



# Developing Policy Recommendations for Vocational Education Management at Community Learning Centers in Crisis Situations

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**Abstract:** This study examines how Community Learning Centers (CLCs) in Cambodia managed vocational education during the COVID-19 pandemic and develops evidence-based policy recommendations to strengthen institutional resilience in future crises. Adopting policy evidence-based qualitative research design, the study was conducted in two phases. Phase 1 involved semi-structured interviews with 18 participants—three administrators, six trainers, and nine learners—and applied thematic analysis to examine policy implementation, learning models, management challenges, and learning outcomes. Phase 2 translated these empirical findings into policy action through systematic gap analysis and expert validation, engaging 17 experts from Cambodia, Thailand, and the United States to assess proposed guidelines in terms of relevance, feasibility, sustainability, and potential impact. The findings reveal that vocational education management at CLCs during the pandemic was severely constrained by chronic underfunding, weak institutional capacity, limited digital infrastructure, low trainer digital competence, and the absence of formal accreditation under the Cambodian National Qualifications Framework (CNQF). Although on-site, online, and on-hand learning models represented adaptive responses to crisis conditions, they were implemented in a largely reactive manner and resulted in fragmented learning experiences with limited practical skill development, particularly in rural areas. Consequently, learning outcomes were weak, and graduates reported low employability and continued socio-economic vulnerability. Gap analysis identified six critical deficiencies: inadequate trainer digital capacity, lack of flexible technology-enabled learning models, unequal access to internet infrastructure, weak evaluation and quality assurance mechanisms, outdated and poorly aligned curricula, and fragile sustainability arrangements. These deficiencies were validated by experts as highly relevant and feasible policy priorities. The study concludes that targeted investment in digital capacity building, infrastructure expansion, curriculum modernization, accreditation alignment, and sustainable governance mechanisms is essential to reposition CLCs as resilient, inclusive, and community-anchored institutions. By integrating field-based qualitative evidence with expert certification, this study contributes a replicable, context-sensitive framework to guide crisis-responsive vocational education and training (TVET) reform in Cambodia and similar developing contexts.

**Keywords:** Vocational Education, Community Learning Centers, Policy Recommendations, Crisis Resilience, Digital Capacity, Cambodia, TVET

## **INTRODUCTION**

Cambodia is undergoing a critical demographic and economic transition as it advances from a low-income to a lower-middle-income economy. With a population of approximately 17.6 million and a median age of around 27 years, the country is characterized by a predominantly young labor force that presents both a significant development opportunity and a major policy challenge. This demographic profile aligns closely with Cambodia's national development agenda and the United Nations' 2030 Sustainable Development Goals (SDGs), particularly those emphasizing decent work, human capital development, and lifelong learning. However, international development literature consistently emphasizes that the realization of a demographic dividend is not automatic; it depends largely on the effectiveness, relevance, adaptability, and resilience of education and skills development systems [32, 35, 37] (World Bank, 2018; UNDP, 2021; UNESCO, 2020).

The Cambodian labor market remains structurally concentrated in agriculture, industry, and services-sectors that are increasingly exposed to technological change, market volatility, and external shocks. Sustaining productivity and competitiveness in these sectors requires continuous skills upgrading and adaptive workforce development mechanisms. In this context, lifelong learning has become a central strategy for maintaining employability and supporting labor market adaptability, particularly for low-income and vulnerable populations working in informal or semi-formal employment. Recognizing this need, the Royal Government of Cambodia (RGC) has introduced key policy frameworks, including the National Employment Policy 2015-2025, the National Technical and Vocational Education and Training (TVET) Policy 2017-2025, and the National Policy on Lifelong Learning 2019-2023. Together, these policies position human capital development as a cornerstone of Cambodia's long-term vision to achieve upper-middle-income status by 2030 and high-income status by 2050, as articulated in the Pentagonal Strategy [2, 29, 30, 31] (Royal Government of Cambodia, 2015, 2017, 2019; Asian Development Bank, 2019).

