

IMPLEMENTATION of Quality Assurance Components for Teaching and Learning in Technical Vocational Education in Region XI: Basis for an Enhancement PROGRAM

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ABSTRACT

Issues such as mismatches between industry requirements and curriculum development require effective quality assurance in Tech Voc. Thus, this research examines the implementation of quality assurance (QA) components in teaching and learning in technical-vocational education (Tech-Voc) institutions in Region XI. This study utilized a descriptive-comparative method using adopted, validated, and reliability-tested questionnaires. The respondents included administrators, faculty, and students from selected public and private tech-vocational institutions, chosen through quota sampling. Additionally, alumni were selected using the snowball sampling technique. Statistical analysis, including percentages, means, standard deviations, ANOVA, and post hoc analysis, was employed. The results revealed that the status of quality assurance components for teaching and learning in tech-voc education was very high across the input, process, and output domains. Likewise, the analysis found a significant difference in the status of quality assurance in teaching and learning at Tech Voc when grouped by input domain profile. The findings emphasize the necessity of targeted interventions in the components of the program like ICT center enhancement, research lab enhancement, entry requirements, policy for admission, and instructional strategies.

KEYWORDS: *Education, quality assurance, TVET, descriptive-comparative, Philippines*

INTRODUCTION

As society continues to evolve, the need for skilled professionals intensifies, necessitating Tech Voc systems that effectively equip students with the requisite skills. Therefore, quality assurance becomes a crucial activity to

ensure that Tech Voc institutions can meet labor market needs while maintaining high standards of teaching and learning. Sam-Kalagbor and Nwuke (2024) define quality assurance as a comprehensive set of strategies, practices, and policies designed to ensure that educational institutions deliver high-quality programs and achieve effective learning outcomes. However, several challenges hinder the effective implementation of quality assurance in Tech Voc. Issues such as the mismatch between industry requirements and curriculum development, stemming from insufficient employer engagement, and an overreliance on traditional assessment methods that fail to evaluate practical skills accurately remain problematic (Güngör, 2019).

Quality assurance in technical and vocational education (Tech Voc) faces unique challenges worldwide. In Malaysia, one major challenge is the decentralized governance structure involving multiple ministries and agencies, which leads to inefficiencies and duplications in policy implementation and accreditation (Rasul et al., 2015). This decentralization makes it difficult to establish uniform quality standards across institutions. In Nigeria, insufficient funding is a significant barrier, preventing Tech Voc institutions from delivering quality training due to a lack of necessary facilities, modern equipment, and qualified lecturers (Okorafor & Nnajofo, 2017). In Sudan, Tech Voc institutions struggle with inadequate resources and low-quality inputs, such as shortages of essential materials and services (Lewin, 2021). This lack of resources undermines the practical training that is crucial for effective Tech Voc.

In the Philippines, one significant issue was the inconsistency in the application of quality assurance components across different Tech Voc institutions. While the Technical Education and Skills Development Authority (TESDA) tried to initiate common standards for all, there was still considerable variation in how these standards were implemented at the institutional level. Mendoza and Cruz (2024) observed that while some institutions closely adhere to TESDA's quality assurance components, others exhibit varying degrees of compliance, leading to disparities in the quality of education and training provided.

One of the more serious concerns in the Davao Region was that most of the Tech Voc institutions lacked adequate infrastructure and resources. According to recent research by Reyes and Lim (2023), many Tech Voc centers in the region lack updated facilities and equipment and have limited learning materials. This insufficient resource certainly hindered the effective

implementation of quality assurance components such as hands-on training and up-to-date curriculum delivery.

The Philippines attached high social value to the quality assurance component, especially on issues related to workforce readiness, equal access to education, and socio-economic development through Tech Voc. First and foremost, quality assurance components in Tech Voc were instrumental in enhancing the quality of education/training and, hence, the employability and skill level of graduates. As mentioned by Santos & Garcia (2023), strong quality assurance practices not only aligned Tech Voc programs with industry standards but also enhanced graduates' job readiness and reduced skill mismatches in the labor market.

While in recent times much attention has been paid to the investigation of the implementation of quality assurance components, not as much research has explored the operationalization of these components and how they can be effectively implemented across different kinds of Tech Voc institutions. According to Mendoza and Cruz (2024), variations in the quality assurance components practiced by institutions and regions might lead to discrepancies in quality education. This situation clearly calls for quite granular research that explains how the components of quality assurance were adapted and applied across diverse educational environments and what effect they had on educational outcomes.

