



The Administrator's Lens: Strategic Resource Management and the Operational Realities of TVL Programs

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ABSTRACT

This phenomenological study explored the strategic resource management practices, operational realities, and adaptive coping mechanisms of five purposively selected private school administrators managing Technical-Vocational-Livelihood (TVL) programs in Bukidnon, Philippines. Thematic analysis revealed that navigating high overhead costs and resource limitations requires a shift toward entrepreneurial leadership. Financial sustainability is pursued through production-based laboratories, phased capital expenditures, and the strategic use of government subsidy vouchers. Human capital is optimized by recruiting dual-qualified practitioners, establishing ladderized professional upskilling, and integrating industry-academia mentorship. However, program delivery is constrained by systemic frictions, including dual DepEd and TESDA regulatory oversight, rapid equipment obsolescence, supply-chain bottlenecks, and labor-market instability associated with industry poaching. To protect the instructional core, administrators employ resource improvisation and administrative buffering, such as material substitution and institutional mock assessments. Ultimately, TVL sustainability depends on structural agility and pedagogical bricolage that transform operational bottlenecks into adaptive workflows, offering a practical framework for educational leaders and policymakers.

Keywords

Educational leadership
Entrepreneurial management
Resource optimization
Technical-Vocational-Livelihood
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Introduction

The global education landscape has increasingly shifted toward competency-based approaches, in which Technical-Vocational-Livelihood (TVL) programs play an important role in industrial readiness and economic resilience. At the center of these programs is the school administrator, who must navigate the intersection of pedagogical goals and physical resource constraints. Strategic resource management in this context is not merely an administrative task; it requires the coordinated management of financial, human, and material assets to bridge the gap between classroom instruction and industry standards. As education systems respond to the demands of the Fourth Industrial Revolution, the way administrators allocate and manage these resources can influence the relevance and employability outcomes of vocational education.

Despite the high stakes of vocational education, a persistent implementation gap exists between the theoretical design of TVL curricula and operational realities within educational institutions. Many TVL programs experience resource misalignment, as the rapid evolution of industry technology outpaces institutional procurement cycles. Administrators are often constrained by bureaucratic rigidities, insufficient budget allocations, and limited access to specialized technical expertise among faculty [1], [2]. This can weaken the learning environment when students train on obsolete equipment, contributing to a mismatch between graduate skills and labor-market demands. Without a strategic framework for optimizing limited resources, the sustainability and relevance of TVL programs remain under significant pressure.

Examining administrators' perspectives is crucial to developing resilient educational systems. Xinming [3] highlights that understanding operational realities enables policymakers to move beyond abstract curriculum design and address the practical bottlenecks that hinder vocational excellence. For school leaders, such evidence provides a basis for leveraging limited assets to improve student outcomes. More broadly, it contributes to the discourse on educational leadership in specialized contexts by showing how strategic decision-making can mitigate systemic deficiencies in both public and private vocational sectors.

The discourse on TVL management is shaped by both local challenges and global trends. In the Philippines, the transition to the K-12 system has highlighted substantial logistical hurdles. Ramos [4] emphasizes that although the Department of Education (DepEd) has provided frameworks for TVL specialization, implementation is often hampered by shortages of standardized laboratory facilities and materials in rural areas. Pajares et al. [5] similarly note that schools frequently experience a skills-equipment gap, in which enrollment exceeds the capacity of available machinery. These concerns are reinforced by Alarcon et al. [6], who associate school-

based management with the efficiency of TVL laboratory maintenance, suggesting that leadership quality is relevant to resource sustainability.

Globally, the discourse has shifted toward digital integration and public-private collaboration. In Germany, home to the dual vocational system, Eichhorst et al. [7] argue that successful vocational education depends partly on the co-management of resources by the state and private industry, which can reduce the financial burden on schools. In another emerging-economy context, Barsoum [8] highlights how centralized governance and market pressures can complicate institutional management. Research from China also underscores the broader need for institutions to respond strategically to rapid technological and economic transformation [9]. Together, these studies indicate that administrators require both managerial capability and technological awareness to sustain resource-intensive education in changing environments.

