Trends and Issues in the Technical and Vocational Education in

10 Indo-Pacific Countries

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Author note

Abstract

Timely analysis of trends and issues in TVE can help TVE stakeholders cope with rather than oppose them. Educating in the direction of the trend and resolving the important issues can maximize TVE's chance of success. The purpose of this paper was to identify trends and issues in the TVE in 10 Indo-Pacific countries. To achieve this purpose, a cross-country analysis with a word cloud analysis was employed. Consequently, the following nine trends were identified: (1) Accelerated adaptation to emerging technologies and the evolution of industry; (2) Improving or diversifying TVE accessibility and increasing the enrollment rate; (3) Enhancing alignment between the TVE and higher education sectors; (4) Promoting employment-based, work-based, or competency-based learning models; (5) Strengthening TVE educators'/trainers' practical skills, industrial working experience, or qualification requirements; (6) Gearing TVE with lifelong learning; (7) Encouraging employer or industry involvement in TVE; (8) Enhancing quality assurance and autonomy in the TVE system; and (9) Providing more career counseling or career exploration. In addition, the following six issues were identified: (1) TVE does not have the same positive public image as academic education; (2) Insufficiency of qualified TVE trainers/teachers; (3) Extreme challenges to teach hands-on skills online; (4) Weak involvement of social partners; (5) Fragmentation of TVET management; and (6) The continued lack of a well-constructed qualification framework and quality assurance system.

Keywords: technical and vocational education (TVE), trends and issues, Indo-Pacific region, comparative analysis

Trends and Issues in the Technical and Vocational Education in

10 Indo-Pacific Countries

Introduction

Taiwan and more than 20 other countries/political entities in the Indo-Pacific Region are located between the Indian Ocean and the Pacific Ocean. Regardless of economic development or strategic geography, they all play a pivotal role in the global deployment. How they develop talents by means of technical and vocational education (TVE) has drawn Taiwan's attention. Aiming to achieve the following three goals, a nonprofit book entitled "Trends and Issues in International Technical and Vocational Education in the Indo-Pacific Region" (afterwards called the TVE book; Lee & Lee, 2021) was published in September 2021: (1) to strengthen the mutual understanding and connection of TVE between Taiwan and the other countries in the Indo-Pacific Region, (2) to expand more cross-country educational cooperation and flow of talent, and (3) to take advantage of the core competencies and achievements of TVE in neighboring countries as a Taiwan innovation reference for change (Peng, 2021).

Dr. Yi-Fang Lee and this author served as editors-in-chief of the TVE book. They formulated manuscript guidelines including cross-country comparison components, invited technical and vocational educators from 10 countries in the Indo-Pacific region to follow the guidelines to write up country-specific chapters, conducted a peer-review of all manuscripts and requested authors to make necessary revisions, and made a cross-country comparison which is presented as the 11th chapter. This book compiles country-specific articles about TVE profiles, the status of TVE, and trends and issues in TVE from 10 countries, namely Australia (AU), India (IN), Indonesia (ID), Japan (JP), Korea (KR), Malaysia (MY), Singapore (SG), Taiwan (TW), the United States (US), and Viet Nam (VN). Each country has a book chapter.

Timely analysis and understanding of the trends and issues in TVE can help TVE stakeholders cope with rather than oppose them. Educating in the direction of the trend and resolving the important issues can help to maximize TVE's chance of success. The purpose of this paper is to identify the trends and issues in the TVE in the 10 Indo-Pacific countries stated earlier. The term "trend" is defined as a general direction in which something is developing or changing. The term "issue" refers to an important topic or problem for debate or discussion.

Methods

To achieve the above purpose, a cross-country analysis with a word cloud analysis was employed. Aiming to realize differences and similarities with respect to the components analyzed, a cross country analysis is a comparison of some specific components of analysis across countries (IGI Global, 2021). A word cloud is a visual representation of word frequency. Aiming to identify the focus of written material, a word cloud analysis is a simple method not only to analyze the content of the text, but also to display the higher frequency words in the text in a larger font (Atenstaed, 2012).

The data analyzed in this paper were extracted from the TVE book and processed as follows:

1. 10 country-specific TVE trends and issues

   For the TVE book, every book chapter author(s) was/were requested to keep the length of each chapter between 10,000 and 12,000 words, and to state 5-10 TVE trends and issues, respectively. For this paper, each country's TVE trends and issues were extracted from the 10 country-specific chapters and combined into two files, trends and issues. The two combined files had more than 14,000 and 17,000 words, respectively. The two files were separately imported into the online word cloud generator, HTML Word Cloud, to generate two word

clouds, shown as Figures 1 and 2. When examining the word clouds, common English words were ignored. The word clouds were applied to confirm and make up the data described below.

2. A cross-country comparison of TVE trends and issues

As stated earlier, there is a cross-country comparison of TVE profiles, the status of TVE, and trends and issues in TVE in the 11th chapter of the TVE book. The comparison components were prescribed in the manuscript guidelines and sent to authors when they were invited to make contributions to the TVE book. After the peer review process and necessary revisions of a manuscript were completed, the comparison components were drawn from the manuscript and listed in a compa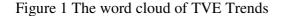rative table to request its author's/authors' confirmation. After that, the 10 comparative tables were combined and a cross-country comparison of TVE profiles, status of TVE, and TVE trends and issues was made by the two editors-in-chief of the TVE book and one of their graduate students, Ms. Hoang Bao Ngoc Nguyen. In this paper, the comparison of TVE trends and issues was extracted from the 11th chapter of the TVE book. The extracted data were reexamined with the two word clouds, shown in Figures 1 and 2, and necessary supplements as well as rephrasing were made.