Statement of the Problem

1. What is the profile of the respondents when grouped in terms of: Administrators Faculty; Alumni Students?
2. What is the status of Quality Assurance components in terms of: Input, Governance and Management, Student Admission, Process Domain, Monitoring and Supervision, Quality of Instruction, Classroom Management, Assessment and Evaluation, Teaching Climate, Output Domain, Creativity, Innovation, Graduate Employability?
3. Is there a significance of the difference in the status of quality assurance components of the different schools offering Tech Voc when analyzed according to profile?
4. Based on the findings, what enhancement program can be proposed?

METHODOLOGY

Research Design. This study employed a quantitative research method, specifically descriptive-comparative analysis. This approach provided clarity and structure for understanding how the different Tech Voc institutions practiced quality assurance and where improvements were needed, and it was supported by targeted, evidence-based recommendations that were practical and suitable for the needs of Tech Voc education in Region XI.

Research Locale. The study included selected public and private technical vocational institutions in Region XI, Philippines. These schools were chosen because they offered technical vocational courses. According to the registrar's records, the populations of the respective schools are as follows: 675, 450, and 1050. These schools are accredited by the Technical Education and Skills Development Authority (TESDA); thus, the same curricular offerings are provided to students.

Research Respondents. The research involved a diverse range of participants, including administrators, faculty, students, and alumni from selected public and private technical-vocational institutions, each offering distinctive perspectives on the quality assurance process. Administrators were selected based on their roles in process development and product distribution, which directly affected the implementation of quality assurance. Faculty were included because of their direct involvement in the delivery of instruction and the use of quality assurance practices in the classroom. Students were chosen as respondents to share their experiences and perceptions of quality assurance practices in their education, providing background information for the study. Alumni were included in this study to gain a long-term understanding of how quality assurance programs prepared them for work and to provide feedback on the long-term relevance and effectiveness of their training.

Research Instruments. A validated and adapted structured questionnaire from a study conducted by Wafudu et al. (2022) entitled "Validity and reliability of a questionnaire developed to explore quality assurance components for teaching and learning in vocational and technical education" was used. It assessed several quality assurance components within Tech Voc institutions. It consisted of several indicators, each referring to a specific characteristic of quality assurance, such as Teaching Resources, Curriculum Content, Governance and Management, and Student Admission under the Input Domain. Each

indicator contained a specific number of items: ten on teaching resources, five on curriculum content, five on facilities, five on governance and management, and two on student admission. Apart from this, under the Process Domain, there are six items on Monitoring and Supervision, six on Quality of Instruction, six on Classroom Management, five on Assessment and Evaluation, and four on Teaching Climate. Lastly, under Output Domain: nine items on creativity, four on innovation, and six on graduate employability.

Data Analysis. Validity was first achieved when strict use of well-defined quality assurance components in TechVoc was ensured, based on established frameworks and criteria developed by recognized institutions, such as TESDA and other regulatory bodies. Internal validity was enhanced through the use of a systematic sampling procedure, in which selected institutions in Region XI of Tech-Voc represented all the programs and facilities under study. Pilot tests were conducted to determine the appropriate wording and content of the data collection instruments so that they measure what the researcher intended to measure. External validity, or generalizability, was ensured through the wide demographic and geographic representation of stakeholders in Tech Voc, including administrators and faculty, students, and alumni.

Ethical Considerations. The researcher ensured that all ethical criteria were complied with. This research protocol underwent a thorough review by the University of Immaculate Conception Research Ethics Committee.

RESULTS AND DISCUSSION

Status of Quality Assurance Components for Teaching and Learning in Tech Voc in Terms of Input Domain

Displayed in Table 1 is the status of quality assurance components for teaching and learning in Tech Voc in terms of the input domain. The input domain in Tech-Voc education, with an overall mean of 4.41, is described as very high. It means that the implementation of quality assurance components for teaching and learning in Tech Voc is high. The very high average score suggests that a significant number of Tech-Voc institutions possess a robust foundation in teaching resources, curriculum content, governance and management, and student admission processes, which are generally perceived to be of high quality. More so, the standard deviation of 0.42 presents a picture that the respondent's perceptions about quality assurance are almost the same.

