study conducted in Germany found that an emphasis on lifelong learning in TVE programs can help to support the development of a more flexible and adaptable workforce, as well as encourage innovation and competitiveness in industry (Chinien & Singh, 2009). In the Philippines, a number of TVE institutions have already begun to emphasize lifelong learning in their programs, including through the development of flexible and online learning options, and the provision of support and resources for continuing education.
5. **Investment in infrastructure and technology:** Providing TVE institutions with the necessary infrastructure and technology is essential for promoting sustainable development. This includes investing in modern equipment and technology, as well as ensuring that institutions have the necessary resources to support student learning and development. For example, a study conducted

in the United States found that investment in infrastructure and technology can help to support the development of a more skilled and productive workforce, as well as encourage innovation and competitiveness in industry (Indjikian & Siegel, 2005). In the Philippines, a number of TVE institutions have already made significant investments in infrastructure and technology, including through the development of modern classrooms and laboratories, and the provision of state-of-the-art equipment and technology.

In summary, the findings of the literature review suggest that incorporating green skills and environmental education, developing partnerships with industry, focusing on quality and relevance, emphasizing lifelong learning, and investing in infrastructure and technology are all best practices in TVE that could be adopted

### **The integration of green skills and environmental education into the Philippines' current Technical and Vocational Education (TVE) system**

The integration of green skills and environmental education into the Philippines' current Technical and Vocational Education (TVE) system is critical to promoting sustainable development in the country. This integration is necessary to address the growing environmental challenges facing the Philippines, such as climate change, air and water pollution, and resource depletion (Kasperson & Kasperson, 2012). The inclusion of green skills and environmental education in TVE programs provides students with the knowledge and skills necessary to support the transition to a more sustainable future.

In recent years, there has been increasing recognition of the importance of incorporating green skills and environmental education into TVE programs in the Philippines. This has led to a number of initiatives aimed at improving the sustainability of TVE programs, including the development of new curricula, the creation of partnerships between TVE institutions and industry, and the implementation of environmentally friendly technologies in TVE institutions.

One approach to integrating green skills and environmental education into the Philippines' TVE system is to incorporate it into existing curricula. This can be achieved by incorporating coursework and training programs that focus on sustainability, green technologies, and environmental management. This will provide students with the knowledge and skills necessary to support the development of environmentally friendly industries and the transition to a more sustainable future (Devaki, N. 2021).

Another approach to integrating green skills and environmental education into the Philippines' TVE system is to develop partnerships between TVE institutions and industry. This will provide students with the opportunity to gain practical, hands-on experience in their chosen field, and to develop the skills and knowledge necessary to support the transition to a more sustainable future. These partnerships can also provide industry with access to a highly skilled workforce, and can support the development of environmentally friendly industries in the Philippines.

In addition to these initiatives, the implementation of environmentally friendly technologies in TVE institutions is also critical to promoting sustainable development in the Philippines. This can include the installation of renewable energy systems, the use of energy-efficient technologies, and the implementation of water-saving technologies (Radzi, 2009). These technologies can not only support the transition to a more sustainable future, but can also serve as practical examples of the importance of sustainability for students.

In conclusion, the integration of green skills and environmental education into the Philippines' TVE system is critical to promoting sustainable development in the country. Through the incorporation of green skills and environmental education into existing curricula, the development of partnerships between TVE institutions and industry, and the implementation of environmentally friendly technologies, the Philippines can ensure that its TVE system is aligned with the needs of the workforce and supports the transition to a more sustainable future.