Results

As a result of a combination of cross-country analysis and word cloud analysis, the key findings of this paper are as follows:

Trends in TVE

It was found that the trends in TVE are very country-specific and to a certain extent reflect where the resources have been mostly allocated in recent years. Linked to Figure 1, nine major trends are as follows:

Figure 1 The word cloud of TVE Trends

1. Accelerated adaptation to emerging technologies and the evolution of industry

   Technologies can serve as the knowledge base and learning tools in TVE. Adapting to

   emerging technologies such as digital technologies and the evolution of industry such as

   Industry 4.0 have been included in policies and programs (AU and JP). In addition,

   increasing technology applications, accelerating digital transformation, or adopting online

   learning approaches during the COVID-19 pandemic were reported (AU, IN, SG, and VN).

2. Improving or diversifying TVE accessibility and increasing the enrollment rate

   TVE is an intermediary mechanism between students/trainees and employers. The trend of

   improving or diversifying TVE accessibility and increasing the enrollment rate was mainly

   reported by countries such as ID, IN, MY, SG, and VN.

3. Enhancing alignment between the TVE and higher education sectors

Enhancing vertical alignment between the TVE and higher education sectors was reported by AU, ID, JP, and MY.

4. Promoting employment-based, work-based, or competency-based learning models

Employment-based, work-based, or competency-based learning models and apprenticeship have been promoted in AU, IN, JP, TW, and US.

5. Strengthening TVE educators'/trainers' practical skills, industrial working experience, or qualification requirements

This trend was reported by countries such as MY, TW, and VN.

6. Gearing TVE with lifelong learning

In order to provide workers with different and up-to-date skillsets to adapt to the rapid changes in technologies and industries, TVE has been geared with lifelong learning (KR and SG).

7. Encouraging employer or industry involvement in TVE

The involvement includes providing financial support, curriculum advice, internships, and practical empowerment of TVE school teachers (TW and US).

8. Enhancing quality assurance and autonomy in the TVE system

This trend was reported by countries such as IN, JP, and VN.

9. Providing more career counseling or career exploration

In order to support students in achieving their education and career goals, more career counseling or career exploration have been provided (TW and US).

Issues in TVE

It was found that the issues in TVE are very country-specific, and every country is confronted with many TVE issues that should be resolved. Here are some examples. In AU the

complexity of the TVE system makes it difficult for students to navigate and to make informed

choices about where and what to study. KR reported that TVE policy changes usually occur

when the president or superintendent is replaced. TW reported insufficient TVE regulations and

the lack of a rolling adjustment mechanism in the regulation system leading to TVE

development.

Linked to Figure 2, six major issues observed in two or more countries among the 10 are

as follows:

Figure 2 The word cloud of TVE Issues

1. TVE does not have the same positive public image as academic education

In some countries (AU, IN, TW, SG, US, and VN), TVE is considered as the second choice

for students and their parents. This deficit of TVE reputation is helping to widen the skills gap in many sectors.

2. Insufficiency of qualified TVE trainers/teachers

   The shortage of qualified trainers/teachers affects the quality of TVE in many countries (e.g., AU, ID, IN, KR, SG, TW, and US). This shortage results from a reduction in the number of TVE teacher education programs (US), aging of teachers, high teacher turnover rates, limited teacher professional development opportunities, and so on.

3. Extreme challenges to teach hands-on skills online

   Due to the COVID-19 pandemic, TVE teachers have had to shift to online teaching and face extreme challenges in teaching hands-on skills and preparing skill-based materials (JP, MY, SG, and US) although some innovative strategies, such as area collaboration systems, have emerged.

4. Weak involvement of social partners

   TVE is very job-training oriented and strongly needs the involvement of its social partners such as employers and industry bodies to ensure its relevance and effectiveness. However, there is an ongoing challenge with TVE remaining relevant to both industry and students (e.g., AU, ID, IN, JP, KR, MY, TW, and VN). For example, most companies lack the driving force to work on industry-academia collaboration with schools (JP and TW). For another instance, the passive participation of industries and related ministries was found in Korea. Furthermore, in Malaysia, the profit-oriented companies and industries are reluctant to join in students'/trainees' skill training so that TVE solely depends on government funding.

5. Fragmentation of TVET management

   It is often found that there are multiple ministries or departments administering TVE

management (ID, IN, MY, and VN). For example, the skill development structure in IN is spread across more than 20 ministries and departments, but there is no strong monitoring mechanism to ensure convergence. Indonesia reported that there are several ministries taking charge of TVE but policy and program synchronization would take time to take place.

6. The continued lack of a well-constructed qualification framework and quality assurance system

This issue is mainly reported by countries such as JP, IN and VN. For example, in VN, there is a lack of publicly available and reliable data on TVE to systematically monitor the performance of the TVE system. Likewise, IN reported that the assessment and certification systems are not harmonized and standardized, which makes the systems less acceptable to employers. In addition, the unequal access to TVE is a problem reported by MY and US.

Conclusion

To sum up, TVE stakeholders can not only follow current trends identified in this paper but also create new trends to make a difference. Furthermore, resolving issues means making progress. To effectively resolve prevalent issues and enhance the quality and effectiveness of the TVE system, the TVE stakeholders in the Indo-Pacific Region can work together to gain the synergy of collaboration.

It is also suggested that more details regarding the concerns mentioned in this paper can be learned by reading the TVE book. In addition, we have to keep identifying TVE trends and issues.

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