Trends, Challenges, and Innovations of APACC-Accredited TVET Institutions in Asia Pacific Based on the Established APACC Criteria

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Abstract

This paper ventures on how quality assurance through TVET accreditation works under the Asia Pacific Accreditation and Certification Commission (APACC), an international certification body in Asia Pacific established in 2004 to promote quality assurance within TVET institutions of its member countries. The research primarily aims to examine the emerging trends, challenges, and innovations of APACC-accredited TVET institutions in Asia Pacific based on the established seven criteria of APACC. It involves a qualitative approach in finding general points of convergence on the seven criteria between the accredited institutions from the final evaluation reports during onsite/online accreditation exercises. Upon examination of the 66 institutional evaluation reports from the accreditation exercises conducted from 2011 to 2023 from India, Malaysia, Mongolia, Pakistan, Philippines, and Thailand, it can be noticed that generally, TVET institutions lack the greatest number of points under the Criterion 4: Research and Development, and Criterion 5: Image and Sustainability, while most points gained are under Criterion 3: Human Resources, and Criterion 2: Teaching and Learning. Criterion 1: Governance and Management, Criterion 6: Other Resources, and Criterion 7: Support to Students have average scores relatively like one another. In conclusion, the paper presented should allow for a clear recommendation where 21st century TVET institutions across developing countries in Asia Pacific should focus on developing, publication, utilization, and commercialization of research innovations, transformative leadership and governance, continuous adoption of digital technology in teaching and learning, and promotion of sustainable development in TVET curricula and campus management.

INTRODUCTION

Quality Assurance (QA) in Technical and Vocational Education and Training (TVET) and among TVET institutions has become an important theme in today's setting. The increasing globalization of the labour market has enabled the standardization of TVET-promoting agencies, industries, institutions, and schools in terms of curriculum, programs, and competency standards. This has allowed TVET-promoting agencies, industries, and institutions to ensure a skilled and competitive workforce across the globe. QA is pivotal in this role, as national and international

accreditation and certification bodies have set up high standards for TVET institutions to meet at least the required minimum by continually striving to enhance the quality of their education and training programs.

At present, standardization in TVET is regulated at the National Systems of Technical Vocational Education and Training (NSTVETs) which vary from country to country. (Grainger, et. al., 2016) These modes have come under various governance arrangements - government departments, ministries, national qualifications authorities, national standard-setting bodies, and various training agencies and service providers. NSTVETs have established strict policy regulations - in terms of governance of public TVET institutions, funding, ownership, policy development, and institutional regulations under strict supervision from ministries in different countries such as ministries of labour, education, and industry. (Majumdar, et. al., 2011) Another core component of QA in TVET involves the establishment of clear and measurable competency standards for various vocational disciplines. These standards serve as a blueprint for designing comprehensive training programs that can equip students with the practical skills and theoretical knowledge necessary to excel in their chosen fields. Regular evaluation and revision of these competency standards as incorporated in the NSTVETs ensure that TVET graduates are up to date with the latest industry trends and technologies, making them more employable and adaptable as the demands of the global job markets evolve.

In addition to this, QA in TVET also involves an external party, usually a recognized international body through accreditation and certification of TVET institutions and/or their programs. This can add prestige to the institutions being accredited, motivating them further to maintain their high standards in education and continuously review and update their program offerings. This process also fosters a healthy competition among TVET institutions, driving them to innovate and expand their networks and linkages both nationally and internationally with other TVET institutions and industries to provide top-notch education and training.

One of these accreditation bodies is the Asia Pacific Accreditation and Certification Commission (APACC) established in 2004 through the Seoul Declaration under the purview of the intergovernmental organization for TVET training and human capital development the Colombo Plan Staff College (CPSC). APACC aims to advance the quality management system of TVET institutions to produce a competent workforce in the future by extending its accreditation and certification services through an established criteria on (I) Governance and Management, (II) Teaching and Learning, (III) Human Resources, (IV) Research and Development, (V) Image and Sustainability, (VI) Other Resources, and (VII) Support to Students.

This paper ventures on how quality assurance through TVET accreditation works under APACC. It primarily aims to examine the emerging trends, challenges, and innovations of APACC-accredited TVET institutions in Asia Pacific based on the established seven criteria of APACC. This study involves a qualitative approach in finding general points of convergence on the seven criteria between the accredited institutions based on the final evaluation reports during the onsite/online accreditation exercise as submitted by the designated APACC accreditation teams. Key recommendations on the prospects for the improvement of TVIs are then suggested.

RESEARCH BACKGROUND AND LITERATURE REVIEW

Quality Assurance in TVET Institutions in the 21st Century Asia Pacific

Quality development today is widely regarded as a key to success for systems of technical and vocational education and training (TVET) in the Asia Pacific Region. It is crucial for building trust among TVET stakeholders, to improve the image of TVET, and to convince businesses and industries to take an active role in TVET systems and recruit TVET graduates. In the context of Asia-Pacific integration, QA in TVET has, in recent years, become an important element across efforts to advance regional labour mobility and to build a more integrated regional labour market. For example, the ASEAN Work Plan on Education (2016-2020) identified the need to strengthen regional harmonization for the advancement of quality TVET by establishing regional quality assurance and recognition for TVET and/or "non-degree institutions" as one of the priority areas for the improvement of TVET systems in Southeast Asia. Likewise, the ASEAN Five-Year Work Plan on Education (2021-2025) asks for, among others, an improved TVET quality through quality assurance, towards enhancement of access to quality initial and continuing TVET that is responsive to changing labour market demands. This trend and scenario is also similar in the Asia-Pacific region.