Table 1
Status of Quality Assurance Components for Teaching and Learning in Tech Voc in terms of Input Domain

Input Domain	Mean	SD	Descripti
Teaching Resources	4.38	0.47	Very High
Curriculum Content	4.48	0.42	Very High
Governance and Management in our institutions	4.42	0.49	Very High
Student Admission	4.37	0.58	Very High
Total Mean	4.41	0.42	Very High

Process Domain	Mean	SD	Description
Monitoring and Supervision in our institutions	4.49	0.45	Very High
Quality of Instuction	4.48	0.42	Very High
Classroom Management in our institutions	4.42	0.49	Very High
Assessment and Evaluation in our institutions	4.38	0.55	Very High
Teaching Climate	4.35	0.55	Very High
Total Mean	4.32	0.40	Very High

The study's findings indicate that Tech Voc schools demonstrate impressive resilience in their foundational pillars, including teaching resources, curriculum content, governance and management, and student admission processes. The high quality associated with these areas suggests a strong commitment to establishing a solid foundation for effective Tech Voc training.

The result aligns with Pilz's (2017) findings, which establish that strong quality assurance systems are necessary to maintain high standards in technical-vocational institutions. These findings support Idialu's (2007) assertion that vocational education cannot be effectively managed without high teaching standards, accessible learning materials, effective teaching methods, and appropriate student assessments within the program. Additionally, the result concurs with the study of Adegoke (2002), which found that meaningful development cannot occur without skilled personnel and qualified teachers, who are themselves the products of quality teacher education.

Status of Quality Assurance Components or Teaching and Learning in Tech Voc in Terms of Process Domain

Table 2 displays the status of quality assurance components for teaching and learning in Tech Voc in the process domain. The process domain in tech-voc education has an overall mean of 4.32, which is very high. This means that

tech-voc institutions are effectively implementing the instructional process, which is often evident. A low standard deviation of 0.40 indicates that instructional processes are consistent across institutions, all performing at a similarly very high level. The high mean and low standard deviation of quality assurance in the process domain highlight a compelling strength, showing that instructional processes are not only highly effective on average but also consistently applied across various implementations.

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The findings of this research support the conclusions of Brockmann et al. (2019), that well-implemented programs lead to consistency in both training delivery and assessment. Additionally, this research aligns with Young's (2018) emphasis on the importance of consistently transmitting knowledge, which is a crucial element of effective training. Furthermore, Coles and Bateman (2017) stress that technical-vocational education requires regular monitoring of training sessions and the consistent application of standardized training procedures.

Status of Quality Assurance Components for Teaching and Learning in Tech Voc in terms of Process Domain

Table 3 shows the status of quality assurance components for teaching and learning in Tech Voc, focusing on the Output Domain. The very high overall mean score of 4.41 indicates that these institutions achieve their intended learning outcomes, which is oftentimes evident. The low standard deviation of 0.45 indicates a high degree of consistency in the institution's effectiveness across different areas within the output domain. The data strongly suggests that Tech Voc institutions are successful in equipping their students with the skills and knowledge necessary for success in their chosen careers. Furthermore, the low standard deviation of 0.45 suggests a high level of consistency in effectiveness across different areas within the output domain.

Table 3
Status of Quality Assurance Components for Teaching and Learning in Tech Voc in terms of Output Domain

Output Domain	Mean	SD	Description
Creativity	4.44	0.47	Very High
Innovation	4.37	0.54	Very High
Employability	4.39	0.51	Very High
Total Mean	4.41	0.45	Very High

Research indicates that a high average signifies that these institutions are effectively equipping their students with the skills and knowledge needed for successful transitions into their desired careers. Additionally, it demonstrates that these institutions consistently achieve high results.

The findings of this research support the work of El-Haggag and Alshammary (2020), stating that integrating creativity and innovation skills into training programs enhances graduate employability. Additionally, the research aligns with Bridgstock (2016), who emphasized the need for graduates to possess competencies that enable them to navigate a changing job market. Moreover, Wheelahan and Moodie (2016) argue that considering specific skill sets, employability rates, and various indicators of graduate performance can yield strategies that optimize student outcomes.