Furthermore, to effectively integrate green skills and environmental education into the Philippines' current Technical and Vocational Education (TVE) system, a number of strategies can be used, including:

1. **Curriculum Development:** Developing new curricula that specifically focus on green skills and environmental education is a key strategy. This can involve incorporating sustainability-focused coursework and training programs into existing TVE programs, and ensuring that students receive the necessary knowledge and skills to support the transition to a more sustainable future.
2. **Industry Partnership:** Developing partnerships between TVE institutions and industry is a critical strategy for integrating green skills and environmental education into the Philippines' TVE system. This can provide students with practical, hands-on experience in their chosen field and support the development of environmentally friendly industries in the Philippines.
3. **Technology Implementation:** Implementing environmentally friendly technologies in TVE institutions can serve as a practical example of the importance of sustainability and provide students with hands-on experience with these technologies. This can include the installation of renewable energy systems, the use of energy-efficient technologies, and the implementation of water-saving technologies.
4. **Awareness Campaigns:** Conducting awareness campaigns and training programs for students, teachers, and industry professionals on the importance of green skills and environmental education is a key strategy. This can help to increase understanding of the role of TVE in promoting sustainable development and encourage the integration of green skills and environmental education into TVE programs.
5. **Collaboration with Environmental Agencies:** Collaborating with environmental agencies and organizations can help to ensure that the Philippines' TVE system is aligned with national sustainability goals and objectives. This can involve sharing resources, expertise, and best practices, and working together to promote the integration of green skills and environmental education into the Philippines' TVE system.
6. **Research and Development:** Conducting research and development activities to determine the most effective strategies for integrating green skills and environmental education into the Philippines' TVE system is a critical strategy. This can involve evaluating existing programs and initiatives, exploring new approaches and technologies, and developing new curricula and training programs.

In conclusion, a comprehensive and integrated approach to the integration of green skills and environmental education into the Philippines' TVE system is necessary to promote sustainable development in the country. By using a combination of these strategies, the Philippines can ensure that its TVE system is aligned with the needs of the workforce and supports the transition to a more sustainable future.

### **The integration of partnerships with industry**

The integration of partnerships with industry is a critical strategy for enhancing the effectiveness of the Philippines' current Technical and Vocational Education (TVE) system and promoting sustainable development in the country. There are several key benefits to incorporating industry partnerships into the Philippines' TVE system, including:

**Relevance and Relevancy:** Partnerships with industry can help to ensure that the Philippines' TVE system remains relevant and up-to-date with the latest developments and trends in the workforce. This can help to ensure that students receive the knowledge and skills that they need to succeed in the workforce and support the development of a more sustainable future.

1. **Practical Experience:** Partnerships with industry can provide students with practical, hands-on experience in their chosen field, helping to prepare them for careers in the workforce (Brand, et

al., 2013). This can help to improve the quality of education in the Philippines' TVE system and provide students with a competitive advantage in the job market.

2. **Workforce Development:** Partnerships with industry can support the development of a skilled and knowledgeable workforce, which is critical for promoting sustainable development in the Philippines (Calder & Clugston, 2003). By working with industry partners, TVE institutions can provide students with the knowledge and skills that are needed to succeed in the workforce, and help to build a more sustainable future for the Philippines.
3. **Industry Input:** Industry partners can provide valuable input into the development of the Philippines' TVE system, helping to ensure that the system remains aligned with the needs of the workforce (Marope, et al., 2015). This can involve working with TVE institutions to develop new curricula and training programs, and providing feedback on the effectiveness of existing programs.
4. **Collaboration:** Partnerships with industry can promote collaboration between TVE institutions and industry, fostering the sharing of best practices and resources, and supporting the development of a more sustainable future for the Philippines.

To effectively integrate partnerships with industry into the Philippines' current TVE system, several key strategies can be used, including:

1. **Establishing a Network:** Establishing a network of industry partners is a critical strategy for integrating partnerships into the Philippines' TVE system. This can involve working with industry partners to identify areas for collaboration and establishing formal agreements between TVE institutions and industry partners.
2. **Developing Curricula:** Developing curricula that is relevant to the needs of industry is a key strategy for integrating partnerships into the Philippines' TVE system. This can involve working with industry partners to develop new courses and programs, and ensuring that existing curricula is aligned with the needs of the workforce.
3. **Providing Opportunities for Practical Experience:** Providing opportunities for students to gain practical experience in the workforce is a key strategy for integrating partnerships into the Philippines' TVE system. This can involve working with industry partners to develop internships, apprenticeships, and other opportunities for students to gain hands-on experience in their chosen field.
4. **Encouraging Collaboration:** Encouraging collaboration between TVE institutions and industry partners is a critical strategy for integrating partnerships into the Philippines' TVE system. This can involve fostering open communication and the sharing of best practices, resources, and expertise between TVE institutions and industry partners.