QA in competitive local and global arenas is a necessary foundation for consumer protection (National Universities Commission, 2009). QA in TVET is the systematic management and assessment procedures adopted by an educational institution or system to monitor performance and to ensure achievement of quality outputs or improved quality (Majumdar et al., 2011). QA includes internal and external mechanisms put in place by institutions and accreditation agencies respectively, to ensure standard in all the functions of the institutions.

TVET has played a key role in education as well as national development which has attracted different names such as Technical Education (TE), Vocational Training (VT), Vocational Education and Training (VTE), Technical and Vocational Education and Training, Occupational Education (OE), Apprenticeship Training (AT), and Career and Technical Education (CTE). TVET is a specialized educational system that is designed to empower learners through the development of their technical skills, human abilities, cognitive understanding, attitudes, and work habits. In order to address the growing expectations of industry, continuous enrichment of the quality of TVET is a key priority in the region. The Goal 4 of the Sustainable Development Goals (SDGs) emphasizes Quality Education. This implies that quality enhancement is one of the main objectives of the TVET system. To acquire such high standards and exceptional quality of education to the TVET sector, it is necessary that all stakeholders are aware of quality assurance measures and mechanisms used by various accreditors, both local and international. With right information come empowered and more involved TVET institutions, ready to meet and even exceed the expectations of the TVET accreditors. This would also guarantee, along with the compliance of the institutions, higher quality TVET graduates.

Asia Pacific Accreditation and Certification Commission (APACC)

The Asia Pacific Accreditation and Certification Commission (APACC) was organized under the general purview of the intergovernmental organization for TVET training and human capital development the Colombo Plan Staff College (CPSC) through the Seoul Declaration of 2004, advancing the commitment of its member government representatives during the International Conference on Accreditation and Certification held in Seoul, Korea. The accreditation body

advances the quality management system of TVET institutions to produce a competent workforce in the future by extending its accreditation and certification services. APACC Accreditation is designed to help TVET institutions boost their ongoing performance efforts for the benefit of their students. APACC insists on a relentless pursuit of excellence via a quality education system for itself and the institutions it accredits. This ethic of excellence ensures that institutions will find rich benefits from accreditation and that parents can confidently make informed decisions about their children's education, knowing their child's school is accredited. Accreditation matters because our students deserve the highest level of educational excellence possible.

The Accreditation Process

The accreditation process begins upon the receipt of the submitted Self-Study Report (SSR) by the applicant institution. The SSR is a required document that enables the applicant institution to score themselves based on the established criteria and provide documented evidence in accordance with their scores. A total of 500 points are allocated throughout the seven criteria indicated on the APACC instrument: (I) Governance and Management, (II) Teaching and Learning, (III) Human Resources, (IV) Research and Development, (V) Image and Sustainability, (VI) Other Resources, and (VII) Support to Students.
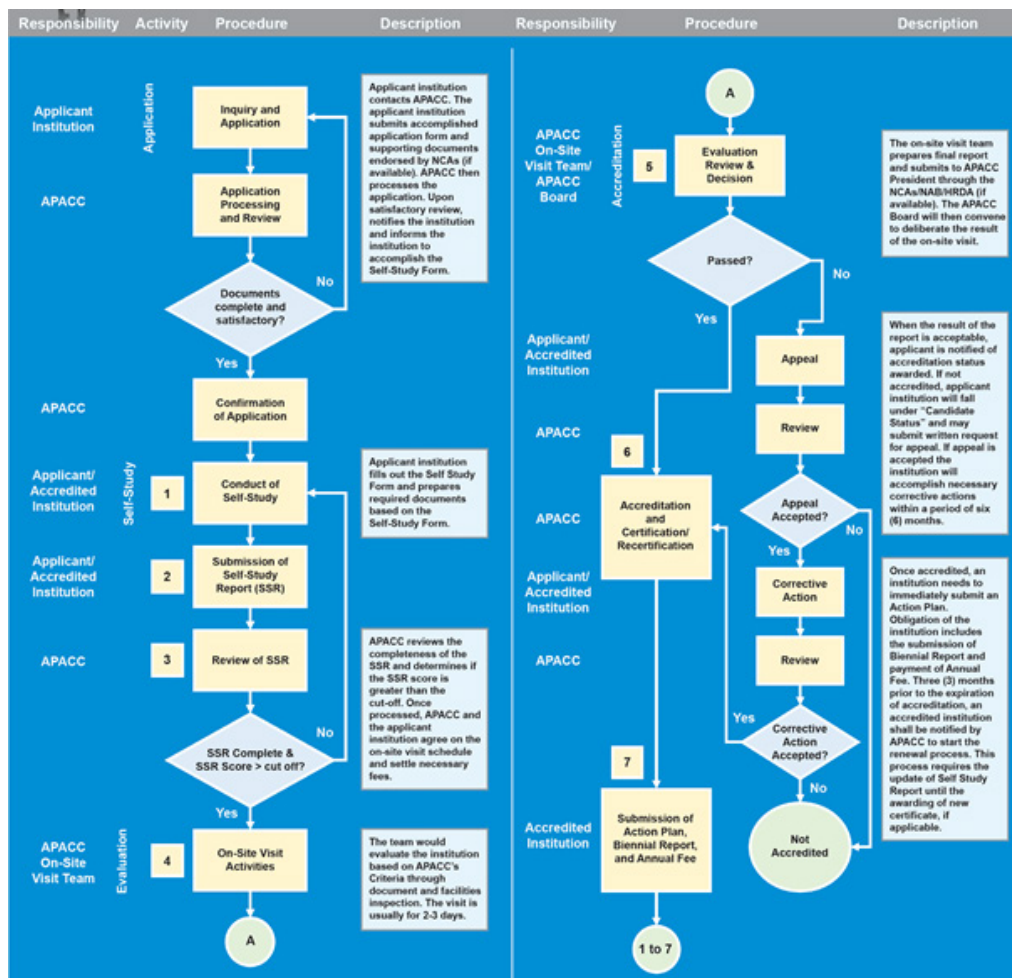