Within this national policy landscape, Community Learning Centers (CLCs) play a vital role as decentralized providers of non-formal vocational education at the community level. CLCs deliver short-term, practice-oriented training programs aimed at income generation, life skills development, and employability enhancement in sectors such as agriculture, tourism, garment production, construction, and small-scale manufacturing. International frameworks conceptualize CLCs as community-based learning hubs that promote inclusive access to lifelong learning, particularly for rural populations, women, and marginalized groups [33, 280] (UNESCO, 2012; Rogers, 2014). In Cambodia, CLCs have been recognized as important mechanisms for expanding vocational education access beyond formal TVET institutions, and prior to the COVID-19 pandemic, they served a substantial number of learners-many from border and migration-affected communities-underscoring their strategic importance within the national skills development ecosystem [4, 35] (UNESCO, 2020; Asian Development Bank, 2022).

Despite their strategic significance, vocational education programs delivered through CLCs have faced persistent management and implementation challenges. These challenges include shortages of qualified trainers, weak alignment between training content and labor market needs, high dropout rates, limited assessment systems, and low competitiveness of graduates. Research on non-formal and community-based education systems highlights that such challenges are often linked to weak management capacity, fragmented governance arrangements, insufficient inter-agency coordination, and the

absence of adaptive and results-oriented management frameworks [10, 24] (Bush, 2011; McGrath et al., 2020). In Cambodia, several studies have further noted that vocational education at the CLC level operates with limited institutional support and quality assurance, constraining its ability to respond effectively to both economic transformation and social vulnerability [4, 26] (Neak, 2021; Asian Development Bank, 2022).

These structural weaknesses became particularly evident during the COVID-19 pandemic, which disrupted face-to-face vocational training, exposed significant gaps in digital readiness, and led to widespread program cancellations and incomplete training cycles. Globally, the pandemic revealed the vulnerability of non-formal vocational education systems to external shocks, especially in low- and middle-income countries where digital infrastructure and institutional capacity remain limited [22, 39, 27] (ILO, UNESCO, & World Bank Group, 2021; OECD, 2021). In Cambodia, CLCs were required to shift rapidly to online or community-based “on-hand” learning models, yet many lacked the technological resources, digital competencies, managerial flexibility, and pedagogical frameworks necessary to sustain effective vocational training during the crisis [8, 36] (Bun et al., 2022; UNESCO, 2021).

Beyond global health emergencies, recurrent instability along the Cambodia-Thailand border represents a persistent and underexamined source of disruption to vocational education at the community level, particularly in border and migration-intensive provinces such as Banteay Meanchey, Battambang, Oddar Meanchey, and Pailin. Thailand remains Cambodia’s largest destination for migrant workers, with an estimated 1.1-1.3 million Cambodian nationals working in Thailand prior to the COVID-19 pandemic, primarily in construction, manufacturing, agriculture, fisheries, and services [20, 38] (ILO, 2020; World Bank, 2020). A significant proportion of these migrants originate from rural and border provinces where CLCs function as primary providers of vocational skills training.

Periodic border closures, labor migration policy shifts, security tensions, and enforcement measures have directly affected learner mobility, household income stability, and participation continuity in CLC-based vocational programs. Empirical studies indicate that sudden migration disruptions and return migration episodes are associated with increased training dropout rates, irregular attendance, and reduced returns to skills acquisition among low-income and informal workers [3, 19] (ADB, 2020; ILO, 2019). Moreover, vocational training programs aligned with cross-border labor markets-such as construction trades, industrial sewing, mechanics, and hospitality-have faced heightened uncertainty due to fluctuating labor demand and regulatory changes, limiting the effectiveness and relevance of existing curricula.

At the institutional level, these border-related shocks have exposed critical gaps in CLC governance capacity, crisis preparedness, labor market intelligence systems, and coordination with migration, labor, and local authorities. Unlike formal TVET institutions, CLCs typically operate with constrained budgets, limited autonomy, and weak data systems, leaving them ill-equipped to adjust training design, delivery modes, certification mechanisms, and learner support services in response to sudden external disruptions. Consequently, vocational education at the community level remains vulnerable not only to global crises such as pandemics but also to localized and recurring shocks linked to cross-border instability-conditions that directly shape the employability trajectories of CLC learners.

