

Original Article

# Provider Availability, Learner Participation, and Certification Outcomes in Philippine Technical and Vocational Education and Training (TVET): A Regional Analysis, 2023–2025

Jona Anne Elaine P. Maningas<sup>1</sup> , Nickelyn Ogoc<sup>2</sup> , Cherry Hil Resabal<sup>3</sup> , Ray Butch Mahinay<sup>4</sup> 

## Author Information:

<sup>1</sup>College of Teacher Education, Laguna State Polytechnic University, Los Baños, Laguna, Philippines

<sup>2</sup>Mat-I National High School, Department of Education – Schools Division of Misamis Oriental, Philippines

<sup>3</sup>Bohol Island State University, Tagbilaran, Bohol, Philippines

<sup>4</sup>Research and Extension Office, City College of Cagayan de Oro, Philippines

## Corresponding Author:

Jona Anne Elaine P. Maningas  
[jona.pinpin@lspu.edu.ph](mailto:jona.pinpin@lspu.edu.ph)

## Article History:

Date received: July 28, 2026

Date revised: September 1, 2026

Date accepted: September 11, 2026

## Recommended citation:

Maningas, J.A.E., Ogoc, N., Resabal, C.H., & Mahinay, R.B. (2026). Provider availability, learner participation, and certification outcomes in Philippine technical and vocational education and training (TVET): A regional analysis, 2023–2025. *Journal of Interdisciplinary Perspectives*, 4(10), 250–263. <https://doi.org/10.69569/jip.2026.431x>

**Abstract.** Technical and Vocational Education and Training (TVET) is central to building a globally competitive workforce. However, regional disparities in provider availability and learner outcomes continue to challenge equitable access and evidence-based policy in the Philippines. This study examined the regional distribution of TVET providers, learner participation, and certification outcomes across the Philippines' 17 administrative regions using 2023–2025 administrative data from the Technical Education and Skills Development Authority (TESDA), the national government agency that regulates and promotes technical-vocational education. The study used a quantitative descriptive design: three-year regional averages were computed, and derived indicators—the graduate-to-enrollment ratio, learner participation intensity, and certification rate—were calculated to evaluate institutional utilization and learner outcomes. Min–max normalization standardized these indicators (0–100) into a composite regional performance index for comparison. Results showed that TVET providers, predominantly private institutions, remain concentrated in economically developed regions—CALABARZON, Central Luzon, and the National Capital Region—while institutional availability did not consistently predict stronger learner participation or certification outcomes; several less provider-dense regions recorded comparable or higher engagement and certification rates. These findings indicate that improving regional efficiency in learner engagement and certification is as critical as expanding institutional capacity for advancing the Philippine TVET system. The standardized regional indices offer TESDA, legislators, and educational planners an evidence base for guiding equitable resource distribution, targeted intervention in underserved regions, and workforce development planning aligned with national education and economic goals.

**Keywords:** *Certification outcomes; Learner participation; Regional disparities; Technical and vocational education and training (TVET).*

Technical and Vocational Education and Training (TVET) is a cornerstone of human capital development, equipping individuals with the technical skills, employability attributes, and lifelong learning capacity needed in a rapidly changing global economy. Governments worldwide have expanded their TVET systems in response, viewing them as central to workforce readiness, productivity, and sustainable development (International Labour Organization, 2022; UNESCO, 2022). This priority is formalized in the United Nations Sustainable Development Goal (SDG) 4, whose Target 4.3 calls for equitable access to affordable technical and vocational education and Target 4.4 calls for substantially increasing the number of youth and adults with relevant technical and vocational skills for employment and decent work (United Nations, 2015; UNESCO, 2022). Meeting these targets requires not only expanding educational opportunities but ensuring they are equitably distributed across geographic areas.

In the Philippines, the Technical Education and Skills Development Authority (TESDA), created by Republic Act No. 7796, serves as the principal government body overseeing and advancing competency-oriented technical and vocational education. TESDA is pivotal in cultivating a globally competitive Filipino workforce by registering Technical Vocational Institutions (TVIs), developing national competency standards, and executing competency assessments and certifications. Alongside this mandate, the Philippine Development Plan (PDP) 2023–2028 designates advancing technical skills as a key priority to improve labor productivity, foster inclusive economic growth, and bolster national competitiveness (National Economic and Development Authority [NEDA], 2023).

Recent national educational reforms have highlighted ongoing challenges in the Philippine TVET sector. The Second Congressional Commission on Education (EDCOM II, 2025) indicated that the nation's skills development framework persists in facing disjointed governance, regional inequalities in access to quality training, and discrepancies between training initiatives and labor market demands. To address these issues, the Commission advised strengthening evidence-driven planning, refining regional data infrastructure, expanding inter-agency collaboration, and advocating for a fair distribution of educational resources. These suggestions highlight the importance of empirical research that produces regional data to support informed educational policy formulation and workforce development.

The National Teacher Education Research Agenda (NTERA) also underscores the need for evidence-based educational research by promoting studies that improve educational quality, curricular adaptability, workforce development, business partnerships, and policy innovation. As technical and vocational education continues to drive national development, research on institutional accessibility, learner achievement, and educational effectiveness offers critical insights to strengthen educational strategies and improve the adaptability of the Philippine TVET framework.

A key indicator of a successful TVET system is the presence of recognized public and private Technical Vocational Institutions that give students access to competency-oriented education and training. Areas with enhanced institutional capabilities are typically anticipated to provide broader educational prospects and more robust workforce development. Nonetheless, the mere presence of providers may not fully reflect educational effectiveness. Learner engagement, as shown by enrollment, graduation rates, competency evaluations, and national certifications, further demonstrates how effectively institutional resources support successful learner outcomes. Analyzing these metrics in conjunction provides a more thorough evaluation of regional TVET efficacy.

Prior research on Philippine technical and vocational education has predominantly examined competency-based training design, curriculum implementation, graduate employability, and industry partnerships. Orbeta (2022) traced the historical development and governance structure of the Philippine TVET system, while Edralin and Pastrana (2023) reviewed its institutional achievements and future directions. Using national labor force and graduate tracer data, Vandenberg and Laranjo (2021) and the Asian Development Bank (2021) evaluated the labor-market returns associated with TVET participation, and Choi (2021) documented persistent urban-rural disparities in the wage effects of vocational training in the country. More recently, Abao et al. (2025) examined regional disparities in TVET attrition from enrollment to certification, and Flores et al. (2025) documented gender-based gaps in regional certification outcomes, both using TESDA administrative data.