Figure 1. The APACC Accreditation Process

An onsite evaluation by a preselected accreditation team composed of lead accreditor, member accreditor, and documentation officer ensues on an agreed upon schedule. The onsite visit will allow the accreditation team to verify and evaluate the SSR submitted and inspect the applicant's compliance with the national standards in that country in terms of teaching and learning, strategic planning, personnel management, and physical infrastructure. The onsite visit usually lasts for 3-4 days.

A careful and thorough evaluation review and decision making will be conducted by the accreditation team after the onsite visit to polish their findings in preparation for presentation to the APACC Board Meeting. Findings usually include the final scores given and validated by the lead and member accreditors, as well as some commendations, affirmations, and recommendations per criterion. The evaluation report is submitted to the National Coordinator for Accreditation (NCA) of that country copied to the applicant institution.

When the result of the evaluation report is acceptable, the applicant institution is notified of their accreditation status (whether they will earn a Bronze, Bronze+, Silver, Gold, or Platinum Level). If not accredited, the applicant institution will fall under "Candidate Status" and may submit a written request for appeal. If the appeal is accepted, the institution will accomplish the necessary corrective actions within a period of six months. Upon accreditation, the institution will enjoy a total of four years in that accreditation level before the notification of re accreditation application three months before the expiration of their current accreditation status.

APACC Criteria	Total Allocated Points
Criterion 1: Governance and Management	46
Criterion 2: Teaching and Learning	120
Criterion 3: Human Resources	74
Criterion 4: Research and Development	50
Criterion 5: Image and Sustainability	50
Criterion 6: Other Resources	110
Criterion 7: Support to Students	50
TOTAL	**500**

The Seven Criteria of APACC

Criterion 1: Governance and Management. The criterion focuses on the governance and management mechanisms - framework of rules, relationships, systems, and processes within and by which authority is exercised and controlled (APACC Quality Manual). The institution's system of governance and management is sufficient to manage existing operations, and to respond to development and change.

Indicators for this criterion include (1.1) Decision Making and Management System and (1.2) Program and Budgeting. The former is further divided into six sub-indicators while the latter is divided into five. For this criterion, a total of **46 points** maximum are allocated.

Documented evidence through which this criterion is validated by APACC during onsite visits include strategic plan, established national standards implemented by the higher education/vocational and technical education departments or agencies, operational planning, policy formulation process, quality management systems, quality policy, and objectives, institutional vision, mission and strategic goals, decision-body composition, management review meetings, internal and external quality audits, academic board meetings, program planning processes and budgetary allocation, monitoring and evaluation mechanisms for policy formulation, financial auditing, and income generating fund management.

Criterion 2: Teaching and Learning. While the first criterion sets out to validate management level operations such as the strategic planning and aligning them with established national standards from TVET agencies, the second criterion measures the applicant institution's quality of programs in terms of their policies and processes concerning teaching and learning. This ensures that the institution focuses on the delivery of relevant, responsive, and effective TVET education in the country.

This criterion has the highest number of allocated points in the APACC instrument totaling to 120 points. This implies that this criterion is given a primal importance in the accreditation process. Divided into five indicators namely (2.1) Strategic Link of Learning Objectives, (2.2) Curriculum, (2.3) Instructional Guides, (2.4) Teaching and Learning Materials, (2.5) Teaching and Learning Methods and Techniques, and (2.6) Monitoring and Evaluation (M&E) Management, criterion two evaluates the capacity of TVET institutions to deliver quality education and training to its students through its courses and offered programs.

Documented evidence through which this criterion is validated by APACC during onsite visits include alignment of the applicant institution's strategic plan and quality objectives to the national policy on education implemented by higher education agencies, processes for curriculum development, review, and revision, competency standards/courses reviewed and composition of reviewers, curriculum components, lesson/session plans, inventory of developed teaching and learning materials, tools, and audio-visual equipment, and financial management for instructional materials developed.

Criterion 3: Human Resources. Anchored after the first two criteria on governance and management and teaching and learning, the third criterion focuses on evaluating the quality and effectiveness of the applicant institution's teaching and non-teaching staff competency and sufficiency. This criterion primarily measures against whether or not the institution is able to maintain an effective system of recruitment, retaining, selection, and monitoring of an adequate number of highly qualified and appropriate staffing.

Divided into four indicators namely: (3.1) Qualifications of Teaching Staff, (3.2) Qualifications of Non-Teaching Staff, (3.3) Teaching Staff Assignments and Load, and (3.4) Systems of Recruitment, Evaluation, Development, and Motivation, the institution can obtain a maximum of **74 points** in this criterion.

Documented evidence through which this criterion is validated by APACC during onsite visits include alignment of the list of teaching and non-teaching personnel to the prescribed minimum qualifications and experience set by the institution and the country's higher education/TVET-regulatory agencies, industry background of the teaching staff, disbursement of teaching load and assignments, teacher to student ratio for both practical and theoretical classes, industry stakeholders' involvement in selection and recruitment process of teaching

staff, compensation scheme, benefits, and additional service credits, performance evaluation of staff, staff development and capacity building, and allocation of scholarship grants for pursuance of further education.