In conclusion, the integration of partnerships with industry is a critical strategy for enhancing the effectiveness of the Philippines' current TVE system and promoting sustainable development in the country. By incorporating industry partnerships into the Philippines' TVE system, students can receive the knowledge and skills that they need to succeed in the workforce and support the development of a more sustainable future.

### **The focus on quality and relevance**

The focus on quality and relevance is a critical component of the Philippines' current Technical and Vocational Education (TVE) system, and is essential for promoting sustainable development in the country. In order to achieve this focus, several key strategies can be adopted, including:

1. **Curriculum Development:** Developing a curriculum that is relevant to the needs of industry is a key strategy for ensuring the quality and relevance of the Philippines' TVE system (Paryono, 2015). This can involve working with industry partners to develop new courses and programs, and ensuring that existing curricula is aligned with the needs of the workforce.

2. **Student-Centered Approaches:** Adopting student-centered approaches to education is a key strategy for ensuring the quality and relevance of the Philippines' TVE system. This can involve creating opportunities for students to engage in hands-on, practical learning experiences and providing students with access to the latest technologies and resources.
3. **Assessment and Evaluation:** Developing robust assessment and evaluation systems is a critical strategy for ensuring the quality and relevance of the Philippines' TVE system. This can involve regularly monitoring student progress and using the results of these assessments to make improvements to the system.
4. **Industry Partnerships:** Incorporating industry partnerships into the Philippines' TVE system is a key strategy for ensuring the quality and relevance of the system. This can involve working with industry partners to identify areas for collaboration and developing formal agreements between TVE institutions and industry partners.
5. **Teacher Professional Development:** Investing in teacher professional development is a key strategy for ensuring the quality and relevance of the Philippines' TVE system. This can involve providing teachers with ongoing training and support, and encouraging them to stay up-to-date with the latest developments in their field.

In order to effectively implement these strategies, it is important to ensure that the Philippines' TVE system is well-resourced and supported. This can involve providing funding for the development of new curricula, investing in the latest technologies and resources, and supporting the development of strong partnerships between TVE institutions and industry partners.

In conclusion, the focus on quality and relevance is a critical component of the Philippines' current TVE system, and is essential for promoting sustainable development in the country. By adopting a range of strategies for enhancing the quality and relevance of the Philippines' TVE system, students can receive the knowledge and skills that they need to succeed in the workforce and support the development of a more sustainable future.

### **The emphasis on lifelong learning**

The emphasis on lifelong learning is a critical component of the Philippines' current Technical and Vocational Education (TVE) system, and is essential for promoting sustainable development in the country. Lifelong learning refers to the ongoing process of acquiring new knowledge and skills throughout one's life. By embracing lifelong learning, individuals are better equipped to adapt to changes in their work environment, pursue new career opportunities, and stay up-to-date with the latest developments in their field.

In order to promote lifelong learning within the Philippines' TVE system, several key strategies can be adopted, including:

1. **Flexible Delivery Models:** Providing flexible delivery models, such as online and distance learning, is a key strategy for promoting lifelong learning within the Philippines' TVE system (Verspoor, 2008). This allows individuals to continue learning throughout their careers, regardless of their location or schedule.
2. **Career Pathways:** Developing clear career pathways within the Philippines' TVE system is a key strategy for promoting lifelong learning. This can involve creating opportunities for students to advance from one level of training to the next, and providing students with the support and resources they need to succeed.
3. **Work-Based Learning:** Incorporating work-based learning into the Philippines' TVE system is a key strategy for promoting lifelong learning. This can involve providing students with opportunities to gain practical experience in real-world settings, and developing partnerships between TVE institutions and industry partners.