Despite this body of work, no study has jointly examined regional TVET provider availability, learner participation, and certification outcomes within a single standardized framework that permits direct cross-regional comparison – the gap this study addresses. Despite these contributions, few studies have jointly

examined the relationship among regional TVET provider availability, learner participation, and certification performance within a single, standardized analytical framework that allows direct cross-regional comparison. Current TESDA reports offer descriptive statistics, and the studies cited above illuminate specific stages of the TVET pipeline in isolation; however, comparative evaluations that integrate institutional capacity and learner outcomes across all seventeen Philippine regions within one coherent framework remain scarce. This fragmentation limits the capacity of decision-makers to identify which regions require expanded institutional capacity, improved learner engagement, or targeted certification support, and constrains a theory-driven understanding of how the human capital development function of TVET (Becker's (1964) foundational human capital theory) operates unevenly across regions marked by differing levels of economic development.

Closing this gap matters both empirically and theoretically. Empirically, understanding regional variations in institutional capability and educational outcomes allows policymakers to identify neglected regions, improve resource allocation, and strengthen workforce development programs aligned with the recommendations of EDCOM II (2025) and the Philippine Development Plan 2023–2028 (National Economic and Development Authority [NEDA], 2023). Theoretically, situating TVET performance within human capital theory (Becker's (1964) foundational human capital theory) and the regional equity perspective advanced by UNESCO (2022) and the OECD (2018) allows this study to move beyond simple description toward an explanation of how institutional availability, learner participation, and certification outcomes interact to produce, or fail to produce, equitable regional human capital formation. By constructing standardized, comparable regional indices rather than relying on raw administrative counts, this study extends prior single-indicator analyses of the Philippine TVET pipeline (e.g., Abao et al., 2025; Flores et al., 2025) and offers an integrated, theory-informed framework linking institutional capacity to learner outcomes across all Philippine regions. Such evidence is essential to support the ongoing enhancement of the Philippine TVET system and to ensure that technical education meaningfully supports national development goals.

This research analyzes the geographical allocation of Technical and Vocational Education and Training providers, student engagement, and certification outcomes in the Philippines, utilizing official TESDA administrative data from 2023 to 2025. The research identifies the allocation of public and private TVET institutions across the nation's administrative divisions, examines trends in student enrollment, graduation, evaluation, and certification, and develops standardized regional performance metrics for comparative assessment. The results are expected to provide evidence to support educational strategy, regional labor force development, and data-driven policy formulation for TESDA, academic institutions, and other stakeholders.

The research is confined to secondary administrative data publicly released by TESDA, encompassing the seventeen administrative areas of the Philippines from 2023 to 2025. It emphasizes provider allocation, student engagement, and certification efficacy, while overlooking institutional methodologies, graduate employment rates, and socioeconomic factors that affect regional outcomes. This study provides empirical evidence that may help policymakers, educational leaders, and researchers foster a more equitable, responsive, and quality-assured Philippine TVET system, aligning with SDG 4, the Philippine Development Plan 2023–2028, the recommendations of EDCOM II, and the National Teacher Education Research Agenda.

## Methodology

### Research Design

This research utilized a quantitative descriptive methodology through the analysis of secondary data. This quantitative methodology was suitable because the research relied solely on numerical administrative data to illustrate regional trends in TVET provider accessibility, learner engagement, and certification outcomes. The research aimed to describe current circumstances and evaluate area performance through analysis of official government data, rather than determine causal links or assess actions. The descriptive research framework aligned with the study's aims of identifying the distribution of public and private TVET institutions, detailing learner enrollment, graduation, assessment, and certification across Philippine regions, and formulating standardized regional performance metrics. Because the research aimed to describe regional disparities without altering factors, a descriptive design was the most suitable methodological strategy (Creswell & Creswell, 2023). The analytical unit consisted of the 17 administrative regions of the Philippines. Regional administrative documentation from TESDA spanning 2023 to 2025 served as the primary source of analysis. The research used three-year regional averages to reduce the impact of yearly variation and provide a more consistent picture of institutional capability

and student performance.

### Participants

This study did not involve human participants. All data were drawn from publicly available secondary administrative records published by TESDA; no individuals were recruited, surveyed, or interviewed.

### Research Instruments

The study used no primary data-collection instruments, as it relied exclusively on secondary administrative data from official TESDA publications.

### Data Gathering Procedure

The research employed secondary administrative data sourced from publicly accessible reports released by the Technical Education and Skills Development Authority (TESDA). Data were gathered from the official TESDA Annual TVET Statistics for 2023, 2024, and 2025 (Technical Education and Skills Development Authority, 2023, 2024, 2025), along with additional authoritative sources covering 2023 to 2025. The data-gathering procedure began with identifying official TESDA publications that include regional details on registered public and private TVET providers, learner enrollment, graduation, competency evaluation, and certification. As the reports are government papers available to the public, official authorization for data access was unnecessary. The analysis incorporated only datasets that met the inclusion criteria. The data must (1) derive from official TESDA publications, (2) encompass all 17 administrative regions of the Philippines, (3) span the years 2023, 2024, and 2025, and (4) provide comprehensive information for all variables in the study. We omitted reports lacking comprehensive regional data or missing variables. After data acquisition, we entered the area statistics into digital spreadsheets and organized them by study variable. The variables extracted comprised the quantity of public and private TVET institutions, student enrollment, graduates, evaluated learners, and certified individuals. The retrieved data were later validated by comparing the encoded values with the original TESDA reports to ensure accuracy and completeness. After validation, three-year regional averages were calculated for each variable to provide a consistent depiction of regional performance across the study period. Derived metrics, such as the graduate-to-enrollment ratio, learner engagement intensity, and certification rate, were then computed to enable regional comparative analysis.

### Data Analysis

Descriptive statistical methods were utilized to examine the gathered data. Frequencies, percentages, means, and ratios were calculated to characterize the geographical distribution of TVET providers and educational outcomes across the Philippines. To address the first research aim, descriptive statistics were used to summarize the mean number of public and private TVET institutions in each administrative region. Percentage distributions were also calculated to determine each region's contribution to the national total. To assess student engagement, we computed three-year regional averages of student enrollment and graduation rates. The ratio of graduates to enrollment was calculated by dividing the mean number of graduates by the mean enrollment, then multiplying by 100. Learner engagement intensity was similarly assessed by dividing average regional enrollment by the average number of TVET providers, indicating the mean number of learners each provider served. Certification performance was assessed by calculating the certification rate, derived by dividing the mean number of certified learners by the mean number of assessed learners and multiplying by 100. This metric represented the percentage of evaluated students who attained national certification.