While existing literature has documented operational and managerial challenges facing vocational education in Cambodia's CLCs, there remains a significant research gap in translating these challenges into coherent, evidence-based policy recommendations that address both routine structural weaknesses and multi-dimensional crisis contexts, including pandemics and border instability. Much of the current research emphasizes problem identification rather than the design, validation, and implementation of adaptive policy frameworks that integrate governance reform, institutional coordination, curriculum flexibility, crisis preparedness, and labor market responsiveness [6, 4] (Beresford & Khoun, 2021; Asian Development Bank, 2022).

This study responds to that gap by examining vocational education management in CLCs under conditions of compounded crises—specifically the COVID-19 pandemic and Cambodia-Thailand border instability—and by proposing policy recommendations aimed at strengthening governance effectiveness, institutional resilience, labor market alignment, and crisis-responsive management at the community level. By explicitly linking management challenges to policy design variables, the study contributes to the broader discourse on lifelong learning, work-based skills development, and resilient vocational education systems in developing and transition economies.

Accordingly, the study pursues two primary objectives:

1. To examine the state of vocational education management in Community Learning Centers (CLCs) during the COVID-19 pandemic.
2. To develop evidence-based policy recommendations for vocational education management at CLCs in crisis conditions.

## **LITERATURE REVIEW**

### **Non-Formal Vocational Education and Community Learning Centers**

Non-formal education has been widely recognized as a critical component of lifelong learning systems, particularly in developing countries where formal education alone cannot adequately respond to labor market demands and social inequality. UNESCO defines non-formal education as organized and purposeful learning activities conducted outside the formal education system, designed to meet the needs of specific target groups. Scholars argue that non-formal education contributes significantly to employability, social inclusion, and workforce flexibility, especially among low-income and marginalized populations [34, 28] (UNESCO, 2015; Rogers, 2014).

Within non-formal education systems, vocational education plays a particularly important role due to its emphasis on practical skills, occupational competencies, and immediate labor market relevance. The International Labor Organization emphasizes that non-formal vocational education is especially suitable for economies with large informal sectors, as it provides flexible pathways for skills development and lifelong employability (ILO, 2019). Adult learning theory, particularly andragogy, further supports the effectiveness of non-formal vocational education by emphasizing learner-centered, experience-based, and problem-oriented learning approaches [23] (Knowles et al., 2015).

Community Learning Centers (CLCs) have emerged internationally as key institutional platforms for delivering non-formal vocational education at the local level.

UNESCO conceptualizes CLCs as community-based learning hubs that integrate vocational training, life skills, and income-generation activities to support sustainable community development [33] (UNESCO, 2012). Empirical studies suggest that CLCs are most effective when training programs are aligned with local economic activities, supported by qualified trainers, and integrated into national lifelong learning and skills development frameworks [3] (ADB, 2020). In Cambodia, CLCs have been identified as essential mechanisms for expanding vocational education access for rural populations and women [35] (UNESCO, 2020).

### **Vocational Education Management and Policy in Community Learning Centers**

Effective vocational education management is widely regarded as a determining factor in the quality and outcomes of vocational training programs. Educational management literature emphasizes key managerial functions, including planning, organizing, staffing, implementation, monitoring, and evaluation, as essential for achieving educational objectives [10, 34] (Bush, 2011; UNESCO, 2015). In vocational education, management also involves aligning curricula with labor market needs, developing trainer capacity, allocating resources efficiently, and assessing learning outcomes [2] (ADB, 2019).

Research consistently shows that weak vocational education management leads to skills mismatch, high dropout rates, and limited employability of graduates [36, 25] (UNESCO, 2021; McGrath et al., 2020). These challenges are particularly pronounced in decentralized and community-based institutions such as CLCs, where management capacity and institutional resources are often limited. Studies on non-formal education systems highlight that the absence of coherent management frameworks constrains program quality and sustainability, especially in rural and low-income settings [28] (Rogers, 2014).