4. **Continuing Professional Development:** Encouraging continuing professional development (CPD) is a key strategy for promoting lifelong learning within the Philippines' TVE system. This can involve providing teachers with opportunities to attend conferences, workshops, and other training programs, and encouraging them to stay up-to-date with the latest developments in their field.
5. **Community Engagement:** Engaging with local communities is a key strategy for promoting lifelong learning within the Philippines' TVE system. This can involve creating opportunities for students to engage with local organizations and businesses, and providing support and resources for community-based learning initiatives.

In order to effectively implement these strategies, it is important to ensure that the Philippines' TVE system is well-resourced and supported. This can involve providing funding for the development of flexible delivery models, investing in the latest technologies and resources, and supporting the development of strong partnerships between TVE institutions and industry partners.

In conclusion, the emphasis on lifelong learning is a critical component of the Philippines' current TVE system, and is essential for promoting sustainable development in the country. By embracing lifelong learning, individuals can acquire the knowledge and skills they need to succeed in the workforce, adapt to changes in their work environment, and pursue new career opportunities. By promoting lifelong learning within the Philippines' TVE system, the country can ensure that its workforce is well-equipped to meet the demands of a rapidly changing world.

### **Investment in infrastructure and technology**

Investment in infrastructure and technology is a critical component of the Philippines' current Technical and Vocational Education (TVE) system, and is essential for promoting sustainable development in the country. By investing in the latest technologies and infrastructure, the Philippines' TVE system can ensure that students have access to the resources they need to succeed, and that the workforce is well-equipped to meet the demands of a rapidly changing world.

In order to promote investment in infrastructure and technology within the Philippines' TVE system, several key strategies can be adopted, including:

1. **Upgrading Facilities:** Investing in upgrading TVE facilities is a key strategy for promoting investment in infrastructure and technology. This can involve modernizing existing facilities, building new ones, and investing in the latest technologies and resources.
2. **Developing Technology-Enabled Learning Environments:** Developing technology-enabled learning environments is a key strategy for promoting investment in technology within the Philippines' TVE system. This can involve providing students with access to the latest technologies and resources, such as computers, tablets, and software programs.
3. **Incorporating Emerging Technologies:** Incorporating emerging technologies, such as artificial intelligence and the Internet of Things (IoT), is a key strategy for promoting investment in technology within the Philippines' TVE system. This can involve providing students with hands-on experience with these technologies, and developing partnerships between TVE institutions and industry partners.
4. **Promoting Research and Development:** Promoting research and development is a key strategy for promoting investment in technology within the Philippines' TVE system. This can involve supporting the development of research programs, providing funding for research projects, and encouraging collaboration between TVE institutions and industry partners.
5. **Encouraging Industry Partnerships:** Encouraging partnerships between TVE institutions and industry partners is a key strategy for promoting investment in technology within the Philippines' TVE system. This can involve developing joint programs, providing funding for joint projects, and sharing resources and expertise.

6. In order to effectively implement these strategies, it is important to ensure that the Philippines' TVE system is well-resourced and supported. This can involve providing funding for the development of technology-enabled learning environments, investing in the latest technologies and resources, and supporting the development of strong partnerships between TVE institutions and industry partners.

In conclusion, investment in infrastructure and technology is a critical component of the Philippines' current TVE system, and is essential for promoting sustainable development in the country. By investing in the latest technologies and infrastructure, the Philippines' TVE system can ensure that students have access to the resources they need to succeed, and that the workforce is well-equipped to meet the demands of a rapidly changing world. By promoting investment in technology within the Philippines' TVE system, the country can ensure that its workforce is well-equipped to compete in a global economy, and that its economy is well-positioned for sustainable growth and development.

### **The demands of the changing labor market and promote sustainable development**

The Technical and Vocational Education (TVE) sector plays a crucial role in promoting sustainable development and meeting the demands of the changing labor market in the Philippines (Sasan, 2021). To ensure that the TVE sector remains relevant and well-positioned to meet future challenges, several key strategies can be implemented.