Because the indicators used different units and scales, min-max normalization was used to create standardized regional indices ranging from 0 to 100. The standardized index was calculated using Equation (1):

$$\text{Standardized Index} = [ (X - \min(X)) / ( \max(X) - \min(X) ) ] \times 100 \quad (\text{Eq. 1})$$

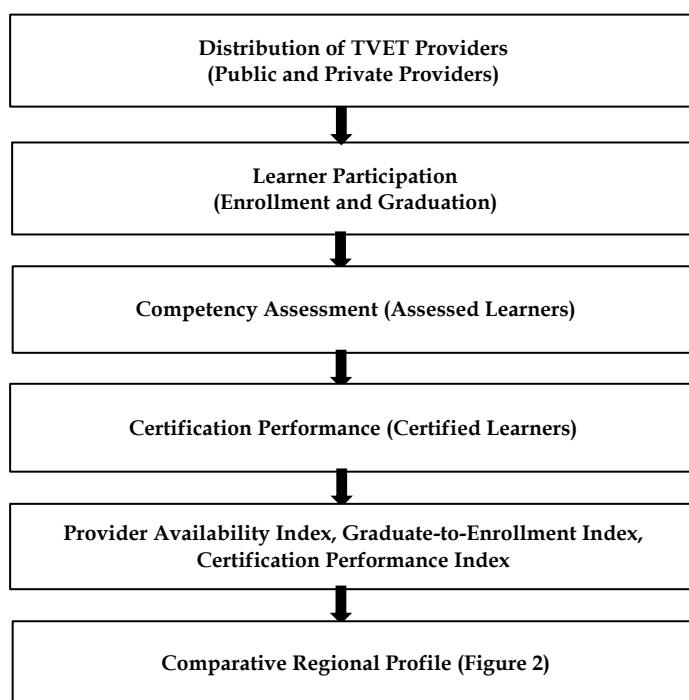
where:

$X$  represents the regional value of the indicator,  
 $\min(X)$  is the smallest observed regional value, and  
 $\max(X)$  is the largest observed regional value.

Min-max normalization was used as it maintains the relative ranking of data while transforming variables with

varying measurement scales into a universally interpretable metric following the standard normalization approach described by Han et al. (2012) and the OECD's (2008) foundational composite-indicator handbook. In contrast to z-score standardization, which yields values centered around the mean and may encompass negative scores, min-max normalization creates indices constrained between 0 and 100, hence facilitating more natural regional comparisons for policy research. The standardized indices were utilized to create comparative regional profiles that depict provider availability, graduate-to-enrollment success, and certification performance. These profiles helped identify regional strengths and gaps in institutional capability and learner outcomes across the Philippine TVET system.

### Conceptual Framework for Regional Performance Analysis



**Figure 1.** *Conceptual Framework for Regional Performance Analysis*

This study employs a regional performance framework that conceptualizes the Philippine Technical and Vocational Education and Training (TVET) system as a series of interrelated components connecting institutional capacity, learner engagement, and competency outcomes (see Figure 1). The paradigm posits that the distribution of TVET providers affects access to technical and vocational education, thereby influencing learner engagement, enrollment, and graduation rates. Students who successfully complete TVET programs undergo competency assessment, in which their knowledge and skills are measured against the national competency standards set by the Technical Education and Skills Development Authority (TESDA). Successful candidates receive national certification, signifying the ultimate quantifiable result of the competency-based education and training system. Within this framework, the distribution of TVET providers is the primary indicator of educational access and institutional capacity. Learner participation, indicated by enrollment and graduation rates, reflects the use of available training opportunities and the effectiveness of program delivery. Assessment and certification signify competency outcomes that illustrate learners' attainment of nationally accepted occupational standards. Together, these elements provide a comprehensive picture of regional TVET performance.

The min-max normalization technique converted selected indicators into standardized indices, enabling comparison across dimensions. Provider availability, graduate-to-enrollment performance, and certification performance were converted to values that ranged from 0 to 100. This enabled the comparison of variables measured in various units within a shared analytical framework. The comparative regional profile depicted in Figure 2 was then generated using the standardized indices. This process allowed identification of regional strengths, disparities, and potential areas requiring policy intervention.

The framework does not presuppose causal relationships among the variables. Rather, it offers an analytical framework for characterizing regional disparities in institutional capacity, learner participation, and certification outcomes using official TESDA administrative data. This integrated approach enables the regional comparison of the Philippine TVET system and supports evidence-based assessment, which may inform future policy development, resource allocation, and strategic planning.

### Ethical Considerations

The research employed just publicly accessible secondary administrative data sourced from official TESDA reports. Because the study did not involve human subjects, conduct interviews, administer surveys, or use personally identifiable information, informed consent and participant recruitment were unnecessary. The investigators ensured ethical use of secondary data by sourcing material solely from official government documents and appropriately crediting all data sources in compliance with American Psychological Association (APA 7th edition) standards. The administrative data were used only for scholarly and research objectives and analyzed within their designated context to prevent distortion. The researchers upheld data precision and reliability by cross-referencing the retrieved information with the original TESDA reports before analysis. The investigators presented all results in an unbiased and clear manner, refraining from modifying or distorting the official data. Moreover, because the examination used consolidated regional data, no specific institution or student could be identified, preserving confidentiality and institutional privacy.

## Results and Discussion

### Average Number of TVET Providers by Region

Table 1 presents the three-year average number of registered public and private TVET providers by region. As shown in the table, private institutions account for the overwhelming majority of providers nationwide, and Region IV-A (CALABARZON), Region III (Central Luzon), and the National Capital Region (NCR) recorded the largest provider counts, while CAR and CARAGA recorded the smallest. Roughly one-third of all registered providers were concentrated in these three regions alone.

