

The Decoupling Paradox: A Mixed-Methods Analysis of Institutional Compliance and Structural Resource Obsolescence in Developing TVET Systems

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ABSTRACT

Technical-Vocational Education and Training (TVET) systems worldwide are increasingly expected to align with the demands of the Fourth Industrial Revolution (4IR). However, many public vocational institutions in developing economies continue to face structural and technological constraints that affect program delivery. This study examined the operational realities of state-administered TVET institutions on Panay Island, Philippines, during the 2024–2025 academic year. Specifically, it sought to determine the levels of program implementation, facilitator competency, and institutional challenges, as well as the relationships among these variables.

An explanatory sequential mixed-methods design was employed. Quantitative data were collected from 108 vocational facilitators selected through stratified random sampling, while qualitative insights were obtained from six purposively selected key informants. Descriptive and inferential statistical techniques, including Spearman's Rank Correlation, were used to analyze the data, complemented by phenomenological analysis of participants' experiences.

Findings revealed very high levels of formalized program implementation ($M = 4.53$, $SD = 0.12$) and facilitator competency ($M = 4.44$, $SD = 0.61$). Despite these favorable indicators, respondents identified serious concerns related to outdated technologies and inadequate infrastructure ($M = 4.48$, $SD = 0.66$). Correlation analysis showed no significant relationship between implementation and facilitator competency ($r_s = .07$, $p = .47$), nor between implementation and institutional challenges ($r_s = .03$, $p = .76$). These results suggest the presence of institutional decoupling, wherein administrative compliance is maintained through the resilience and adaptive practices of facilitators, thereby concealing persistent resource deficiencies.

The study proposes a strategic structural alignment framework that bridges policy expectations with actual institutional capacities to enhance the sustainability and responsiveness of TVET systems.

Keywords: TVET systems, institutional decoupling, facilitator agency, mixed-methods evaluation, educational governance.

INTRODUCTION

Global imperative and the policy-practice gap

In today's knowledge-based economy, Technical-Vocational Education and Training (TVET) plays a crucial role in workforce development, industrial growth, and poverty reduction. The emergence of the Fourth Industrial Revolution (4IR) has intensified the need for TVET systems to equip learners with digital competencies, automation-related skills, and higher-order technical abilities. International organizations such as UNESCO have emphasized the importance of modernizing vocational education to meet changing labor market demands. In the Philippines, this mandate is implemented through the Technical Education and Skills Development Authority (TESDA), which regulates training programs through Republic Act 7796, Training Regulations, and the Philippine TVET Qualifications Framework.

Despite these policy initiatives, many public vocational institutions continue to experience a gap between formal standards and actual classroom realities. While institutional reports frequently indicate high levels of compliance, training centers often struggle with inadequate facilities, outdated equipment, and limited resources. Understanding how these institutions sustain program delivery despite such constraints remains an important area of inquiry. Accordingly, this study examined the relationships among program implementation, facilitator competency, and institutional challenges within state-administered vocational institutions on Panay Island during the 2024–2025 academic year.

State-of-the-art review and research gap

Existing literature on vocational education generally falls into two broad categories. One body of research focuses on national indicators such as employment outcomes and graduation rates, while another consists of localized descriptive studies that provide limited explanation of broader organizational processes. Although these studies contribute valuable insights, they provide little understanding of how institutions maintain high levels of compliance despite persistent deficiencies in infrastructure and technology.

Consequently, there remains a need to examine the mechanisms that enable frontline facilitators to achieve certification targets even under resource-constrained conditions. This study addresses this gap by investigating the interaction between policy implementation, facilitator competence, and structural challenges. Through a mixed-methods approach, the study offers a deeper understanding of institutional realities within developing educational systems.