Criterion 4: Research and Development. Research and Development (R&D) is an avenue through which new knowledge is discovered, applied or verified and through which appropriate technologies are generated. TVET institutions through applied research can generate innovations in various TVET fields that can be utilized for community development. It is in this context that this criterion is incorporated into the APACC instrument.
This criterion is further divided into four indicators namely: (4.1) Program of Research and Development, (4.2) Teaching Staff Engagement in R&D, (4.3) Dissemination and Utilization of R&D Outputs, and (4.4) Management of R&D. A total of **50 points** maximum can be obtained by the applicant institution in this criterion.

Documented evidence through which this criterion is validated by APACC during onsite visits include verification of the institutional research and development plan, research proposals, engagement of teaching and non-teaching staff in research and development activities, published research activities, utilization and commercialization of R&D outputs in the community, fiscal management for research projects, involvement of industry and external stakeholders for joint research projects, monitoring and evaluation mechanisms for R&D programs, and implemented policy on providing incentives for teaching and non-teaching staff in relation to R&D programs.

Criterion 5: Image and Sustainability. This criterion specifically measures the relationship between the institution and the community. Through the conduct of outreach programs, income generating projects, and adoption of network and linkages activities, the institution's image is solidified further in the social environment through which it is operating. This criterion also seeks for TVET institutions to become a beacon of sustainability - including social equity and economic development in the society and nation it belongs to.

Divided into three indicators namely: (5.1) Outreach Programs, (5.2) Income Generating Programs (IGPs), and (5.3) Linkages and Networking, an institution may obtain a maximum of 50 points in this criterion.

Documented evidence through which this criterion is validated by APACC during onsite visits include verification of the total number of conducted outreach activities per fiscal year through reports, memoranda of agreements, project proposals, etc., implementation of quality management cycle (planning, implementation, monitoring and evaluation, and reporting), involvement of teaching and non-teaching staff in outreach programs, percentage of proposed operational budget utilized for outreach programs, involvement of external stakeholders, income generating projects conducted, validation of net profit from IGPs, and involvement of enterprises (industries, SMEs, and businesses) in TVET programs.

Criterion 6: Other Resources. This criterion checks the understanding of the institution in judging its effectiveness with which it manages its resources and budget. This is another key criterion having the second highest allocated points in the instrument as resources management - budget, physical and digital infrastructure, and knowledge management is deemed to be an integral part to sustain the day-to-day operations of the institution effectively.

Being the most comprehensive item to be covered during onsite visits, this criterion is divided into six indicators namely: (6.1) Financial Resources, (6.2) Physical Facilities, (6.3) Library, (6.4) Tools and Equipment, (6.5) Information and Communication Technology, and (6.6) Repair and Maintenance Management. An institution may obtain a maximum of **108 points** in this criterion.

Documented evidence through which this criterion is validated by APACC during onsite visits include verification of the annual planned operational and developmental budget versus total allocated budget, budget increments over the past years, sources of additional budget, external financial audit, fiscal management - operation and planning, assessment of physical infrastructures such as classrooms, furniture, laboratories, workshops, dormitories, kitchen, clinic space, library and their compliance with prescribed national standards, library resources (both digital and physical), resource sharing system with other libraries, library staff and their qualifications, tools and equipment maintenance - inventory and preventive maintenance schedules, and safety measures and signages.

Criterion 7: Support to Students. The last criterion focuses on the support given by the applicant institution to their primary clients - its students. The provision of student support services including personal and financial counselling, careers guidance and support (even for students with disabilities if possible) is an established part of the support available to students that any educational institution including TVET systems must have.
This support contributes to the quality of the students' learning experience and to their educational achievement. Thus, evidence of the importance of student support is increasing but it is also becoming more difficult to manage as growing numbers of students need access to high quality support. The aim of this criterion is to explore the effectiveness of the support given and available to the students.

A maximum of **50 points** can be achieved by the institution in this criterion, which is divided into two main indicators namely: (7.1) Guidance and Career Counseling, and (7.2) Student Services.

Documented evidence through which this criterion is validated by APACC during onsite visits include verification of the institution's guidance and counselling procedures versus the prescribed national standards - office environment, staff to student ratio, and feedback system; student services available such as prevalence of extracurricular organizations and activities, student recruitment mechanisms, validation of the institution's retention policy, availability of scholarship and financial aids, employment rate, and involvement of the student body in the decision making mechanisms.

METHODOLOGY

As this study is qualitative research, it focuses on the general relationships and patterns emerging between the selected APACC-accredited institutions through the analysis of the evaluation reports - both obtained points per criterion and the cited Commendations, Affirmations, and Recommendations by the APACC accreditation team. For this study, a total of 66 evaluation reports of APACC-accredited TVET institutions from Mongolia, Pakistan, India, Philippines, Malaysia, and Thailand was studied. These evaluation reports were results of the onsite and online accreditation exercises conducted from 2008 to 2023.

Commendations. These are findings in the evaluation report that are found to be excellent qualities, processes, or mechanisms implemented by the accredited institution. These findings are those that exceed the maximum requirements set in the APACC instrument.

Affirmations. These are findings in the evaluation report that are found to meet the maximum requirements of the specific indicators set in the APACC instrument.

Recommendations. These are findings in the evaluation report that are suggested for further improvements - the accredited institution might not have met the maximum requirements in the APACC instrument, or the suggestions are solely from the accreditors' as they have assessed during the evaluation proper.