**Table 1.** *Average Number of TVET Providers by Region, 2023–2025*

| Region       | Avg. Private Providers | Avg. Public Providers | Avg. Total Providers | Share of Total Providers (%) |
|--------------|------------------------|-----------------------|----------------------|------------------------------|
| NCR          | 491                    | 26                    | 517                  | 11.00                        |
| CAR          | 123                    | 8                     | 131                  | 3.00                         |
| I            | 249                    | 24                    | 273                  | 6.00                         |
| II           | 153                    | 31                    | 184                  | 4.00                         |
| III          | 500                    | 39                    | 539                  | 11.00                        |
| IV-A         | 538                    | 23                    | 561                  | 12.00                        |
| IV-B         | 170                    | 20                    | 190                  | 4.00                         |
| V            | 228                    | 38                    | 266                  | 6.00                         |
| VI           | 211                    | 29                    | 239                  | 5.00                         |
| VII          | 282                    | 30                    | 312                  | 7.00                         |
| VIII         | 214                    | 22                    | 236                  | 5.00                         |
| IX           | 156                    | 22                    | 178                  | 4.00                         |
| X            | 275                    | 48                    | 322                  | 7.00                         |
| XI           | 215                    | 18                    | 233                  | 5.00                         |
| XII          | 187                    | 17                    | 204                  | 4.00                         |
| CARAGA       | 115                    | 25                    | 140                  | 3.00                         |
| BARMM        | 162                    | 17                    | 179                  | 4.00                         |
| <b>Total</b> | <b>4270</b>            | <b>437</b>            | <b>4707</b>          | <b>100.00</b>                |

*Note.* Values represent the three-year average of the annual numbers of public, private, and total TVET providers from 2023 to 2025. The percentage share was computed as each region's average number of providers relative to the three-year national average. Overseas is retained as a TESDA reporting category but is not an administrative region of the Philippines. Data were derived from TESDA Administrative Statistics.

The observed concentration of TVET providers in CALABARZON, Central Luzon, and the National Capital Region suggests that institutional availability is closely associated with regions characterized by greater economic activity, industrial development, and population density. These regions host major manufacturing, information technology, hospitality, logistics, and service industries that generate sustained demand for technically skilled workers. Consequently, both public and private investments in technical education are more likely to be directed toward areas where labor market demand is strongest. Similar patterns have been reported by the Organisation for Economic Co-operation and Development (OECD, 2018), which noted that TVET expansion frequently follows

regional economic development because training institutions respond to employer demand and employment opportunities. Likewise, the Philippine Development Plan 2023–2028 identifies industrial growth centers as priority areas for human capital investment to enhance national productivity and competitiveness (National Economic and Development Authority [NEDA], 2023). This pattern of concentration is consistent with the historical trajectory described by Edralin and Pastrana (2023), who observed that Philippine TVET expansion has long tracked industrial and commercial growth centers rather than being distributed according to population or need. The Asian Development Bank (2021) further argued that modernizing TVET delivery in the context of Industry 4.0 requires deliberate investment in currently underserved regions so that technological upgrading does not further widen existing institutional gaps.

Another notable finding is the overwhelming dominance of private institutions in the Philippine TVET system. Across all regions, private providers consistently outnumbered public institutions, accounting for more than nine out of every ten registered TVET providers nationwide. This pattern reflects the private sector's significant contribution to skills development and workforce preparation in the country. While private providers increase institutional capacity and broaden access to competency-based training, the relatively small number of public institutions highlights the government's ongoing responsibility to ensure equitable educational access, particularly in geographically isolated and disadvantaged areas where private investment may be less viable. UNESCO (2022) emphasized that expanding access to quality technical education requires a balanced partnership between public and private sectors to promote inclusive and equitable lifelong learning opportunities, consistent with Sustainable Development Goal 4. Orbeta (2022) similarly traced this private-sector predominance to the historical development of the Philippine TVET governance structure, in which private providers were permitted to expand rapidly under TESDA registration while public investment in technical institutions grew comparatively slowly.

Conversely, the relatively low number of TVET providers in regions such as CAR, CARAGA, BARMM, and several other less urbanized regions may indicate disparities in institutional accessibility that could influence opportunities for skills development. However, these findings should not be interpreted as evidence of lower educational quality or weaker institutional performance. Instead, they describe differences in institutional availability that may reflect broader demographic, geographic, and socioeconomic conditions. Factors such as population size, geographical isolation, transportation infrastructure, regional investment patterns, and local labor market demand may also contribute to variations in provider distribution. Because this study used a descriptive research design and secondary administrative data, it did not directly examine these potential influences and should be interpreted cautiously.

The regional disparities identified in this study support recent national policy discussions emphasizing the need for evidence-based planning in technical and vocational education. The Second Congressional Commission on Education (EDCOM II, 2025) reported that unequal access to quality technical education remains a significant challenge and recommended strengthening regional planning and data-driven resource allocation to improve educational equity. These findings provide empirical support for these recommendations by showing that institutional capacity remains unevenly distributed across Philippine regions. This evidence may help TESDA and other education stakeholders identify underserved areas that could benefit from additional institutional investment, expanded public-private partnerships, or targeted workforce development initiatives.

From a policy perspective, the findings suggest that expanding the number of TVET providers alone may not be sufficient to achieve equitable workforce development. Instead, institutional expansion should align strategically with regional socioeconomic conditions, labor market requirements, and population needs to ensure educational resources are used effectively. Strengthening public TVET institutions in underserved regions while encouraging responsible private sector participation may improve access to competency-based education without compromising quality. These strategies align with the objectives of the Philippine Development Plan 2023–2028, the recommendations of EDCOM II, and the aspirations of Sustainable Development Goal 4, which collectively emphasize equitable access to quality technical and vocational education as a foundation for inclusive economic development. In short, TVET provider capacity is substantial nationally but unevenly distributed, concentrated in a small number of economically developed regions. The next section examines whether this concentration translates into correspondingly higher learner participation.

## Average Learner Enrollment, Graduation, and Participation Indicators by Region

This section addresses the study's second objective: examining learner enrollment, graduation, and participation intensity across regions. Table 2 presents the three-year regional averages. Consistent with their higher provider counts (Table 1), NCR, CALABARZON, and Central Luzon again recorded the highest enrollment and graduation figures. However, provider availability did not consistently predict participation: several regions with comparatively few providers recorded high learner participation intensity, while some higher-provider regions did not show correspondingly higher institutional utilization. This decoupling of provider counts from participation intensity is the section's central finding and is developed further below.