Theoretical orientation

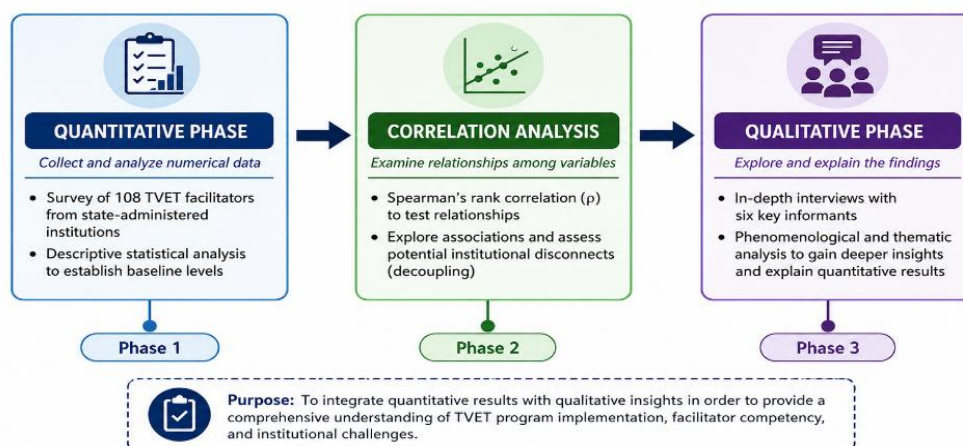
The study was anchored on John Dewey's Theory of Vocational Education, Rogan and Grayson's Curriculum Implementation Theory, and Sherry Ortner's Practice Theory. Dewey emphasized the importance of experiential learning and the development of practical thinking within authentic environments. Rogan and Grayson argued that curriculum implementation depends largely on an institution's existing capacity, suggesting that policy directives alone cannot guarantee successful execution. Meanwhile, Ortner's Practice Theory highlights the role of human agency in responding to structural constraints. Together, these perspectives provide a framework for understanding how vocational facilitators adapt their practices to sustain program delivery despite institutional limitations.

METHODOLOGY

Research design

This study employed an explanatory sequential mixed-methods design following the framework proposed by Creswell and Creswell (2018). The quantitative phase was conducted first to determine patterns and relationships among the variables under investigation. The results obtained from the survey were then further explored through a qualitative phase to provide a deeper understanding of the participants' experiences and perspectives.

Figure 1. Explanatory Sequential Mixed-Methods Design of the Study



Participants and sampling procedures

The quantitative component involved 108 vocational facilitators from selected state-administered technical-vocational institutions on Panay Island. Participants were selected through stratified random sampling to ensure representation from various trade sectors. For the qualitative phase, six key informants were purposively selected based on their extensive experience in vocational education. To avoid duplication of responses, individuals who participated in the qualitative interviews were excluded from the survey sample.

Research instruments and validation

Data were collected using a researcher-developed questionnaire based on international vocational education standards and TESDA Training Regulations. The instrument measured three dimensions: program implementation, facilitator competency, and institutional challenges. Content and construct validity were established through evaluation by a panel of experts in vocational education. A pilot test involving 30 non-participating instructors yielded a Cronbach's alpha coefficient of .875, indicating high reliability and internal consistency.

Data analysis

Quantitative data were analyzed using descriptive statistics, including frequency distributions, means, and standard deviations. Spearman's Rank Correlation Coefficient was used to determine the relationships among variables at a significance level of .05. Qualitative data obtained from interviews were transcribed and analyzed through thematic coding to identify common patterns and emerging themes. Ethical considerations were observed throughout the study, and all sources were properly acknowledged to ensure academic integrity.

RESULTS

Quantitative findings

The findings revealed consistently high ratings across the major dimensions of the study. Program implementation obtained a composite mean of 4.53 (SD = 0.12), indicating a high level of implementation. Similarly, facilitator competency received a mean score of 4.44 (SD = 0.61), suggesting that instructors possessed strong professional capabilities.

Despite these favorable indicators, respondents also reported considerable challenges related to technology and infrastructure. The overall mean for institutional challenges was 4.48 (SD = 0.66), highlighting concerns regarding outdated equipment and limited resources necessary for modern vocational training.