Table 1 shows the total number of points per criterion an institution may achieve after an evaluation per the latest APACC instrument used during evaluations. APACC currently maintains a total of five accreditation levels depending on the scores obtained. Bronze-level awardees are those who obtained a total of at least 301 to 350 in all criteria; Bronze+ award for 351 to 400 score; Silver awardees for 401 to 450; Gold award for 451 to 490; and Platinum award for those who obtained a total score of 491 to 500. To date, only three institutions from Malaysia have been awarded the platinum level. The documented evaluation reports were compiled and analysed in this study. Figure 2 below shows the total number of APACC accredited institutions per country.
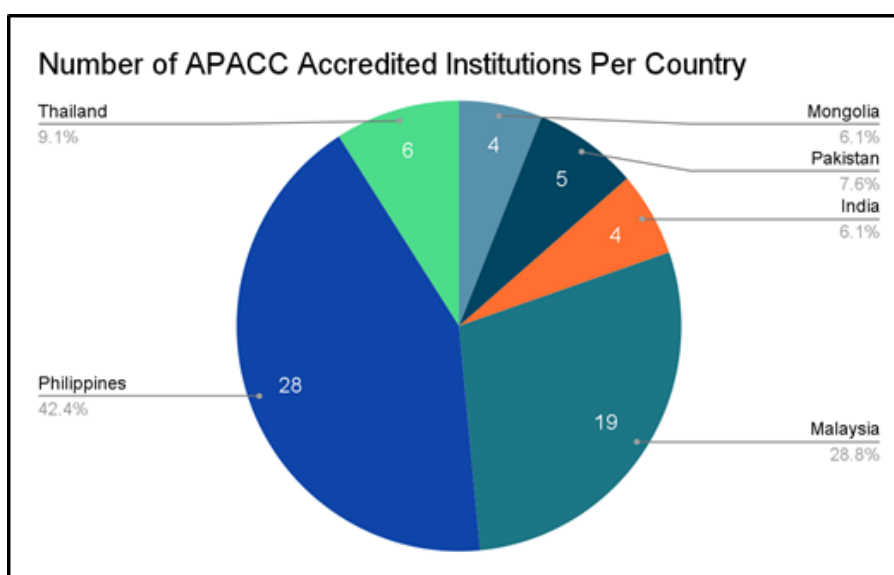

Figure 2. Number of APACC Accredited Institutions per Country (as of FY 2022-2023)

RESULTS AND DISCUSSION

Each institutional score from the 66 evaluation reports conducted from 2008 to July 2023 were interpreted through a percentage system, to even out and eliminate the discrepancy of the difference in the scoring used between the old APACC instrument to the new one. For example, institution A scored a total of 43 points out of 46 in Criterion 1: Governance and Management. Its percentage score in that criterion will then be 98.43%. These percentage scores were then averaged in all institutions to obtain some general findings.
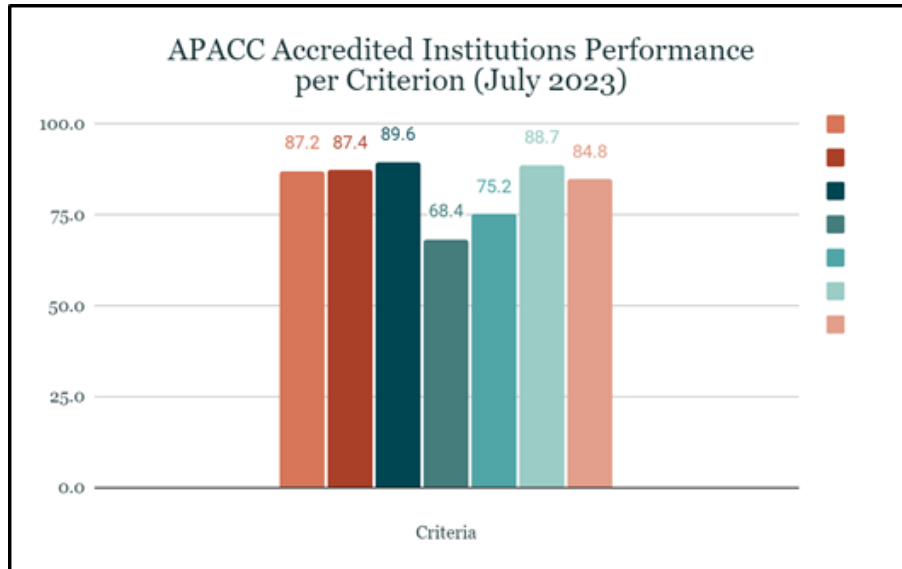
Figure 3. APACC Accredited Institutions' Performance per Criterion as of July 2023

In general, the institutions relatively scored within the acceptable range of passing in each criterion. Criteria 1, 2, 3, 6, and 7 averaged closely relative to each other within the range of 87% to 90%. It can be noted however, that institutions score highest in Criterion 3 and lowest in Criterion 4. Interpretation on this analysis is discussed in the next section. It can also be noted that institutions also score relatively lower in Criterion 5, averaging only within the 75% interval. This is also further interpreted in the next section.