**Table 2.** *Average Learner Enrollment, Graduation, and Participation Indicators by Region, 2023–2025*

| Region         | Avg. Enrollment  | Avg. Graduates   | Graduate-to-Enrollment Ratio (%) | Learner Participation Intensity |
|----------------|------------------|------------------|----------------------------------|---------------------------------|
| NCR            | 171,405          | 147,382          | 86.00                            | 332                             |
| CAR            | 67,784           | 62,449           | 92.00                            | 517                             |
| I              | 92,615           | 70,431           | 76.00                            | 339                             |
| II             | 76,617           | 70,772           | 92.00                            | 416                             |
| III            | 157,984          | 129,609          | 82.00                            | 293                             |
| IV-A           | 107,530          | 88,807           | 83.00                            | 192                             |
| IV-B           | 57,310           | 46,079           | 80.00                            | 302                             |
| V              | 71,946           | 65,551           | 91.00                            | 270                             |
| VI             | 52,008           | 47,423           | 91.00                            | 218                             |
| VII            | 128,836          | 115,186          | 89.00                            | 413                             |
| VIII           | 95,603           | 83,835           | 88.00                            | 405                             |
| IX             | 87,044           | 82,247           | 94.00                            | 489                             |
| X              | 83,021           | 77,595           | 93.00                            | 258                             |
| XI             | 106,962          | 100,110          | 94.00                            | 459                             |
| XII            | 121,828          | 126,958          | 104.00                           | 597                             |
| CARAGA         | 58,225           | 51,955           | 89.00                            | 416                             |
| BARMM          | 24,624           | 21,289           | 86.00                            | 138                             |
| <b>Average</b> | <b>1,561,341</b> | <b>1,387,677</b> | <b>89.00</b>                     | <b>332</b>                      |

*Note.* Enrollment and graduation figures represent three-year averages based on annual regional data from 2023 to 2025. The graduate-to-enrollment ratio was computed by dividing the average number of graduates by the average number of enrolled learners and multiplying by 100; it indicates graduates relative to enrollment and should not be interpreted as a cohort-based graduation rate. Learner participation intensity was computed by dividing the average enrollment by the average total number of TVET providers in each region, representing the average number of learners served per provider. Data were derived from TESDA Administrative Statistics.

The findings suggest that factors beyond the number of registered TVET providers influence learner participation. Regions with higher enrollment and graduation, particularly the National Capital Region, CALABARZON, and Central Luzon, are also major economic and industrial centers where stronger labor market demand and greater access to training opportunities may encourage participation in technical and vocational education. However, provider availability did not directly correlate with learner participation. Several regions with relatively few providers demonstrated high learner participation intensity, whereas regions with more providers did not consistently exhibit greater institutional utilization. These patterns suggest that institutional efficiency, scholarship opportunities, accessibility, demographic characteristics, and regional labor market conditions may also influence learner participation. Given the descriptive nature of this study, these factors should be regarded as plausible explanations rather than causal determinants.

These findings are consistent with previous studies emphasizing that both institutional and socioeconomic factors shape participation in TVET. UNESCO (2022) highlighted that equitable access to technical education depends not only on institutional availability but also on affordability, accessibility, labor market relevance, and supportive public policies. Similarly, the OECD (2018) associated participation in vocational education with regional economic opportunities and employer demand for skilled workers. In the Philippine context, the Philippine Development Plan 2023–2028 recognizes technical education as a key strategy to strengthen human capital and improve workforce competitiveness through expanded access to quality, industry-responsive training (National Economic and Development Authority [NEDA], 2023). These patterns also resonate with Choi (2021), who found that the wage returns to vocational education in the Philippines differ markedly between urban and rural learners, suggesting that regional variation in participation intensity may reflect underlying differences in the perceived economic value of TVET credentials. Vandenberg and Laranjo (2021) likewise reported that labor-market outcomes associated with vocational training vary across localities depending on the strength of local industry linkages, reinforcing the view that provider availability alone does not determine learner engagement.

The consistently high graduate-to-enrollment ratios across most regions further suggest that a substantial proportion of enrolled learners successfully completed their training programs. However, these ratios should be interpreted cautiously, as they may also reflect differences in program duration, reporting practices, learner mobility, and regional implementation that were beyond the scope of the available administrative data.

From a policy perspective, the findings underscore the importance of evaluating learner participation using multiple indicators rather than enrollment alone. While enrollment reflects demand for TVET, learner participation intensity provides additional insight into institutional utilization and regional capacity. Together, these indicators can help TESDA and other education stakeholders identify regions that need targeted investments in infrastructure, institutional expansion, scholarship programs, or faculty development. This evidence also supports the recommendations of the Second Congressional Commission on Education (EDCOM II, 2025) and aligns with Sustainable Development Goal 4, both of which advocate evidence-based planning and equitable access to quality technical and vocational education. In short, learner participation does not track provider availability one-to-one, suggesting institutional efficiency and regional demand also shape engagement. The next section examines whether this same pattern holds for certification outcomes.

### Average Assessment and Certification Performance by Region

This section addresses the study's third objective: examining competency assessment and certification outcomes across regions. Table 3 presents the three-year regional averages. As with provider availability and participation, NCR, CALABARZON, and Central Luzon recorded the highest absolute numbers of assessed and certified learners. However, when performance is measured by certification rate rather than absolute counts, regional differences narrow considerably: most regions achieved comparably high certification rates, indicating that learners who reach the assessment stage have broadly similar odds of certification regardless of region.

**Table 3. Average Assessment and Certification Performance by Region, 2023–2025**

| Region         | Avg. Assessed    | Avg. Certified   | Avg. Certification Rate (%) |
|----------------|------------------|------------------|-----------------------------|
| NCR            | 262,885          | 255,899          | 97.00                       |
| CAR            | 37,577           | 34,094           | 91.00                       |
| I              | 70,745           | 66,073           | 93.00                       |
| II             | 49,408           | 45,526           | 92.00                       |
| III            | 130,451          | 120,349          | 92.00                       |
| IV-A           | 140,879          | 132,205          | 94.00                       |
| IV-B           | 35,680           | 33,536           | 94.00                       |
| V              | 53,781           | 44,637           | 83.00                       |
| VI             | 54,773           | 48,041           | 88.00                       |
| VII            | 89,376           | 84,357           | 94.00                       |
| VIII           | 66,639           | 63,692           | 96.00                       |
| IX             | 37,918           | 34,387           | 91.00                       |
| X              | 48,756           | 44,656           | 92.00                       |
| XI             | 66,039           | 58,709           | 89.00                       |
| XII            | 61,075           | 57,381           | 94.00                       |
| CARAGA         | 25,663           | 22,195           | 86.00                       |
| BARMM          | 25,412           | 23,566           | 93.00                       |
| <b>Average</b> | <b>1,257,730</b> | <b>1,169,979</b> | <b>93.00</b>                |

*Note.* Assessment and certification figures represent three-year averages based on annual regional data from 2023 to 2025. The average certification rate was computed by dividing the average number of certified learners by the average number of assessed learners and multiplying by 100. The rate represents the proportion of assessed learners who obtained certification. Data were derived from TESDA Administrative Statistics.