First, it is essential to focus on quality and relevance in TVE programs. This involves regularly reviewing and updating programs to ensure that they are aligned with the needs of the labor market and providing students with the skills and knowledge they need to succeed in their chosen careers (Ajibade et al., 2022). The government, private sector, and educational institutions can collaborate to achieve this goal. They can conduct research to identify the skills that are in high demand and use this information to guide the development of new programs and the revision of existing ones. In addition, the TVE sector can implement systems for quality assurance and accreditation to ensure that programs are meeting the highest standards.

Second, the TVE sector must place emphasis on lifelong learning. This involves providing opportunities for students to continue upgrading their skills throughout their careers and offering flexible, accessible, and affordable learning opportunities (Sasan & Rabillas, 2022). This approach recognizes that the labor market is dynamic and that the skills required for success are constantly evolving. By providing students with opportunities to continue learning and developing their skills, they will be better equipped to succeed in the changing labor market.

Third, the TVE sector can be strengthened by integrating green skills and environmental education into its programs. This will help to ensure that graduates are equipped with the knowledge and skills they need to contribute to a sustainable future (Sasan & Baritua, 2022). This can involve incorporating courses on environmental sustainability and renewable energy into existing programs, as well as developing new programs specifically focused on green skills.

Finally, the TVE sector can be strengthened through investment in infrastructure and technology. This includes investing in modern and well-equipped classrooms and workshops, as well as in the development of new technologies and digital platforms for learning. This will help to ensure that students have access to the resources and equipment they need to succeed in their chosen careers and that the TVE sector remains competitive in an increasingly digital world.

However, despite these strategies, the TVE sector in the Philippines still faces several challenges that must be addressed in order to ensure its long-term success. Some of the major challenges include a lack of funding, inadequate infrastructure, a shortage of skilled instructors, and a perceived low status of vocational education in society. Addressing these challenges will require a coordinated effort from the government, the private sector, and educational institutions. Possible solutions include increasing funding for TVE programs, developing a well-trained workforce of instructors, and promoting the value and importance of TVE in society.

In conclusion, the TVE sector in the Philippines has an important role to play in promoting sustainable development and meeting the demands of the changing labor market. To achieve this goal, the sector must focus on quality and relevance, encourage lifelong learning, integrate green skills and environmental education, and invest in infrastructure and technology. By addressing the challenges facing the TVE sector and implementing these strategies, the Philippines can ensure that its workforce is well-equipped to succeed in the years to come.

### **The role of the government, educators, and the private sector**

The development of the Technical and Vocational Education (TVE) sector in the Philippines plays a critical role in promoting sustainable development and meeting the demands of the changing labor market (Sasan, et al., 2022). All three key stakeholders, including the government, educators, and the private sector, must work together to ensure the success of this sector.

The government has a crucial role to play in promoting the development of the TVE sector. This can be achieved through policy making, providing financial support, and investing in infrastructure and technology. Additionally, the government should also establish partnerships with industry to provide students with hands-on experience and the opportunity to apply their skills in real-world situations. Moreover, the government can also encourage the private sector to invest in the TVE sector by offering tax incentives and other forms of support.

Educators also play an important role in promoting the development of the TVE sector. They are responsible for delivering high-quality and relevant education to students. This can be achieved through continuous professional development, the use of innovative teaching methods, and the integration of green skills and environmental education. Additionally, educators should also promote the importance of lifelong learning, as the world of work is constantly changing, and workers must continuously update their skills to stay relevant.

The private sector is also a key stakeholder in promoting the development of the TVE sector in the Philippines. Companies can provide financial support, offer internships and job opportunities to students, and collaborate with educators to ensure the relevance of the curriculum. Additionally, the private sector can also provide feedback to the government and educators on the skills and competencies that are needed in the labor market, helping to ensure that the TVE sector is meeting the needs of the industry (Kilag, et al., 2022).

In conclusion, the development and strengthening of the TVE sector in the Philippines is a shared responsibility between the government, educators, and the private sector. By working together, these stakeholders can ensure that the TVE sector is providing high-quality and relevant education to students, promoting sustainable development, and meeting the demands of the changing labor market.