Education policy plays a critical role in shaping vocational education management at the institutional level. Education policy provides strategic direction through defined visions, governance structures, financing mechanisms, and implementation strategies [5] (Ball, 2017). In vocational education, effective policy coordination among education authorities, labor ministries, and training providers is essential to ensure labor market relevance and system coherence [19, 38] (ILO, 2019; World Bank, 2020). In Cambodia, although national policies support vocational education and lifelong learning, studies indicate that implementation at the CLC level remains uneven due to limited management capacity, weak institutional coordination, and insufficient quality assurance mechanisms [4, 26] (ADB, 2022; Neak, 2021).

### **Learning Adaptation, Crisis Resilience, and Policy Research**

Learning adaptation has become a central concept in vocational education literature, particularly in response to crisis situations. Learning adaptation refers to the ability of education systems and institutions to adjust curricula, delivery modes, and management practices in response to external disruptions [35] (UNESCO, 2020). Key components of learning adaptation include curriculum flexibility, alternative delivery mechanisms, digital readiness, trainer competencies, and learner support systems [20] (ILO et al., 2020). Research suggests that adaptive vocational education systems are more resilient and better

able to maintain learning continuity and employability outcomes during periods of uncertainty [39] (World Bank, 2021).

The COVID-19 pandemic exposed significant vulnerabilities in non-formal vocational education systems worldwide, especially in community-based institutions. Studies indicate that vocational education providers with limited digital infrastructure and weak management capacity experienced widespread training interruptions, learning losses, and reduced labor market relevance [20, 36] (ILO et al., 2020; UNESCO, 2021). In developing countries, including Cambodia, these challenges were intensified by reliance on face-to-face, hands-on training and limited access to technology in rural areas [3] (ADB, 2022).

Policy research literature emphasizes the importance of evidence-based policymaking in addressing both structural weaknesses and crisis-related challenges in education systems. Policy research supports informed decision-making by analyzing policy design, implementation gaps, and outcomes, and by generating actionable recommendations [17] (Dunn, 2018). In vocational education management, policy research is particularly important for developing resilient and adaptive policy frameworks that enhance institutional capacity and workforce competitiveness [25] (McGrath et al., 2020). However, existing studies in Cambodia have largely focused on identifying problems rather than proposing integrated policy solutions, highlighting a critical research gap that this study seeks to address [6, 4] (Beresford & Khoun, 2021; ADB, 2022).

## **RESEARCH METHODOLOGY**

### **Research Design**

This study adopted a policy-evidence-based qualitative research design, integrating empirical field data with policy analysis to explore and improve vocational education management within Cambodia's Community Learning Centers (CLCs) during crisis situations. The design was appropriate for addressing complex social and managerial phenomena that require contextual interpretation rather than numerical generalization [11] (Creswell & Poth, 2018). The research was organized into two sequential phases, each corresponding to one of the study's main objectives:

1. To examine the state of vocational education management in CLCs during the COVID-19 pandemic.
2. To develop policy recommendations to strengthen vocational education management for Cambodian laborers in future crisis contexts.

This phased structure ensured a logical progression from empirical exploration (Step 1) to policy formulation and validation (Step 2), establishing a strong evidence base for practical policy application.

### **Step 1: Examining the State of Vocational Education Management During COVID-19**

#### ***Participant Selection***

Phase 1 employed purposive sampling to identify participants with direct and relevant experience in vocational education management at CLCs. Eighteen participants were selected: three administrators, six trainers, and nine learners. Selection criteria included:

1. Active involvement in a CLC between 2020 and 2023;
2. Minimum one year of administrative, instructional, or learning experience; and
3. Willingness to participate and provide informed consent.

This composition allowed for triangulation across managerial, instructional, and learner perspectives. Participants were drawn from CLCs in Phnom Penh, Kampong Cham, and Battambang, representing urban, peri-urban, and rural contexts.

### ***Instrument Development and Validation***

Three semi-structured interview guides were created—one for each participant group. Questions were derived from relevant literature, Cambodia's national policy documents (*National Employment Policy 2015-2025*; *TVET Policy 2017-2025*; *National Policy on Lifelong Learning 2019-2023*), *Experiences of vocational education at community learning centers in Cambodia during COVID-19* [8] (Bun et al., 2022), *Lifelong learning in crisis: Vocational education management at community learning centers in Cambodia during the COVID-19 pandemic* [9] (Bun et al., 2025) and international frameworks [36] (UNESCO, 2021).