The consistently high certification rates across regions suggest that the Philippine TVET competency assessment system generally supports successful certification among learners who complete the assessment process. Although the number of assessed and certified learners varied substantially across regions, certification rates remained relatively stable, indicating consistent implementation of competency-based assessment. However, certification rates should not be interpreted as direct measures of instructional quality or institutional effectiveness, as they may also be influenced by learner preparedness, program specialization, assessor competence, assessment center capacity, and regional implementation practices that were beyond the scope of this study.

An important finding is that regions with higher learner participation also recorded more assessed and certified learners; however, greater participation did not necessarily correspond to higher certification rates. This suggests that while economically developed regions process more assessment candidates, learners who reach the

competency assessment stage generally have comparable opportunities to achieve national certification regardless of region. This consistency aligns with TESDA's competency-based training framework, which emphasizes standardized assessment based on demonstrated occupational competence rather than training duration. Similarly, UNESCO-UNEVOC (2022) emphasized that competency-based certification strengthens workforce credibility through nationally recognized standards, while the International Labour Organization (2022) highlighted its role in enhancing labor market mobility and employer confidence in vocational qualifications. Nevertheless, disaggregated regional analyses indicate that this apparent consistency can mask underlying disparities; Flores *et al.* (2025) reported that gender-based certification gaps varied widely across regions, ranging from near parity in Region I to nearly 19 percentage points in Region X, where male candidates underperformed relative to female candidates. Relatedly, Abao *et al.* (2025) found that the largest leakage in the Philippine TVET pipeline occurs precisely at this assessment-to-certification stage, with several regions exhibiting attrition rates exceeding 50 percent even where certification rates among assessed learners remain high; together, these findings indicate that stable certification rates can coexist with substantial regional inequities in who reaches the assessment stage at all.

Despite the generally favorable certification performance, regional differences in the number of certified learners may reflect variations in population size, institutional capacity, industry demand, assessment center availability, scholarship participation, and regional economic conditions. Because this study relied exclusively on aggregated administrative data, it did not directly examine these contextual factors; they should be regarded as plausible explanations rather than established determinants.

From a policy perspective, the findings underscore the importance of interpreting certification performance using both absolute numbers and certification rates. While absolute counts indicate the scale of regional certification activity, certification rates provide a standardized measure of learner success following competency assessment. Considering both indicators enables TESDA and other stakeholders to distinguish regions that need expanded assessment capacity from those that need targeted interventions to improve learner access or support services. This multidimensional perspective is consistent with the Philippine Development Plan 2023–2028 and the recommendations of EDCOM II (2025), which emphasize competency-based workforce development, quality assurance, and equitable access to certification opportunities. In short, certification outcomes are the most regionally consistent of the three indicators examined, even where provider availability and participation vary widely – a pattern the standardized indices below make directly comparable.

#### **Standardized Regional Performance Indices of TVET Provider Availability, Graduate-to-Enrollment Performance, and Certification Performance**

Table 4 presents the standardized regional indices for provider availability, graduate-to-enrollment performance, and certification performance. The normalized scores provide a comprehensive overview of regional strengths and variations that the original administrative statistics alone cannot readily show. Overall, economically developed regions, particularly the National Capital Region (NCR), CALABARZON (Region IV-A), and Central Luzon (Region III), consistently obtained higher composite profiles because they combined relatively strong institutional capacity with high levels of learner participation and favorable certification outcomes. In contrast, several geographically isolated and less urbanized regions recorded lower standardized indices, reflecting comparatively limited institutional capacity and learner participation rather than deficiencies in certification performance.

The structured evaluation indicates that regional TVET performance is multifaceted. Areas with high provider availability typically showed greater learner engagement, suggesting that institutional capacity and educational demand often align in economically vibrant regions. Nevertheless, standardized metrics indicate that strong provider accessibility does not necessarily translate into optimal learner advancement or certification outcomes. Many areas with relatively fewer educational establishments showed competitive graduate-to-enrollment and certification metrics, suggesting that students can advance successfully despite limited institutional resources. These results underscore the need to assess multiple performance metrics concurrently rather than relying on a single indicator of regional effectiveness.

**Table 4.** *Standardized Regional Performance Indices of TVET Provider Availability, Graduate-to-Enrollment Performance, and Certification Performance, 2023–2025*

| Region | Standardized Provider Availability Index (0–100) | Standardized Graduate-to-Enrollment Index (0–100) | Standardized Certification Performance Index (0–100) |
|--------|--------------------------------------------------|---------------------------------------------------|------------------------------------------------------|
| NCR    | 89.80                                            | 35.70                                             | 100.00                                               |
| CAR    | 0.00                                             | 57.10                                             | 57.10                                                |
| I      | 33.00                                            | 0.00                                              | 71.40                                                |
| II     | 12.30                                            | 57.10                                             | 64.30                                                |
| III    | 94.90                                            | 21.40                                             | 64.30                                                |
| IV-A   | 100.00                                           | 25.00                                             | 78.60                                                |
| IV-B   | 13.70                                            | 14.30                                             | 78.60                                                |
| V      | 31.40                                            | 53.60                                             | 0.00                                                 |
| VI     | 25.10                                            | 53.60                                             | 35.70                                                |
| VII    | 42.10                                            | 46.40                                             | 78.60                                                |
| VIII   | 24.40                                            | 42.90                                             | 92.90                                                |
| IX     | 10.90                                            | 64.30                                             | 57.10                                                |
| X      | 44.40                                            | 60.70                                             | 64.30                                                |
| XI     | 23.70                                            | 64.30                                             | 42.90                                                |
| XII    | 17.00                                            | 100.00                                            | 78.60                                                |
| CARAGA | 2.10                                             | 46.40                                             | 21.40                                                |
| BARMM  | 11.20                                            | 35.70                                             | 71.40                                                |

*Note.* Index values were normalized on a 0–100 scale using the min-max normalization method, where X represents the regional value of the corresponding indicator. The Provider Availability Index was computed from the average number of TVET providers (Table 1), the Graduate-to-Enrollment Index from the graduate-to-enrollment ratio (Table 2), and the Certification Performance Index from the average certification rate (Table 3). Higher index values indicate relatively stronger regional performance for the corresponding indicator.