This study explored strategic resource management and the multifaceted operational realities of implementing Technical-Vocational-Livelihood (TVL) programs within private educational institutions. Specifically, the inquiry examined the mechanisms through which school administrators optimized financial, human, and physical assets amid the high overhead costs of vocational training. It also identified contemporary operational frictions affecting the day-to-day delivery of technical education. Finally, the study described the adaptive coping mechanisms and resilience strategies used by administrators to navigate systemic gaps and sustain their programs within a competitive educational environment.

Methods

A. Research Design

This study employed a phenomenological research design to capture the lived experiences and strategic decision-making processes of school administrators managing TVL programs. The design was appropriate for exploring the multifaceted operational realities of vocational education because it enabled an in-depth, idiographic analysis of how leaders navigate systemic friction and resource scarcity.

B. Research Locale

The study was conducted across five purposively selected private educational institutions in Bukidnon Province, Philippines, a region undergoing continued agro-industrial and technological development. The participating institutions offered diverse programs, including Home Economics (Cookery, Bread and Pastry Production, and Food and Beverage Services), Industrial Arts (Automotive Servicing and Electrical Installation and Maintenance), and Information and Communications Technology (Computer Programming and Computer Systems Servicing). This mix of programs provided a multisectoral setting for examining resource management because

each specialization imposed distinct operational demands, ranging from perishable inventory in culinary laboratories to capital-intensive automotive equipment and rapid hardware turnover in ICT facilities.

C. Sample and Sampling Technique

The study used non-probability purposive sampling, specifically criterion sampling, to ensure that participants had sufficient experience to provide information-rich accounts relevant to the research objectives. The participants were five school administrators from selected private institutions in Bukidnon, each serving as a key informant because of direct responsibility for TVL operations. A strict inclusion criterion was applied: participants were required to have at least five years of leadership experience in managing TVL programs. This requirement increased the likelihood that participants had encountered multiple fiscal cycles, curriculum changes, and accreditation processes, allowing them to provide a retrospective perspective on strategic resource optimization and resilience strategies.

D. Research Instrument

A semi-structured interview guide served as the primary instrument for data elicitation. The instrument was designed using a deductive-inductive approach in which the initial question domains were derived from existing perspectives on strategic resource management and operational resilience while retaining sufficient flexibility for emergent themes to arise during the interviews. The guide was organized into three thematic modules: Strategic Resource Allocation, focusing on the optimization of financial and physical assets; Operational Realities, addressing frictions and bureaucratic hurdles in TVL implementation; and Adaptive Coping Mechanisms, exploring administrators' strategies for sustainability.

To establish content validity and improve instrument usability, the interview guide underwent expert review by three specialists in educational management and vocational education. The guide was also pilot-tested with a non-participating administrator to assess the clarity, neutrality, and logical sequence of the questions. Interviews were conducted either face-to-face or through synchronous digital platforms and were supported by digital audio recording and field notes to capture contextual nuances relevant to interpreting the administrators' experiences.

E. Data Gathering Procedure

Data collection followed a systematic four-stage protocol intended to support the ethical integrity and depth of the qualitative inquiry. First, formal administrative clearances were secured from the participating private institutions in Bukidnon, followed by participant recruitment through an informed-consent process that emphasized anonymity and voluntary participation. Second, semi-structured, in-depth interviews were conducted either face-to-face or

through synchronous digital platforms, depending on participant preference, and were digitally recorded to support verbatim transcription. During the interviews, the researcher used recursive questioning and maintained field notes to document non-verbal cues and relevant administrative context. Finally, member checking was conducted by returning the transcripts to participants for validation before thematic analysis.

F. Data Analysis Method

The study followed the six-phase thematic analysis framework developed by Braun and Clarke [10] to identify, analyze, and report patterns within the qualitative data. The process began with familiarization through repeated reading of the verbatim transcripts and initial note-taking. Initial codes were then generated by systematically labeling relevant segments of the text. In the third and fourth phases, the codes were collated into potential themes and reviewed to ensure that they adequately represented both the dataset and the context of private TVL management. The fifth phase involved defining and naming themes that illustrated the intersection between strategic intent and operational constraints. The final phase involved producing the report and linking the thematic evidence to the research objectives and relevant literature.