To establish content validity, the instruments underwent expert review by three specialists in education management and policy research. The Item-Objective Congruence (IOC) index was applied; all items achieved scores  $\geq 0.67$ , confirming their relevance. Minor linguistic adjustments followed a pilot test with one representative from each participant group.

### ***Data Collection Procedures***

Interviews were conducted between October 2024 and February 2025, either in-person at local CLCs or online via Zoom/Google Meet, depending on accessibility and health protocols. Each session lasted approximately 45-60 minutes, was audio-recorded with consent, and supported by detailed field notes documenting contextual observations. Interviews were conducted in Khmer and English; back-translation was used to preserve semantic accuracy.

### ***Data Analysis***

Interview recordings were transcribed verbatim and analyzed using thematic analysis following Braun and Clarke's (2006) six-step procedure: familiarization, coding, theme generation, review, definition, and reporting. Coding combined inductive insights with deductive categories derived from the research objectives.

To ensure trustworthiness, multiple strategies were employed:

1. Data triangulation across administrators, trainers, and learners;
2. Member checking through returning thematic summaries to participants for validation; and
3. Peer debriefing with two academic experts to confirm analytic consistency.

Emergent themes described managerial challenges, adaptive learning models, digital readiness, and policy-practice gaps. These findings became the empirical foundation for Step 2.

## **Step 2: Developing Policy Recommendations for Vocational Education Management at Community Learning Centers in the Crisis Situations**

Step 2 translated the empirical findings into evidence-based policy proposals through three integrated processes: (1) Gap Analysis, (2) Focus Group Discussion, and (3) Policy Certification.

### ***Process 1: Gap Analysis***

The first step entailed a systematic gap analysis of Phase 1 findings. Management deficiencies and unmet policy objectives were compared against national and international benchmarks for crisis-resilient TVET. TVET stands for Technical and Vocational Education and Training, a system focused on providing individuals with practical skills, knowledge, and competencies for specific trades and professions, preparing them directly for the world of work through hands-on learning, often outside formal degree programs. It covers areas like healthcare, IT, construction, and trades, bridging the gap between education and labor market demands for skilled workers. Administrators and trainers from the Phase 1 sample reviewed the synthesized results to confirm the accuracy of identified gaps and to propose initial corrective directions.

The analysis revealed major weaknesses in crisis preparedness, digital infrastructure, and curriculum relevance. These insights informed the drafting of preliminary policy statements organized into six domains: (1) digital skills and infrastructure; (2) hybrid learning models; (3) internet access and inclusion; (4) evaluation frameworks; (5) curriculum and labor-market alignment; and (6) program sustainability.

### ***Process 2: Focus Group Discussion (FGD)***

The second process validated and refined the draft policies through an expert focus group comprising 17 specialists from Cambodia, Thailand, and the United States. Participants included government officials, vocational education administrators, academics, and representatives from UNESCO and the Asian Development Bank. Selection criteria required at least five years of professional experience in TVET or education policy.

The focus group was conducted in a hybrid format lasting approximately two hours. The session began with a briefing on Phase 1 findings and gap analysis, followed by detailed discussion of each draft policy. Experts assessed each recommendation for its relevance, feasibility, and sustainability in the Cambodian context. Qualitative insights and proposed revisions were recorded and summarized immediately after the discussion.

### ***Process 3: Policy Certification and Consensus Building***

The third process, policy certification, aimed to quantify expert consensus. Each panelist completed a structured confirmation form containing both open-ended questions and a five-

point Likert scale (1 = very low to 5 = very high). Each draft policy was rated across four criteria: relevance, feasibility, sustainability, and potential impact.

Policies scoring between 4.50 and 5.00 were categorized as *highly recommended*. Policies rated between 4.00 and 4.49 were revised according to expert comments and re-submitted for consensus confirmation. Scores below 4.00 were excluded unless considered essential and modifiable.

All quantitative results were supported by qualitative feedback, allowing triangulation between numeric ratings and narrative justifications. Final recommendations were refined until unanimous agreement was reached on practicality and contextual fit.