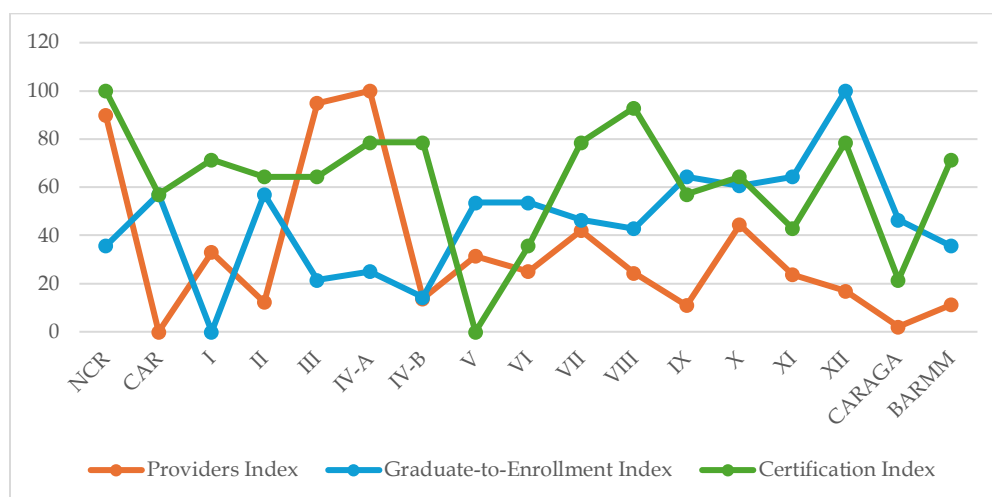
Taken together, these three sections show that the study’s objectives are only partly aligned in practice: institutional capacity (Objective 1) and learner participation (Objective 2) are moderately related, but neither reliably predicts certification outcomes (Objective 3). This is the study’s central empirical contribution and the rationale for evaluating regional TVET performance using all three indicators jointly rather than any one in isolation.

### **Comparative Regional Profile of TVET Provider Availability, Learner Participation, and Certification Performance**

To support visual analysis of these multidimensional patterns, Figure 2 depicts the comparative regional performance profile derived from the standardized indices. Unlike the separate tables that display each indicator individually, the figure enables a concurrent comparison of institutional capacity, learner engagement, and certification outcomes across all administrative regions. The visual representation illustrates groups of areas with uniformly strong performance alongside regions with mixed strengths and weaknesses across the three dimensions.

The comparative analysis indicates that regional disparities are more pronounced in provider availability and learner participation than in certification performance. Although institutional capacity and learner participation varied considerably across regions, certification outcomes remained relatively consistent, suggesting that learners who reached the competency assessment stage generally had comparable opportunities to achieve national certification. This consistency may reflect TESDA’s standardized competency assessment system. However, because the study did not examine institutional quality, assessor competence, learner characteristics, or assessment practices, these findings should not be interpreted as evidence of equivalent instructional effectiveness across regions.

The findings support international perspectives advocating multidimensional approaches to evaluating vocational education. UNESCO (2022) emphasizes assessing education systems using multiple indicators encompassing access, participation, completion, and learning outcomes, while the OECD (2018) highlights the value of composite indicators in supporting evidence-informed policymaking and regional comparisons. Consistent with these principles, the standardized regional indices developed in this study provide an integrated framework for assessing provider availability, learner participation, and certification performance. This multidimensional pattern also echoes Wongmonta (2023), who found that the labor-market returns to vocational education in Thailand differ substantially depending on which stage of the training-to-employment pipeline is examined, underscoring that no single indicator, whether provider counts, enrollment, or certification, can adequately represent regional TVET performance on its own.



*Figure 2. Comparative Regional Profile of TVET Provider Availability, Learner Participation, and Certification Performance*

From a policy perspective, the comparative regional profile offers an evidence base for strategic planning and resource allocation within the Philippine TVET sector. The standardized indices enable policymakers to identify whether regional interventions should prioritize expanding institutional capacity, increasing learner participation, or improving access to competency assessment. This multidimensional approach aligns with the Philippine Development Plan 2023–2028 and the recommendations of EDCOM II (2025), which advocate data-driven planning and equitable investment in human capital development.

The standardized indices may also serve as baseline indicators for monitoring regional TVET performance over time. Nevertheless, they should be interpreted as measures of relative regional performance rather than absolute indicators of educational quality. Furthermore, the findings have several limitations. The analysis relied exclusively on secondary TESDA administrative data; the normalization procedure provides comparisons only within the study dataset; and important contextual factors—such as regional economic conditions, institutional quality, industry demand, faculty qualifications, and funding—were beyond the scope of the available data.

Overall, the standardized regional performance indices provide a comprehensive assessment of Philippine TVET by integrating institutional capacity, learner participation, and certification performance into a unified analytical framework. The findings highlight substantial regional variation in provider availability and learner participation, while certification performance remains relatively consistent across regions, underscoring the value of multidimensional performance assessment in supporting evidence-based TVET planning and policy development.

### **Nuanced Contribution of the Study**

The specific contribution of this study lies in its integration of three previously separate strands of Philippine TVET research, provider availability, learner participation, and certification performance, into a single standardized regional index rather than examining any one dimension in isolation. Whereas Abao et al. (2025) focused on stage-specific attrition and Flores et al. (2025) examined gender-based certification gaps, and whereas Vandenberg and Laranjo (2021) and Choi (2021) analyzed labor-market and wage returns to TVET participation, the present study is, to the researchers' knowledge, the first to apply min-max normalization to construct a composite, cross-regional performance profile that jointly represents institutional capacity and learner outcomes across all seventeen Philippine administrative regions using three consecutive years of TESDA data. This analytical approach operationalizes human capital theory (Becker, 1964) and the multidimensional equity perspective advocated by UNESCO (2022) and the OECD (2018) at the sub-national level, demonstrating empirically that provider availability, learner engagement, and certification success do not move in tandem across regions and therefore require differentiated, indicator-specific policy responses.

This contribution advances theory by providing an empirically grounded, replicable method for translating human capital and regional equity frameworks into measurable sub-national indicators, extending discussions that have largely remained conceptual (UNESCO, 2022; OECD, 2018) or confined to single-outcome analyses (Abao et al., 2025; Choi, 2021; Flores et al., 2025). For practice, the standardized index offers TESDA, regional TVET planners, and academic institutions a reusable diagnostic tool for monitoring regional performance over time and for benchmarking regions against one another on a common 0–100 scale. For policy, the findings offer legislators and NEDA a more precise evidence base than provider counts alone, supporting the differentiated resource allocation recommended by EDCOM II (2025) by identifying specifically whether a given region's priority need is institutional expansion, learner engagement support, or assessment access, rather than assuming that a uniform increase in TVET providers will resolve regional disparities.