Results and Discussion

A. On the Strategic Resource Management and Asset Optimization

Table 1 illustrates a multidimensional approach to strategic resource management in which administrators move beyond traditional academic oversight toward a resource-based view of vocational education. Through fiscal ingenuity, institutions shift from tuition dependence toward entrepreneurial sustainability by operating production-based laboratories and using phased procurement strategies to manage high capital expenditures. This fiscal approach is complemented by human-capital optimization, which prioritizes the recruitment of dual-qualified practitioners and incentivized professional development to narrow the gap between industry standards and pedagogical delivery.

Table 1. Thematic Matrix of Strategic Resource Management Practices among Private School TVL Administrators

Themes	Sub-Themes
Fiscal Ingenuity and Sustainability	a. Implementation of revenue-generating laboratories
	b. Adoption of phased capital expenditure
	c. Utilization of government subsidy vouchers
Human Capital Optimization	a. Recruitment of dual-qualified practitioners
	b. Incentivization of professional upskilling
	c. Integration of industry-academic mentorship

1. Theme 1: Fiscal Ingenuity and Sustainability

Fiscal ingenuity and sustainability reflect a shift from traditional administrative oversight toward an entrepreneurial leadership model necessitated by the resource-intensive nature of TVL programs. By operating revenue-generating laboratories, administrators can transform instructional spaces into production units that help offset operational costs. Phased capital expenditure can further support fiscal resilience by aligning infrastructure upgrades with available liquidity rather than concentrating major expenditures in a single period. In addition, the strategic use of government subsidy vouchers for senior high school education can support financial access, stabilize enrollment, and diversify institutional revenue streams.

This theme is supported by the following responses from the participants:

"We treat our TVL labs as small business units. For example, the bread produced is sold to the canteen to fund the next batch of ingredients and continuous operation." Participant 1;

"Strategic management means we don't just purchase, but we still need to consider and calculate the ROI of every machine before signing the check." Participant 2;

"...maximizing the SHS DepEd voucher from the government as a primary revolving fund for laboratory expenses and other operational needs." Participant 3;

"...implementation of a phased or tranche procurement plan...where the school purchase or maintain materials and equipment in Year 1 and specialized attachments in Year 2, and so on." Participant 4;

"We negotiated with our suppliers to provide consignment materials for our activities... reducing upfront inventory costs." Participant 5.

The shift from traditional administrative oversight toward entrepreneurial leadership in TVL programs, characterized by revenue-generating laboratories, return-on-investment-oriented procurement, phased capital expenditures, and government voucher utilization, is consistent with literature on fiscal sustainability in vocational education. Besing and Saan [11] report that income-generating projects in Philippine state universities can contribute to institutional resource generation, paralleling participant strategies that treat laboratories as productive units and use consignment arrangements to reduce upfront costs. Similarly, Doncillo [12] proposes a revenue-generation framework for technical-vocational schools that emphasizes entrepreneurial initiatives and strategic financial planning, supporting the use of phased procurement and alternative funding mechanisms to offset resource-intensive TVL costs.

2. Theme 2: Human Capital Optimization

Human-capital optimization among private secondary school administrators prioritizes the recruitment of dual-qualified teachers who possess both pedagogical credentials and industry-specific expertise, enabling authentic, application-oriented instruction that bridges classroom learning and workplace practice. These educators can enhance program relevance by integrating practical skills into the curriculum while meeting certification expectations for both teaching competence and technical proficiency. Professional upskilling is encouraged through targeted mechanisms such as stipends, recognition, flexible scheduling, and subsidized training. Industry-academia mentorship further supports these efforts by connecting teachers and students with practitioners who can provide structured guidance, current workplace practices, and real-world exposure.