### **Recommendations**

Based on the analysis and review of related literature on Technical and Vocational Education (TVE) in the Philippines for sustainable development, the following recommendations are made:

1. **Integration of green skills and environmental education:** The integration of green skills and environmental education into the TVE curriculum is crucial for promoting sustainable development in the Philippines. This can be achieved through the development of training programs and curricula that focus on environmental sustainability and the use of renewable resources.
2. **Partnership with industry:** The TVE sector should forge partnerships with industry to promote relevance and quality education. These partnerships can provide students with practical training opportunities, as well as help to align the skills taught in TVE with the demands of the labor market.
3. **Emphasis on lifelong learning:** The TVE sector should emphasize lifelong learning to ensure that students are equipped with the skills necessary to succeed in an ever-changing labor market. This

can be achieved through the development of continuing education and professional development programs.

4. Investment in infrastructure and technology: The government and the private sector should invest in the infrastructure and technology necessary to support the TVE sector. This includes investments in facilities, equipment, and technology that can enhance the quality of education provided.
5. Focus on quality and relevance: The TVE sector should focus on quality and relevance to ensure that students are equipped with the skills necessary to succeed in an ever-changing labor market. This can be achieved through the development of programs that promote excellence in teaching, as well as through partnerships with industry to ensure that the skills taught are aligned with the demands of the labor market.
6. Addressing teacher challenges: The common challenges faced by TVE teachers, such as insufficient training and low morale, must be addressed to ensure that students receive high-quality education. This can be achieved through the provision of training programs, as well as through the development of incentives that encourage excellence in teaching.
7. Collaboration between government, educators, and the private sector: The development of the TVE sector in the Philippines requires the collaboration between the government, educators, and the private sector. The government should provide financial and institutional support, educators should provide high-quality education, and the private sector should foster partnerships with industry to promote relevance and quality education.

## Conclusion

In conclusion, the research on Technical and Vocational Education (TVE) in the Philippines for sustainable development highlights the importance of this sector in promoting economic growth and meeting the changing demands of the labor market. The review of related literature showed that the integration of green skills and environmental education, partnerships with industry, emphasis on lifelong learning, investment in infrastructure and technology, and the promotion of quality and relevance are essential best practices that can be adopted in the Philippines to enhance the development of the TVE sector. The common challenges faced by TVE teachers, including insufficient training, limited resources, and low teacher morale, can negatively impact the quality of education provided. Addressing these challenges will require the collective efforts of the government, educators, and the private sector. The roles of the government in providing financial and institutional support, the role of educators in providing high-quality education, and the role of the private sector in fostering partnerships with industry, are all crucial in promoting the development of the TVE sector in the Philippines. In conclusion, a focus on developing and strengthening the TVE sector in the Philippines is essential for promoting sustainable development and meeting the demands of the changing labor market.

## References

1. Ajibade, S. S. M., Dayupay, J., Ngo-Hoang, D. L., Oyebode, O. J., & Sasan, J. M. (2022). Utilization of Ensemble Techniques for Prediction of the Academic Performance of Students. *Journal of Optoelectronics Laser*, 41(6), 48-54.
2. Brand, B., Valent, A., & Browning, A. (2013). How Career and Technical Education Can Help Students Be College and Career Ready: A Primer. *College and Career Readiness and Success Center*.
3. Calder, W., & Clugston, R. M. (2003). International efforts to promote higher education for sustainable development. *Planning for higher education*, 31(3), 30-44.
4. Chinien, C., & Singh, M. (2009). Overview: Adult Education for the Sustainability of Human Kind. *International Handbook of Education for the Changing World of Work: Bridging Academic and Vocational Learning*, 2521-2535.