In Figure 4, 5, 6, and 7, this generalization is further examined by separating the averages per accreditation level- Platinum, Gold, Silver, and Bronze (Bronze and Bronze+ were analyzed as one set in this study.)
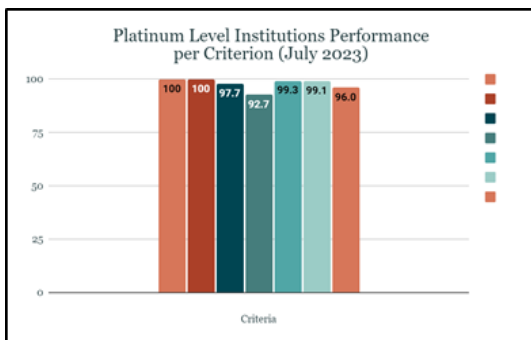

Figure 4. Platinum Level Institutions' Performance

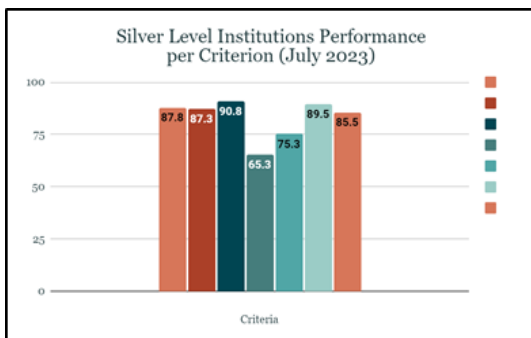*Figure 5. Gold Level Institutions' Performance*

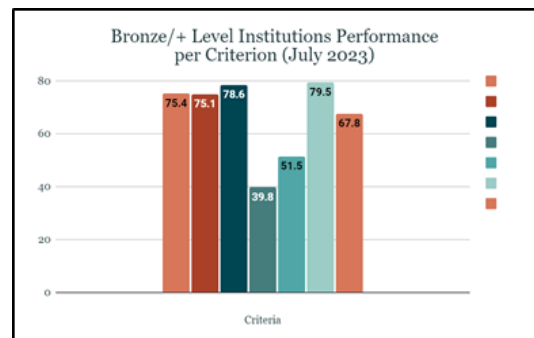*Figure 6. Silver Level Institutions' Performance*

Figure 7. Bronze/+ Level Institutions' Performance

Three of the 66 institutions have achieved platinum-level accreditation, and their scores were averaged. It can be noted that the institutions have all scored perfectly on Criteria 1 and 2, and almost perfect on Criteria 5 and 6. Meanwhile 29 gold-level accredited institutions have shown relatively similar results upon obtaining the averages of their evaluation scores per criterion.

For silver-level accredited institutions, it is worth observing that the institutions have scored greatly lower in average in Criterion 4 and 5 while maintaining similar averages of 85% to 90% in the other criteria. Lastly, for bronze/+ level accredited institutions, it can be noted that they have scored the lowest in Criterion 4 with an average of 39.8% and Criterion 5 with 51.5%. The other criteria scored in averages similar to one another ranging from 68% to 80%. In all the award category criterion 4 and 5 are most low ranked in the evaluation process during the accreditation process.

Emerging Trends and Challenges of APACC–Accredited TVET Institutions in Asia Pacific and Recommendations

Adaptive and Transformative Governance and Leadership

In the dynamic landscape of 21st century TVET institutions, the imperative for adaptive and transformative governance and leadership cannot be overstated. As these institutions navigate evolving technological advancements, shifting economic paradigms, and changing societal demands, their management approach must mirror this fluidity. A forward-looking governance model entails the ability to swiftly respond to emerging industry trends and skill requirements, while also fostering a culture of innovation that facilitates the integration of cutting-edge pedagogical methods and industry partnerships. Simultaneously, transformative leadership is the linchpin in propelling TVET institutions beyond conventional boundaries, advocating for systemic reforms that align with workforce needs, and nurturing an environment where both students and educators can continuously learn and reinvent. By embracing adaptability and transformation at their core, Asian TVET institutions can not only remain relevant but also thrive as beacons of practical education in an ever-evolving global context.

A Refocus on TVET Research

It is critical to conduct research on emerging trends and issues faced by APACC-accredited TVET institutions in the Asia Pacific region in order to sustain and improve the quality of technical and vocational education and training in this area. Accreditation by APACC assures that these institutions achieve specified quality and effectiveness requirements. Here is an example of prospective study fields in this context - emerging trends can be classified as:

- TVET institutions in Asia Pacific are increasingly realizing the value of research in fostering innovation   and relevance in vocational education. They are creating a culture that encourages teachers and students to participate in research.

- Collaboration with industry partners: collaborative research initiatives involving industry partners are becoming more common. These collaborations improve the practicality of TVET research and assist institutions in aligning their curricula with industry demands.

- Digital Data and Analytics: Data analytics are increasingly being used in TVET research, allowing institutions to get insights into student performance, program efficacy, and labour market trends.

- Interdisciplinary Research: To solve complicated difficulties, TVET institutions are supporting interdisciplinary research that merges vocational education with other sectors such as sustainability, entrepreneurship, and technology.

- Internationalization: Increased collaboration and exchange of research findings with TVET institutions and specialists from other countries is broadening the Asia Pacific region's research's global viewpoint

Whereby, the challenges are:

- Financing restrictions: Finding appropriate financing for TVET research continues to be difficult, particularly in countries with low resources and budget restrictions.

- Research ability: As many educators have largely concentrated on teaching rather than research, developing the essential research skills and ability among TVET teachers and staff is an ongoing problem.

- Research Relevance: It can be difficult to ensure that TVET research is closely matched with the increasing demands of companies and the labour market, especially in fast changing areas.

- Data Collection and Quality: Collecting trustworthy and relevant data for TVET research can be difficult, especially in distant or impoverished locations.

- Language & Communication: Overcoming language barriers and promoting efficient communication among academics from various linguistic and cultural backgrounds continues to be a problem.