Significance of the Difference in the Status of Quality Assurance Components of the Respondents

Table 4 presents the significance of differences in the status of quality

assurance components in the input domain across profiles. Significant differences were identified between the respondents' profiles and the input domain, with an F value of 4.101 and a significance level of 0.018. Specifically, it is significant in the profile for teaching resources, with an F-value of 6.190 and a significance level of 0.002. In particular, the difference is observed between faculty and students, with a Sig of 0.22; this result implies that variations in learner profiles and input domains have a measurable impact on educational outcomes. This impact is evident in disparities in student achievement, engagement, and satisfaction, clearly demonstrating the necessity for teaching methods to be customized to meet diverse learner profiles. Additionally, faculty expertise is crucial in identifying and rectifying mismatches between these profiles and instructional strategies. This competence enables decisive interventions, such as faculty development, curriculum adjustments, and resource enhancements, all aimed at improving educational quality.

Table 4
Significant Difference in the Status of Quality Assurance Components of the Respondents when Analyzed According to Profile

Variables Compared	F	Sig	Decision
Profile vs. Input	4.101	0.018	Significant
Profile and Teaching Resource	6.190	0.002	Significant
Faculty and Students		Sig. = 0.02	
Profile and Curriculum Content	2.087	0.127	Not Significant
Profile and Governance and Management in the Institution	1.401	0.249	Not Significant
Profile and Student Admission	3.216	0.042	Significant
Alumni and Students		Sig. = 0.068	
Profile vs. Process	1.558	0.213	Not Significant
Profile vs. Output	0.844	0.432	Not Significant

A significant finding across profiles and teaching resources in the context of quality assurance for teaching and learning emphasizes how individual learner and educator characteristics influence the availability, accessibility, and effective use of educational tools and materials. The study reveals that variations in students and faculty, such as learning preferences, pedagogical expertise, and resource accessibility, affect the quality of teaching and learning. This influence manifests in variations in student engagement, learning outcomes, and the overall educational experience, underscoring the

need to align teaching resources with the diverse needs and abilities of both students and faculty.

The study's results are consistent with van Deursen and van Dijk's (2019) research, which indicates that changes in students' abilities affect their ability to effectively use learning materials and tools. Additionally, research by CAST (2018) suggests developing adaptable learning environments that account for diverse learner profiles, ensuring that learning materials and tools are accessible to everyone. Furthermore, Tondeur et al. (2017) emphasize the essential role of teachers' digital competence in the successful integration of technology in classrooms and highlight the value of educators' attributes in the application of learning tools.

There are significant differences between faculty and students (Sig. = 0.02). This finding emphasizes that the effectiveness of educational delivery largely depends on the interaction between the characteristics of both groups and their access to and use of teaching resources. Variations in digital literacy, technical skills, learning styles, and resource availability among students and faculty can significantly influence learning outcomes. These discrepancies may lead to uneven learning experiences, lower student engagement, and decreased instructional efficiency. This highlights the importance of ensuring that resources are not only available but also effectively utilized by both faculty and students. The study reveals significant inequalities in digital literacy, technical skills, learning styles, and access to resources between teachers and students. Faculty with advanced digital literacy may design technology-intensive activities that students lacking access or skills struggle to engage with, leading to frustration and disengagement. Conversely, students accustomed to interactive learning methods may find traditional, resource-poor teaching approaches less engaging and effective. This inconsistency in learning experiences can arise when some students fully utilize available resources and teaching practices, while others fall behind due to gaps in skills or opportunities.

The research findings support the view expressed by Archambault and Crippen (2019) that the effectiveness of educational delivery largely depends on the characteristics of both students and teaching staff, as well as access to resources and their utilization for teaching. Furthermore, Selwyn (2016) observed that differences in students' digital literacy, technical skills, and individual learning styles result in varied levels of engagement and understanding of course content. Additionally, the work of Basham et al. (2020)

found that a teaching staff's ability to effectively use technology and various pedagogical approaches influences their capacity to appropriately engage with different students.

Enhancement Program

Presented in Table 5 is the enhancement program that is crafted in response to the study's findings. The study found that the implementation of quality assurance components for teaching and learning in tech voc is high.