Correlation analysis showed no significant relationship between program implementation and facilitator competency ($r_s = .07, p = .47$). Likewise, no significant relationship was found between program implementation and institutional challenges ($r_s = .03, p = .76$). These results suggest that the level of formal implementation remained relatively stable regardless of variations in facilitator competency or the presence of institutional constraints.

Table 1: Level of TVET Program Implementation Across Key Components (N = 108)

Program Implementation Components	Mean (M)	Standard Deviation (SD)	Interpretation
Curriculum Development and Alignment	4.59	0.22	Highly Implemented
Infrastructure and Resource Provision	4.53	0.31	Highly Implemented
Industry Linkages and Internship Opportunities	4.52	0.25	Highly Implemented

Program Implementation Components	Mean (M)	Standard Deviation (SD)	Interpretation
Assessment and Certification Practices	4.52	0.25	Highly Implemented
Trainers' Qualifications and Professional Preparation	4.50	0.30	Highly Implemented
Overall Mean	4.53	0.12	Highly Implemented

Note. Results indicate consistently high levels of implementation across all major components of TVET delivery.

Table 2: Spearman Rank Correlation Analysis Between Program Implementation, Facilitator Competency, and Institutional Challenges

Variables Examined	Spearman's rho (rs)	p-value	Decision at $\alpha = .05$
Program Implementation and Facilitator Competency	.07	.47	Not Significant; Fail to Reject H_0
Program Implementation and Institutional Challenges	.03	.76	Not Significant; Fail to Reject H_0

Note. The results indicate that program implementation was not significantly associated with either facilitator competency or institutional challenges.

Qualitative findings

Three themes emerged from the interview data.

Curriculum relevance in a changing labor market

Participants emphasized the importance of continuously updating vocational curricula to keep pace with technological developments and evolving industry demands. Although existing curricula provide essential competencies, regular revisions are necessary to ensure continued relevance.

Infrastructure limitations and technological obsolescence

Informants acknowledged that available facilities generally support instructional requirements. However, many expressed concerns regarding outdated equipment and the lack of advanced technologies commonly used in contemporary industries. These limitations affect the ability of institutions to fully simulate workplace environments.

Instructor adaptability and resourcefulness

The interviews revealed that instructors frequently employ creative strategies to compensate for resource shortages. Participants described modifying instructional approaches and integrating complementary skills to ensure that students acquire the competencies required for certification and employment.

DISCUSSION

The findings indicate that high levels of program implementation can coexist with significant institutional challenges. This pattern reflects the concept of institutional decoupling, which describes a situation in which formal compliance with policies and standards does not necessarily correspond to the actual availability of resources and infrastructure.

The consistently high implementation scores suggest that vocational institutions are capable of fulfilling administrative and regulatory requirements. However, the qualitative findings demonstrate that these achievements are often sustained through the adaptability and commitment of facilitators rather than through adequate institutional resources alone.

These results support the proposition of Rogan and Grayson's Curriculum Implementation Theory that successful implementation depends on institutional capacity. Likewise, Ortner's Practice Theory highlights the importance of human agency in responding to structural limitations. The study further demonstrates the value of mixed-methods research, as qualitative evidence provided important explanations that could not be captured solely through statistical analysis.

CONCLUSION

This study demonstrated that public technical-vocational institutions on Panay Island maintain high levels of program implementation despite the presence of considerable technological and infrastructural challenges. The absence of significant correlations among the variables suggests that formal compliance indicators alone may not fully reflect the realities experienced by vocational institutions.

The findings underscore the important role played by facilitators in sustaining the quality of program delivery under resource-constrained conditions. Nevertheless, reliance on individual initiative is not sufficient to ensure long-term institutional effectiveness. Strengthening infrastructure, modernizing equipment, and promoting stronger collaboration with industry stakeholders are essential to improving the responsiveness and sustainability of TVET systems.

Furthermore, policymakers and educational leaders should complement compliance-based evaluation systems with more comprehensive assessments that consider actual training environments and technological capacities. Such measures would contribute to a more accurate understanding of institutional performance and support the continuing development of vocational education in developing economies.

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