This theme is strengthened by the following responses from the participants:

"Aside from passing the LET, our TVL teachers are required to have a National Certificate on programs that we have. We also consider industry experts who are willing to take the LET; it is cheaper to train an expert to teach than vice-versa." Participant 1

"...our faculty development initiatives involve ladderized training where we sponsor our teachers for NC III, IV or TMs to ensure we stay ahead of standards." Participant 2

"We assessed and mapped our faculty's competencies so that their skills are aligned with what the curriculum needs and what the program requires." Participant 3

"...from time-to-time, if necessary, we are hiring part-time industry consultant to mentor our TVL teachers on latest workplace safety protocols and up-to-date assessment procedures." Participant 4

"The school provides an incentives and compensation adjustments for any faculty member who successfully passes a new industry assessment certification." Participant 5

Lu [13] describes the development of dual-qualified teachers in vocational higher education through the recruitment of industry practitioners and structured pathways for acquiring pedagogical qualifications. This approach supports instructional authenticity and curriculum-industry alignment and parallels the participants' emphasis on sponsoring faculty for NC III, NC IV, or Trainer's Methodology credentials. Mugwaze and Smith [14] likewise emphasize the principal's role in strategic human-capital management, including subject-specific recruitment, professional development, incentives, and competency mapping. These practices correspond with the participants' use of faculty competency assessment, part-time industry consultants, and certification-based rewards to strengthen instructional capacity and employability-oriented teaching.

B. On the Operational Realities and Systemic Constraints of TVL Program Delivery

The operational landscape of TVL program delivery is characterized by a complex interaction of regulatory, material, and human-capital constraints that challenge institutional resilience. Table 2 presents these systemic realities through three thematic lenses: regulatory and bureaucratic pressure, resource attrition and technological lag, and labor-market instability. The DepEd-TESDA dual structure creates a substantial administrative burden by requiring institutions to navigate overlapping compliance standards while managing extensive documentation and continuous audit readiness. Technical instruction is also affected by equipment obsolescence and supply-chain delays, which intensify wear and tear on essential training resources. Human-capital instability adds another layer of difficulty as schools lose certified trainers to industry, experience staff turnover, and face persistent gaps in pedagogical and technical competence.

Table 2. Thematic Matrix of Operational Realities and Systemic Challenges in TVL Program Implementation

Themes	Sub-Themes
Regulatory & Bureaucratic Pressure	a. Navigation of DepEd-TESDA dualism b. Burden of excessive documentation c. Management of audit-readiness stress
Resource Attrition & Tech Lag	a. Acceleration of equipment obsolescence b. High frequency of tool wear-and-tear c. Delays in technical supply chains
Labor Market Instability	a. Attrition of certified trainers b. Competency gaps in pedagogical delivery c. Competitive poaching by industry sectors

1. Theme 1: Regulatory & Bureaucratic Pressure

The first thematic pillar concerns the administrative friction inherent in the Philippine vocational education system. Central to this challenge is the need to navigate DepEd-TESDA dualism, whereby institutions must reconcile the academic requirements of the Department of Education with the competency-based standards of the Technical Education and Skills Development Authority. This dual-governance arrangement can generate an excessive documentation burden, diverting faculty attention from instruction toward compliance. Institutions also face persistent audit-readiness pressure as they seek to maintain the quality-assurance standards required for continued accreditation.

Participant accounts further illustrate this theme:

"The reality is a constant tug-of-war between DepEd's academic standards and TESDA's technical requirements." Participant 2

"...spend more time preparing for audits than we do observing the actual skills training in the workshops." Participant 4

"...complying with the ever-changing safety standards from multiple agencies is a logistical challenge for a small school." Participant 5

The overlapping oversight of DepEd's formal curriculum requirements and TESDA's performance-based assessments can produce administrative overload through redundant reporting and accreditation demands, particularly in small private schools where compliance activities compete with instructional priorities [6], [15]. Mokher and Mella-Alcazar [16] similarly describe policy-practice challenges in educational transitions, reinforcing the importance of interagency coordination and coherent quality-assurance requirements. In the context of TVL implementation, these findings help explain why administrators perceive conflicting or overlapping standards as a persistent operational burden.

2. Theme 2: Resource Attrition & Tech Lag

Material constraints in Philippine vocational education include rapid equipment obsolescence, accelerated wear and tear from intensive student use, and delays in technical supply chains that can disrupt curriculum delivery. Participants described outdated ICT hardware amid increasing software requirements, prolonged downtime caused by unavailable industrial-oven components, and rising material costs in automotive programs. Together, these conditions make it difficult to maintain training environments that remain aligned with current industry practice.