- Policy and Regulation: Some nations may lack supporting policies and regulations that encourage and incentive TVET research, stifling progress.

- Dissemination and Utilization: It might be difficult to ensure that the findings of TVET research are adequately communicated and utilized by institutions and enterprises.

Asia Pacific APACC-accredited TVET universities are addressing these difficulties by investing in research infrastructure, encouraging research-oriented faculty development, and forming relationships with industry and international research organizations. Refocusing on TVET research is critical for improving the quality and relevance of vocational education in the area, as well as aiding economic growth and development.

Adoption of Digital Technologies in Teaching and Learning

The use of digital technology in teaching and learning is becoming more common in educational settings across the world. The fast growth of technology and the growing desire for creative and effective teaching techniques have intensified this trend. Here are some important characteristics of this adoption:

- Online Learning Platforms: With the advent of online learning platforms such as Coursera, edX, and Khan Academy etc., students may now access educational materials and courses from any location. These platforms provide a diverse choice of courses, frequently from prestigious colleges and institutes.

- Blended Learning: Blended learning, which blends conventional face-to-face instruction with online materials and activities, has been adopted by many educational institutions. This technique gives students more flexibility and can improve their learning experience.

- E-Learning Tools: To organize and distribute course content, several e-learning tools and software programs, such as Learning Management Systems (LMS) like Moodle and Canvas, have been extensively embraced. These platforms make it easier for students and teachers to communicate, submit assignments, and measure progress.

- Data Analytics and Personalized Learning: Data analytics are being used by educational institutions to track student progress and personalize learning experiences. Adaptive learning platforms change the complexity of information based on individual performance, allowing students to progress at their own speed.

- Webinars and video conferencing: Tools like Zoom, Microsoft Teams, and Google Meet have become indispensable for doing virtual classes and meetings. The epidemic of COVID-19 hastened the introduction of these technologies.

- Artificial Intelligence (AI): AI is being utilized to develop intelligent teaching systems and chatbots that give students with rapid help. It may also be used to evaluate massive amounts of data in order to enhance educational procedures.

- Online quizzes, examinations, and assignments are routinely utilized to test student understanding in the digital age. Automated grading methods simplify the evaluation process.

- Accessibility and inclusiveness: Advances in digital technology have made it simpler to accommodate students with impairments. Screen readers, closed captioning, and other assistive technology improve all students' learning experiences.

The digital divide (inequities in access to technology), privacy and security concerns, and the need for training and professional development for educators to effectively integrate technology into their teaching practices are all challenges and considerations in the adoption of digital technology in education. However, the advantages of digital technology in education, such as enhanced access, flexibility, and involvement, make it an enticing and ever-changing subject in education.

Promotion of Sustainable Practices in TVET Management

The promotion of sustainable practices in TVET management is critical for ensuring that educational institutions connect with global sustainability goals and educate students for employment in environmentally responsible professions. Here are some ideas for enhancing sustainability in TVET management:

- Sustainability in the Curriculum: Develop and incorporate sustainability ideas and practices into the basic curriculum of TVET programs. This can include courses or modules on sustainable practices, environmental management, and green technology This can involve energy-efficient buildings, waste reduction and recycling programs, and sustainable transportation options for students and staff.

- Faculty Development and Training: Provide educators with professional development and training to provide them with the knowledge and skills needed to effectively teach sustainability ideas. This might include workshops, seminars, and access to information on sustainability education.

- Collaboration with Sustainable Industries: Work with firms and organizations that are leaders in sustainable practices. Form alliances to provide students with chances for internships, apprenticeships, and on-the-job training in green businesses.

- Encourage and support student-led environmental projects and groups. Students may take an active part in lobbying for and adopting sustainable practices on campus.

- Foster a culture of research and innovation in sustainable technology and behaviors. Encourage academics and students to do research Community Outreach and Advocacy: Engage with the local community and advocate for sustainable practices in the wider society. This can involve organizing awareness campaigns, workshops, and public events.

- Certificates and Credentials: Create and deliver sustainable practices certificates or credentials. These can improve graduates' employability and highlight the institution's commitment to sustainability.

- Monitoring and Reporting: Monitor and report on sustainability activities and successes on a regular basis. Share accomplishments and outcomes publicly to hold the institution responsible and to encourage others.

- Sustainability Policy and Governance: Within the institution, establish explicit sustainability policies and governance frameworks. This guarantees that sustainability remains a strategic focus and that it is included into decision-making processes.

- Continuous Improvement: Evaluate and enhance sustainability initiatives on a regular basis. Set specific goals and targets, then assess and adapt tactics to reach these goals on a regular basis.

- Participate in international sustainability projects, conferences, and collaborations to remain up to date on global sustainability trends.

Promoting sustainable practices in TVET management not only prepares students for future jobs in green sectors, but also helps to create a more sustainable and responsible society. It is consistent with the global goal for environmental preservation and social responsibility.

Strengthen Institution–Industry Linkage

Strengthening institution-industry ties is critical for TVET institutions to guarantee that their programs are aligned with labour market demands and that students are well-prepared for employment. Here are some ideas for strengthening institution-industry ties in TVET:

- Participate in international sustainability projects, conferences, and collaborations to remain up to date on

- Establish industry advisory boards or councils made up of representatives from local firms and industries. These boards can provide recommendations on curriculum development, program design, and growing skill needs.

- Collaborative Curriculum Development: Involve industry experts and professionals in TVET curriculum development. Their views might assist customize training to companies' real-world demands.

- Workplace-Based Learning: Form collaborations with local industry to provide possibilities for workplace-based learning like as internships, co-op programs, and apprenticeships. Students gain practical skills and insights from these encounters.