5. Devaki, N. (2021). GREEN SKILLS FOR GREEN TRANSFORMATION AND SUSTAINABLE FUTURE. *THE OPPORTUNITIES OF UNCERTAINTIES: FLEXIBILITY AND ADAPTATION NEEDED IN CURRENT CLIMATE Volume I (Social Science and ICT)*, 114.
6. Ernest, S. K. A. K., & Ansah, S. K. (2013). Technical and vocational education and training in Ghana: A tool for skill acquisition and industrial development. *J Educ Pract*, 4, 16.
7. Indjikian, R., & Siegel, D. S. (2005). The impact of investment in IT on economic performance: Implications for developing countries. *World Development*, 33(5), 681-700.
8. International Labour Organization (ILO). (2018). Partnerships between industry and technical and vocational education and training (TVET) providers. Retrieved from [https://www.ilo.org/global/topics/skills-and-employability/publications/WCMS\\_619676/lang-en/index.htm](https://www.ilo.org/global/topics/skills-and-employability/publications/WCMS_619676/lang-en/index.htm)
9. Maca, M. (2017). American colonial education policy and Filipino labour migration to the US (1900–1935). *Asia Pacific Journal of Education*, 37(3), 310-328.
10. Marope, P. T. M., Chakroun, B., & Holmes, K. P. (2015). *Unleashing the potential: Transforming technical and vocational education and training*. UNESCO Publishing.
11. Naelgas, D. N., & Maloniso, M. O. (2022). Competency And Needs of Technical Vocational Teachers in The Division of Aklan.
12. Kamis, A., Rus, R. C., Rahim, M. B., Yunus, F. A. N., Zakaria, N., & Affandi, H. M. (2017). Exploring green skills: A study on the implementation of green skills among secondary school students. *International Journal of Academic Research in Business and Social Sciences*, 7(12), 327-345.
13. Kasperson, R. E., & Kasperson, J. X. (2012). Climate change, vulnerability and social justice. In *Social Contours of Risk* (pp. 316-336). Routledge.
14. Kilag, O. K. T., Ignacio, R., Lumando, E. B., Alvez, G. U., Abendan, C. F. K., Quiñanola, N. M. P., & Sasan, J. M. (2022). ICT Integration in Primary School Classrooms in the time of Pandemic in the Light of Jean Piaget's Cognitive Development Theory. *International Journal of Emerging Issues in Early Childhood Education*, 4(2), 42-54.
15. Okoye, R., & Arimonu, M. O. (2016). Technical and Vocational Education in Nigeria: Issues, Challenges and a Way Forward. *Journal of Education and Practice*, 7(3), 113-118.
16. Organisation for Economic Cooperation and Development (OECD). (2018). Technical and vocational education and training (TVET) in the 21st century: challenges and opportunities. Retrieved from <https://www.oecd.org/education/cei/Technical-Vocational-Education-and-Training-TVET-in-the-21st-Century-Challenges-and-Opportunities.pdf>
17. Panth, B. (2013). Skills training and workforce development with reference to underemployment and migration. *Skills development for inclusive and sustainable growth in developing Asia-Pacific*, 195-212.
18. Paryono, P. (2015). Approaches to preparing TVET teachers and instructors in ASEAN member countries. *TVET@ Asia*, 5, 1-27.
19. Radzi, A. (2009). 100% renewable champions: international case studies. In *100 Per Cent Renewable* (pp. 119-192). Routledge.
20. Sasan, J. M., & Baritua, J. C. (2022). Distance learning as a learning modality for education during the COVID-19 pandemic. *Science and Education*, 3(8), 35-44.
21. Sasan, J. M., Barquin, A. M. E., Alestre, N. A., Librea, A., & Zamora, R. M. (2022). Karl Marx on technology and alienation. *Science and Education*, 3(9), 228-233.

22. Sasan, J. M., & Rabillas, A. R. (2022). Enhancing English proficiency for Filipinos through a multimedia approach based on constructivist learning theory: a review. *Science and Education*, 3(8), 45-58.
23. Sasan, J. M. V. (2021). The Social Contract Theories of Thomas Hobbes and John Locke: Comparative Analysis.
24. United Nations Environmental Programme (UNEP). (2016). Green skills for the future of work. Retrieved from <https://www.unenvironment.org/resources/publication/green-skills-future-work>
25. Verspoor, A. (2008). *At the crossroads: choices for secondary education in Sub-Saharan Africa*. World Bank Publications.
26. World Bank. (2019). Lifelong learning and the future of work. Retrieved