Primary data from the interviews reinforce these thematic findings:

"For our ICT program, a computer bought two years ago is already an outdated due to continuous update of software and specification requirements...maintaining high-spec units without a subsidy is our biggest challenge yet." Participant 1

"One broken industrial oven can derail a whole semester's laboratory schedule because parts are not usually available in our locality. We often have to wait months for spare parts, leaving our specialized machines useless." Participant 3

"The cost of materials especially for our automotive program has drastically increased, making our original budget obsolete." Participant 4

Generalao et al. [17] discuss challenges affecting TVET outcomes in the Philippines, while the participant accounts in this study show how equipment limitations and supply-chain bottlenecks can translate into prolonged laboratory downtime and reduced training continuity. Relajo-Howell [18] likewise identifies challenges in implementing K-12 technical-vocational tracks. These findings are consistent with the administrators' reports of equipment failure, rising material costs, and procurement delays, all of which point to the need for timely maintenance, replenishment, and financing mechanisms that protect practical instruction.

3. Theme 3: Labor Market Instability

The final theme concerns the volatility of human capital within the TVL sector. Certified trainers may leave the academic sector for more financially attractive opportunities, including technical roles in industry or positions in other institutions. These departures can create gaps in pedagogical delivery because schools must recruit replacements who possess both technical credentials, such as National Certificates, and professional teaching qualifications, such as the Licensure Examination for Teachers (LET). The challenge is compounded by the fact that technical expertise alone does not automatically translate into effective classroom teaching.

Participant accounts provide direct evidence of this concern:

"... become a training ground of teacher...we train them, and then they leave to practice in the industry." Participant 1

"The moment our trainers get their NCs and TMs, they are scouted by other public TVL institutions, big companies, or go abroad for better pay." Participant 2

"...reality is that an expert auto-mechanic is not always a good teacher; managing a classroom of forty students is a different skill." Participant 3

"Faculty burnout is real because they have to maintain their teaching load while also keeping their industry certifications active." Participant 4

"We struggle to find faculty who are qualified for the standard requirements/qualifications and the technical skills..." Participant 5

Saldevia and Pedroso [19] identify better employment opportunities, compensation concerns, and workload-related stress as important drivers of teacher turnover in a Philippine private-school context. These factors are consistent with the participants' reports of certified trainers leaving for industry, public institutions, or overseas employment. Abao et al. [20] further examine attrition within the Philippine TVET pipeline and highlight structural disparities that can weaken continuity from enrollment to certification. Together, these studies support the need for stronger retention strategies, competitive incentives, and continuing professional development for specialized TVL personnel.

C. On the Adaptive Coping Mechanisms of School Administrators

The adaptive strategies presented in Table 3 illustrate the resilience required to navigate systemic constraints in TVL implementation. Through resource improvisation, administrators reduce costs by substituting expensive materials and using just-in-time inventory practices to limit waste and storage overhead. Administrative buffering provides an additional layer of institutional protection through internal mock assessments, designated compliance functions, and production-based financing. Together, these practices show how administrators use local

flexibility and organizational adaptation to protect instructional continuity despite broader operational constraints.

Table 3. Thematic Matrix of Coping Mechanisms and Resilience Strategies Employed by TVL

Administrators	
Themes	Sub-Themes
Resource Improvisation	a. Substitution of high-cost materials b. Implementation of just-in-time inventory
Administrative Buffer Strategies	a. Integration of internal mock assessments b. Execution of production-based financing

1. Theme 1: Resource Improvisation

Resource improvisation demonstrates administrators' agility in responding to the high costs associated with technical training. To maintain instructional continuity despite financial constraints, administrators substitute high-cost materials with locally available alternatives when these substitutions do not compromise the competencies being developed. Just-in-time inventory practices are also used to minimize waste and reduce capital tied up in stored supplies by procuring consumables close to the time they are needed for specific laboratory activities.