The outcome of this phase was a set of validated, evidence-based policy recommendations for enhancing vocational education management in crisis contexts. Each recommendation included strategic objectives, implementation steps, responsible agencies, and measurable indicators to guide future policy adoption within Cambodia's CLC system.

## **FINDINGS**

### **Finding 1: Examining the State of Vocational Education Management at Community Learning Centers During COVID-19**

This section presents the findings on the state of vocational education management at Community Learning Centers (CLCs) in Cambodia during the COVID-19 pandemic. Analysis of interview data revealed four interrelated themes: (1) policy implementation of vocational education management at CLCs, (2) the learning models of vocational education management, (3) key issues, and (4) learning outcomes of vocational education during the pandemic. Together, these themes illustrate how CLCs managed vocational education under crisis conditions and highlight both institutional strengths and systemic limitations.

#### ***Policy Implementation in Vocational Education Management at CLCs***

The findings show that the National Policy on Lifelong Learning (2019-2023) provided an important framework for vocational education management at Community Learning Centers (CLCs) under normal conditions. Directors and trainers generally viewed the policy as clear and relevant in supporting lifelong learning and vocational skills development. However, the COVID-19 pandemic significantly disrupted policy implementation, revealing that the policy framework was not designed to respond to large-scale crises. Limited funding, weak digital infrastructure, and the absence of emergency guidelines reduced CLCs' ability to maintain vocational education continuity.

Policy implementation was uneven across key areas. Policy 2, which aimed to promote flexible learning, was difficult to operationalize as CLCs were forced to rapidly shift from on-site to online and on-hand learning, resulting in program cancellations and reduced training quality. Policy 1, which sought to ensure access for all citizens, was constrained by insufficient government funding, particularly for digital learning support, affecting both rural and urban CLCs. Policy 6 was implemented mainly through external support from international NGOs, while private sector involvement remained limited, raising concerns about long-term sustainability. Infrastructure development and capacity building

under Policies 3 and 4 were also weak, especially in rural CLCs, and limited accreditation under Policy 5 reduced the labor-market value of CLC vocational programs.

### ***Learning Models at CLCs***

The study identifies three main learning models adopted by CLCs during the pandemic: on-site, online, and on-hand learning. On-site learning continued briefly at the early stage of the pandemic but became less effective due to physical distancing, reduced class sizes, and limited hands-on practice. Learners reported low engagement and increased absenteeism, particularly among older learners and those with family responsibilities.

Online learning was introduced as a temporary solution to maintain training continuity; however, it exposed significant digital divides. Many learners and trainers lacked access to digital devices, stable internet, and adequate digital skills, especially in rural areas. As a result, online vocational training was largely ineffective in developing practical skills. In response, the on-hand learning model emerged as an alternative for remote communities. While this model supported hands-on practice and improved access, it placed heavy financial and logistical burdens on trainers and depended on limited learning materials, restricting its overall effectiveness.

### ***Key Issues and Learning Outcomes***

The findings reveal several key issues affecting vocational education outcomes at CLCs, including limited digital infrastructure, low digital capacity among trainers and learners, reduced hands-on training, ineffective evaluation systems, and insufficient funding and learning materials. These challenges were most severe for rural CLCs and vulnerable learner groups, particularly older and female learners.

As a result, learning outcomes were generally poor. Learners reported low levels of vocational knowledge and weak practical skills, largely due to the absence of workplace-based training and inadequate hands-on learning opportunities. Many graduates felt unprepared for employment and unable to compete with learners from formal TVET institutions. Improvements in life and employment opportunities were minimal, leading many learners to seek work outside their local communities or migrate abroad. Overall, vocational education at CLCs during the COVID-19 pandemic failed to achieve its intended goals of enhancing employability and improving learners' life opportunities.

### **Finding 2: Policy Recommendations for Vocational Education Management in Crisis Situations**

The second phase of the study translated these findings into policy recommendations through a systematic process comprising

1. a gap analysis,
2. the formulation of drafted policy guidelines, and
3. policy certification through expert validation.