## Conclusion

This study examined the regional distribution of TVET providers, learner participation, and certification outcomes across the Philippines' 17 administrative regions using three years of TESDA administrative data (2023–2025) and introduced standardized regional indices that integrate these three dimensions into a single comparative framework. Institutional capacity, learner participation, and certification outcomes did not move in tandem: provider availability and learner participation were both concentrated in a small number of economically developed regions, while certification outcomes were comparatively uniform nationwide. This decoupling is the study's central finding and principal empirical contribution – no single indicator adequately represents regional TVET performance on its own (cf. Abao et al., 2025; Flores et al., 2025).

For TESDA and legislators, the standardized indices offer a diagnostic tool to identify whether a region's priority need is institutional expansion, participation support, or assessment access, rather than assuming uniform provider growth will resolve regional disparities. For TVET providers and regional administrators specifically, the findings suggest concrete next steps: institutions in low-participation regions may benefit from reviewing program relevance, scheduling flexibility, and outreach to prospective learners, while institutions in high-provider, lower-certification-rate regions may benefit from strengthening assessment-center capacity and assessor support rather than expanding enrollment further.

These findings should be interpreted in light of the study's reliance on secondary, descriptive administrative data. The design identifies regional patterns rather than causal relationships, and the standardized indices reflect relative rather than absolute performance within the 2023–2025 study period.

Future research should incorporate contextual factors not available in TESDA's administrative reports – institutional resources, local labor-market demand, and learner socioeconomic characteristics – to help explain the regional patterns identified here. Longitudinal designs tracking the same regions across additional years would clarify whether the disparities observed are persistent or narrowing, and studies linking certification outcomes to graduate employment and wage data would extend this analysis from institutional and learner outcomes to labor-market impact, addressing a link that EDCOM II (2025) has identified as a continuing gap in the sector's evidence base.

## Contributions of Authors

**Author 1:** Methodology, results and discussion

**Author 2:** Conclusion and recommendations

**Author 3:** Introduction

**Author 4:** Research supervision, methodological guidance, critical review

## Funding

N/A

## Conflict of Interests

N/A

## Acknowledgment

N/A

## References

- Abao, J.U., Balaba, C.R., Cap-atan, M.A.I., Cosmiano, C.H., & Mahinay, R.B. (2025). Disparities in technical and vocational education attrition in the Philippines: From enrollment to certification. *Journal of Interdisciplinary Perspectives*, 3(9), 364–373. <https://doi.org/10.69569/jip.2025.559>
- Asian Development Bank. (2021). Technical and vocational education and training in the Philippines in the age of Industry 4.0. <https://doi.org/10.22617/tcs210084>
- Becker, G.S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press.
- Choi, S. (2021). Urban/rural disparities in the wage effect of additional vocational education after formal education: The case of the Philippines. *International Journal of Training Research*, 19(3), 229–241. <https://doi.org/10.1080/14480220.2021.1935296>
- Creswell, J.W., & Creswell, J.D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
- Edralin, D., & Pastrana, R. (2023). Technical and vocational education and training in the Philippines: In retrospect and its future directions. *Bedan Research Journal*, 8(1), 138–172. <https://doi.org/10.58870/berj.v8i1.50>
- Flores, J.P., Sambaan, R.M., Dullente, J.H., Jamilo, J.A., & Mahinay, R.B. (2025). Gender-based disparities in technical education assessment and certification outcomes across Philippine regions: A regional perspective. *Journal of Interdisciplinary Perspectives*, 3(10), 63–69. <https://doi.org/10.69569/jip.2025.561>
- Han, J., Kamber, M., & Pei, J. (2012). *Data mining: Concepts and techniques* (3rd ed.). Morgan Kaufmann.
- International Labour Organization. (2022). *Global employment trends for youth 2022: Investing in transforming futures for young people*. <https://doi.org/10.54394/QSMU1809>
- National Economic and Development Authority. (2023). *Philippine Development Plan 2023–2028*. <https://pdp.depdev.gov.ph/philippine-development-plan-2023-2028/>
- Organisation for Economic Co-operation and Development. (2018). *The role of technical and vocational education and training (TVET) in fostering inclusive growth at the local level in Southeast Asia* (OECD Local Economic and Employment Development Papers No. 2018/01). OECD Publishing. <https://doi.org/10.1787/5afe6416-en>
- Organisation for Economic Co-operation and Development, European Union, & Joint Research Centre – European Commission. (2008). *Handbook on constructing composite indicators: Methodology and user guide*. OECD Publishing. <https://doi.org/10.1787/9789264043466-en>
- Second Congressional Commission on Education. (2025). *Fixing the foundations: A matter of national survival*. <https://edcom2.gov.ph/publications/year2report/>
- Technical Education and Skills Development Act of 1994, Republic Act No. 7796. (1994). [https://lawphil.net/statutes/repacts/ra1994/ra\\_7796\\_1994.html](https://lawphil.net/statutes/repacts/ra1994/ra_7796_1994.html)
- Technical Education and Skills Development Authority. (2023). *Annual TVET statistics 2023*. <https://tinyurl.com/bdfrxuy2>
- Technical Education and Skills Development Authority. (2024). *Annual TVET statistics 2024*. <https://tinyurl.com/2vyd2y9w>
- Technical Education and Skills Development Authority. (2025). *Annual TVET statistics 2025*. <https://tinyurl.com/yc6uyuzt>
- UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. (2022). *UNESCO-UNEVOC medium-term strategy 2022–2029*. <https://unesdoc.unesco.org/ark:/48223/pf0000378083>
- United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. <https://sdgs.un.org/2030agenda>
- United Nations Educational, Scientific and Cultural Organization. (2022). *Reimagining our futures together: A new social contract for education*. UNESCO. <https://unesdoc.unesco.org>
- Vandenberg, P., & Laranjo, J. (2021). Vocational training and labor market outcomes in the Philippines. *International Journal of Educational Development*, 87, 102501. <https://doi.org/10.1016/j.ijedudev.2021.102501>
- Wongmonta, S. (2023). Revisiting the wage effects of vocational education and training (VET) over the life cycle: The case of Thailand. *International Journal of Educational Development*, 103, 102886. <https://doi.org/10.1016/j.ijedudev.2023.102886>