- Industry Visits and Guest Lecturers: Schedule frequent industry visits for students to gain direct experience in the workplace. Invite industry experts to offer guest lectures and share their knowledge.

- Skills Evaluation and Certification: Collaborate with industries to create industry-recognized certification and skill evaluation methods. These certificates help authenticate TVET graduates' abilities and increase their employability.

- Collaborative Research: Collaborate with companies on research projects and activities that solve real-world problems and foster innovation. This might result in mutually advantageous effects.

- Sharing of Technology and Equipment: Collaborate with companies to give access to cutting-edge equipment, technology, and facilities, ensuring that students are taught on the most up-to-date tools and machines.

- Workshops and Seminars in the Industry: Plan workshops, seminars, and industry-specific training programs within the university or at industry locations. This encourages lifelong learning and skill improvement.

- Establish robust job placement services to connect TVET graduates with industry employment vacancies. Keep in touch with industry HR departments and recruiting agencies.

- Develop feedback tools that allow industry to offer constant feedback on the quality and relevance of TVET programs. Solicit feedback on a regular basis and make modifications depending on industry feedback. Networking Events: Organize networking events, career fairs, and industry forums that bring together students, faculty, and industry representatives to facilitate networking and collaboration.

- Establish innovation centers or business incubators within the university to stimulate entrepreneurship and innovation and to give assistance to startups with industry linkages.

- Lifetime Learning and Professional Development: Collaborate with industry to give employees with chances for lifetime learning. This might include initiatives for upskilling and reskilling.

- • Financial Support and Policies from the Government: Advocate for government policies and incentives that encourage collaboration between TVET institutions and industries. Engage policymakers in order to establish an enabling atmosphere for such collaborations.

By building strong institution-industry links, TVET institutions may guarantee that their graduates have the skills and knowledge that companies want, helping to lower unemployment and a more competent workforce in a variety of industries. These connections also benefit industries by offering a pipeline of potential customers.

LIMITATIONS OF THE RESEARCH AND FUTURE RECOMMENDATIONS

Internal factors affecting study. First, it is important to note that the evaluation reports that were analyzed in this paper are crafted by the appointed accreditors during the onsite institutional evaluation. The scores reflected in the reports are also tabulated based on the panel interviews to cross check evidence and documented information on each criterion and indicator. Evaluation records might not also be reflective of current status of some accredited institutions since some of them did not opt for reaccreditation after four years.

External factors affecting the study. It is also noted that National Systems for Technical and Vocational Education and Training (NSTVETs) are distinct from one another where components, policy, standards and regulations, and area priorities for TVET may vary from one country to another. This may be considered as an external factor which might have affected the analysis of this study in terms of the given recommendations and suggestions on TVET management, curriculum development, and institution-industry partnerships since TVET institutions are mandated to comply with the standards and policies set by their NSTVETs.

Moreover, it can also be noted that there are still a lot of TVET institutions that are not yet accredited by APACC. The evaluations made in this study are only reflective of the patterns and relationships arising from the accreditation results, signifying a limitation on the number of TVET institutions analysed. In addition, this limitation also posits a possibility that some of the commendations and recommendations arising from the reports are not reflective of the current environment in their respective NSTVETs since some of the accreditations were conducted more than a decade ago and that these institutions have not renewed their accreditation status with APACC after four years.

The authors of this paper recommend that similar studies may consider further deepening the suggestions and recommendations of this paper by verifying the results with similar research studies on quality assurance and national certification agencies and accreditation bodies on TVET. Doing this would validate the results and recommendations suggested in this paper. Lastly, the authors recommend for the APACC Secretariat and the Colombo Plan Staff College to further enhance its promotional strategies to encourage more TVET institutions to apply for APACC accreditation in the future.

CONCLUSION

Based on the established APACC criteria, the evaluation of trends, problems, and innovations in APACC-accredited TVET institutions in the Asia Pacific region reveals a dynamic environment that is constantly evolving to meet the demands of the twenty-first century. One notable development is the growing understanding of the value of TVET in meeting the region's socioeconomic demands. As industries progress, TVET colleges have responded by introducing and improving programs that are in line with current market demands, resulting in a more competitive workforce.

Nonetheless, these organizations have a number of obstacles, including limited resources, the need for regular quality verification, and assuring accessible to all parts of society. These obstacles underline the importance of ongoing collaboration among governments, industrial partners, and educational institutions in order to create a sustainable framework for TVET in the Asia Pacific area. The most promising developments at APACC-accredited TVET colleges are based on technology integration and the creation of flexible learning pathways. These colleges are rapidly embracing online and mixed learning formats, which provide more accessibility and reach. Partnerships with industry stakeholders are also resulting in curriculum design that more accurately reflects real-world demands, bridging the gap between education and employment.

Given these trends and problems, the importance of APACC accreditation requirements cannot be overstated. These criteria serve as a standard for quality and continual improvement, ensuring that TVET institutions in the Asia Pacific area remain adaptive and responsive to their communities' changing needs.

Criterion 4 and 5 scores lower percentage, some consistent action need to be taken in both criteria in uplifting the needs and overcome the constraint. Moving forward, it is critical to encourage international collaboration and knowledge-sharing among APACC-accredited schools, allowing them to learn from one another's accomplishments and problems. By doing so, we can collaboratively promote the development and innovation of TVET in the Asia Pacific area, eventually contributing to the region's economic growth, social advancement, and well-being. The path to greatness in TVET is ongoing, and by embracing changing trends and solving the challenges.

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