Together, these stages produced a coherent framework aimed at strengthening the resilience and sustainability of vocational education management in Cambodia's CLCs.

### ***Gap Analysis***

The gap analysis compared existing CLC practices with international standards and Cambodia's national TVET objectives. The findings revealed substantial disparities in digital readiness, curriculum alignment, and institutional sustainability. The lowest-performing areas—each scoring 1.00 on the analytical scale, were digital skills training, technology integration for crisis learning, and rural internet access. Trainers urgently required structured digital training to integrate technology into pedagogy and to design flexible, crisis-adaptable learning models.

Other key gaps included the absence of evaluation frameworks for online learning (score: 0.80), the need to modernize curricula to align with industry needs (score: 1.00), and the establishment of sustainability systems (score: 0.80) to ensure long-term program continuity. These findings underscored that effective vocational education in crisis contexts depends not only on instructional quality but also on system-level investments in digital infrastructure, human capacity, and continuous evaluation.

### ***Drafted Policy Guidelines***

In response to the identified gaps, six draft policy guidelines were formulated to provide a structured framework for improving vocational education management at CLCs.

1. **Digital Capacity Building:** Equip trainers and learners with essential digital skills and integrate technology into daily teaching and learning activities.
2. **Tech-Enabled Learning Models:** Promote the use of flexible, inclusive, and technology-based learning methods suitable for crisis situations.
3. **Internet Infrastructure:** Expand affordable and reliable internet access in rural and remote communities to ensure equitable participation in e-learning.
4. **Online Learning Evaluation:** Develop assessment frameworks to monitor the quality and effectiveness of online and hybrid learning systems.
5. **Curriculum Modernization:** Align training programs with current labor market demands and incorporate innovative, competency-based pedagogies.
6. **Support Systems:** Build community-based networks and partnerships that enhance the sustainability and relevance of CLC programs over time.

These guidelines collectively aim to foster a more responsive, inclusive, and sustainable CLC vocational education ecosystem.

### ***Policy Certification***

To validate the practicality and significance of the proposed policies, a policy certification process was conducted involving 17 experts from Cambodia, Thailand, and the United States. The panel included academics, policymakers, and vocational education specialists

representing government agencies, higher education institutions, and international organizations such as UNESCO and ADB.

Each expert evaluated the six draft policies using a structured validation form combining open-ended feedback with Likert-scale ratings (1-5) assessing relevance, feasibility, sustainability, and potential impact. The analysis demonstrated strong expert consensus, with all policies achieving mean scores above 4.75, indicating broad agreement on their value and applicability.

1. Policy 1: Digital Capacity Building received a perfect consensus ( $\bar{x} = 5.00$ , S.D. = 0.00), emphasizing its foundational importance.
2. Policy 2: Tech-Enabled Learning Models ( $\bar{x} = 4.80$ , S.D. = 0.46) and Policy 3: Internet Infrastructure ( $\bar{x} = 4.81$ , S.D. = 0.48) were also highly endorsed, reflecting urgent digital transformation needs.
3. Policy 4: Online Learning Evaluation ( $\bar{x} = 4.80$ , S.D. = 0.47) and Policy 5: Curriculum Modernization ( $\bar{x} = 4.79$ , S.D. = 0.57) highlighted expert agreement on improving quality and relevance.
4. Policy 6: Support Systems and Networks ( $\bar{x} = 4.76$ , S.D. = 0.61) confirmed the need for long-term community engagement and institutional sustainability.

Experts noted that these policies collectively provided a “realistic roadmap” for making CLCs more adaptive, inclusive, and digitally competent. The final policy framework thus emerged as an integrated model for strengthening vocational education management at the community level, particularly in times of crisis or disruption.

## **DISCUSSION**

This study examined vocational education management at Community Learning Centers (CLCs) in Cambodia during the COVID-19 pandemic and translated empirical findings into policy recommendations for crisis contexts. Interpreted through Peter F. Drucker’s (1954) management and productivity theories, the findings reveal fundamental weaknesses in policy execution, institutional effectiveness, and results-oriented management, while also highlighting pathways for reform grounded in effectiveness, innovation, and social responsibility. These findings are consistent with broader international literature on crisis governance in education, which emphasizes the vulnerability of decentralized learning institutions in low-resource contexts during systemic shocks [35, 39] (UNESCO, 2020; World Bank, 2021).