Table 5
Enhancement Program

Area of Concern	Objective	Program	Implementing Strategies	Person Involved	Time Frame	Evaluation/ Success Indicator
ICT Center Enhancement	Enhance digital literacy and integrate technology into Tech Voc programs.	ICT-Integrated Curriculum & Skills Development	Curriculum Mapping Digital Resource Creation Faculty Training Implementation Skills Workshops Certification Programs	Curriculum Development Team ICT Center Staff External Trainers. Certification Bodies.	Curriculum/Resources: 3-6 months Faculty Training: Ongoing LMS:2-3 months. Skills/ Certification Ongoing	Lesson plans with ICT integration Faculty feedback on training Student engagement with LMS. #certifications earned. Employer feedback on graduate skills
	Foster ICT-enabled research and innovation.	ICT-Enabled Research & Innovation Hub	Research Proposal Support LabAccess Mentorship Innovation Space	ICT Center Staff Tech Voc Faculty Industry Mentors	Research Support: Ongoing Lab Access: Ongoing Mentorship: Ongoing Innovation Hub: 3-6 months, ongoing	# ICT research projects Quality/impact of research outputs. Student participation in innovation projects # student-led ICT projects.
	Maintain and upgrade ICT infrastructure for optimal performance.	ICT Infrastructure & Maintenance	Hardware/Software Upgrades Security Technical Support	ICT Center Staff IT dept.	Upgrades: Ongoing Security/ Support Maintenance: Ongoing	Equipment uptime User satisfaction with support.

			Preventative Maintenance			# security incidents. Maintenance program effectiveness
Research Lab Enhance-ment	Equip the lab with necessary resources for Tech Voc research.	Research Equipment Acquisition & Maintenance	Needs Assessment Procurement Maintenance Plan Safety Protocols	Research Committee Lab Manager/ Technician Procurement Office	Needs Assessment/Procurement: 6-9 months Maintenance/ Safety: Ongoing.	Equipment availability Adherence to safety protocols Budget utilization for equipment/ maintenance.
	Enhance research capacity among faculty and students.	Research Capacity Building	Training Workshops Mentorship Program Collaboration Opportunities Research Grants	Research Committee Tech Voc Faculty Grants Office	Training/ Mentorship/ Collaboration: Ongoing Grants: Ongoing.	#faculty /students trained # mentorship pairings #collaborative projects Amount of funding secured.
	Disseminate research findings and promote utilization.	Knowledge Dissemination & Commercialization	Publications Conferences Tech Transfer Industry Engagement.	Research Committee Tech Voc Department Head	Publications/Conferences/Engagement: Ongoing Tech Transfer: As needed.	#publications #conference presentations industry engagement.
Admission Entry Requirements	Increase the number of qualified applicants meeting entry requirements.	Outreach & Preparation Program	Community Outreach Pre-Assessment/ Guidance Skills Enhancement Financial Aid Application Support	Admissions Office/Team Guidance Counselors Instructors/ Trainers Financial Aid Staff.	Outreach/Pre-Assessment/ Guidance/ Application Support: Ongoing. Skills Enhancement/ Financial Aid: Aligned with application periods.	# outreach events. # applicants meeting requirements # skills enhancement program participants # applicants receiving financial aid
Admission Policy	Ensure admission policy aligns with TESDA standards.	Policy Review, Revision & Implementation	Gap Analysis Policy Revision Dissemination/ Training	Admissions Committee/ Team Legal Counsel (if needed)	Gap Analysis/ Revision: 4-7 months Dissemination /Training: 1-2	# policy gaps identified Revised policy approved

			Monitoring/ Evaluation	HR/Training Team.	months after revision Monitoring/ Evaluation: Ongoing	# stakeholders trained Policy effectiveness based on data/feedback
Adequate Instructional Strategies	To enhance the quality and effectiveness of teaching in Tech Voc programs by equipping instructors with a diverse repertoire of modern, relevant, and engaging instructional strategies tailored to practical skills development, workplace simulation, and current industry standards.	Instructional Strategies Enhancement Program (ISEP) for Tech Voc	Need Assessment Observe classes/workshops Targeted Professional Development	Tech Voc Instructors/Teachers Program Heads/Department Chairs School Administrator/s/Management IT Support Industry Partners/Advisory Board Members	Phase 1: Planning & Needs Assessment: Months 1-2 Phase 2: Initial Workshop Series & Resource Hub Setup: Months 3-5 Phase 3: Ongoing Evaluation: Continuous throughout the year, with a formal review at the end of Month 12	Increased Variety of Strategies Improved Instructor Competence & Confidence Enhanced Student Engagement Improved Student Performance Resource Utilization Active Collaboration Stronger Industry Relevance

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