Participant accounts further illustrate these strategies:

"...when specialized materials are too expensive, we simulate the process using alternative local materials." Participant 2

"We avoid bulk buying consumables; we buy exactly what the students need for that week to prevent spoilage and waste..." Participant 3

"...our coping mechanism for broken equipment is a repair-first' policy, utilizing our own faculty's technical expertise..." Participant 5

This approach to managing resource limitations through local adaptation is supported by recent work on institutional resilience and resource management. The use of alternative materials and internal technical expertise aligns with the concept of pedagogical bricolage, in which educators creatively combine, modify, and deploy available resources to meet immediate learning objectives [21]. Rather than functioning only as ad hoc workarounds, such practices can represent deliberate adaptive responses to constrained environments. Park [22] similarly shows how actors can transform contextual constraints into adaptive behavior through bricolage and agency, a perspective that helps explain how TVL administrators protect instructional continuity amid resource shortages.

2. Theme 2: Administrative Buffer Strategies

Administrative buffering strategies provide structural and procedural safeguards intended to protect program integrity and financial viability. Internal mock assessments

function as a quality-control mechanism by preparing students for official certification processes and allowing schools to identify gaps before external assessment. Production-based financing can also generate a revolving fund when products created through laboratory activities are sold, thereby reducing reliance on fixed tuition revenue for selected operational expenses.

Participant accounts further illustrate these administrative strategies:

"...we designated a compliance officer just to handle the DepEd-TESDA paperwork to save our teachers from burnout." Participant 1

"We conduct school-based assessment yearly so that by the time the official audit comes, we are beyond ready..." Participant 3

"... one of our strategies for funding is production-based where the students create products that the school actually sells." Participant 4

"...we have a slush fund from small canteen profits specifically earmarked for emergency repairs and maintenance of equipment..." Participant 5

The implementation of administrative buffering and resource-generating mechanisms reflects broader trends in contemporary educational management, particularly in Technical and Vocational Education and Training (TVET). Institutions facing resource constraints may use entrepreneurial and decentralized financing arrangements to protect their instructional functions and create alternative funding streams [23], [24]. In this study, production-based education served both an instructional and a financing function, linking practical learning activities with modest revenue generation while reducing pressure on fixed institutional budgets.

The deliberate assignment of specialized personnel to compliance tasks can also reduce administrative overload among instructional staff. In parallel, internal mock audits and assessments provide a proactive form of quality control that can strengthen readiness for certification and accreditation. Such practices are consistent with quality-assurance frameworks in vocational and technical education that emphasize systematic standards, monitoring, and continuous improvement [25].

Conclusion

This study investigated the strategic resource-management practices, day-to-day operational realities, and adaptive coping mechanisms of private school administrators overseeing Technical-Vocational-Livelihood (TVL) programs in Bukidnon, Philippines. The thematic findings indicate that managing vocational programs in private institutions requires administrators to move beyond conventional academic oversight toward a more entrepreneurial leadership orientation. Faced with high overhead costs and the limits of tuition-dependent

funding, administrators pursue institutional resilience through revenue-generating laboratories, phased capital procurement, and strategic use of government senior high school subsidy vouchers. Human-capital capacity is further strengthened through the targeted recruitment of dual-qualified educators and the integration of industry-academia mentorship.

However, the operational delivery of technical education remains constrained by structural frictions. Administrators must continuously reconcile DepEd academic requirements with TESDA competency standards, creating substantial documentation and audit-readiness demands. Material constraints, including rapid technological obsolescence, equipment wear and tear, and local supply-chain delays for specialized components, can further interrupt instruction. These resource pressures are compounded by labor-market instability, as private institutions may lose certified technical trainers to higher-paying industry roles, public institutions, or overseas employment.

In response to these systemic challenges, administrators use both creative and structural buffering strategies to protect the instructional core of their programs. Resource gaps are addressed through pedagogical improvisation, including the use of locally available materials for simulation and repair-first protocols that draw on internal faculty expertise. Administratively, schools reduce compliance pressure by conducting internal mock assessments and assigning specialized personnel to documentation tasks. Overall, the sustainability of private-sector TVL programs depends substantially on administrators' capacity to convert financial and material constraints into adaptive, workable, and partially self-sustaining processes. These findings offer practical implications for institutional leaders and provide policymakers with evidence relevant to regulatory coordination, workforce retention, and resource support in vocational education.

Conflict of Interest

The authors declare no conflict of interest.

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