### **The State of Vocational Education Management at Community Learning Centers During COVID-19**

The findings indicate that although the National Policy on Lifelong Learning (2019-2023) provided a clear strategic framework under normal conditions, it failed to translate into effective action during the COVID-19 crisis. From a Druckerian perspective, this reflects a classic gap between policy formulation and management effectiveness. Drucker emphasizes that effective management is not defined by intentions or plans, but by the ability to achieve results under changing conditions [16] (Drucker, 2007). Similar gaps between policy

design and crisis execution have been documented in education systems across Southeast Asia, where emergency responsiveness was constrained by rigid administrative structures and limited contingency planning [4, 35] (ADB, 2022; UNESCO, 2020). In the case of CLCs, the absence of adaptive mechanisms, emergency decision-making authority, and performance-oriented implementation strategies significantly limited institutional effectiveness during the crisis.

The uneven implementation of policies further illustrates Drucker's distinction between "doing the right things" and "doing things right." While national policies promoted flexibility, access, and collaboration, CLCs lacked managerial capacity, resources, and digital infrastructure to operationalize these goals effectively. As a result, flexibility remained conceptual rather than functional, and access to vocational education declined—particularly for rural, older, and female learners. This outcome aligns with Drucker's assertion that effectiveness requires aligning objectives, resources, and competencies toward measurable outcomes [15] (Drucker, 1999), and is also supported by empirical studies showing that digital inequality and weak local capacity disproportionately affect vulnerable learners during crises [20, 38] (ILO, 2020; World Bank, 2020).

The heavy reliance on international NGOs during the pandemic raises concerns regarding institutional sustainability and ownership. Drucker argues that public and non-profit institutions must develop internal capacity and accountability systems to sustain long-term performance, rather than depend excessively on external actors (Drucker, 2007). In Cambodia, donor-driven support played a critical role in maintaining short-term program continuity; however, limited government coordination and weak private-sector engagement undermined institutional resilience. This finding mirrors broader critiques of aid-dependent education systems, which highlight risks related to fragmentation, parallel governance structures, and weak state capacity during emergencies [27, 32] (OECD, 2021; UNDP, 2021).

The learning models adopted during the pandemic—on-site, online, and on-hand—reflect what Drucker describes as forced innovation under crisis conditions. While CLCs attempted to adapt, the lack of digital readiness and outcome-oriented instructional design undermined effectiveness. Online learning prioritized continuity over results, with limited attention to skill acquisition, assessment, or employability outcomes. Drucker stresses that innovation must be purposeful and results-driven; otherwise, it becomes activity without impact [13] (Drucker, 1985). This challenge has been widely observed in emergency remote learning contexts, where rapid digital transitions often compromised instructional quality and learner engagement [18, 316] (Hodges et al., 2020; UNESCO, 2021). The on-hand learning model came closest to Drucker's principle of management by objectives, as it emphasized practical skills and local relevance. However, without adequate resources, trainer support, and evaluation systems, its long-term effectiveness remained limited.

Overall, the findings suggest that vocational education at CLCs during the pandemic was managed more as an administrative obligation than as a results-oriented social investment. This contradicts Drucker's view that education systems must be managed with productivity, effectiveness, and societal outcomes as core priorities [14] (Drucker, 1993). The experience of CLCs during COVID-19 reflects a broader structural challenge faced by non-formal education institutions in developing countries, where crisis response often focuses on maintaining operations rather than safeguarding learning outcomes and labor-market relevance [35, 21] (UNESCO-UNEVOC, 2020; ILO, 2021).

## Policy Recommendations for Vocational Education Management at CLCs in Crisis Situations

The second major finding-the development and validation of policy recommendations-aligns strongly with Drucker's theory of management by objectives (MBO) and his emphasis on systematic problem-solving. The gap analysis functioned as a diagnostic tool, identifying areas where performance outcomes failed to meet institutional goals. According to Drucker, organizations improve effectiveness by first identifying performance gaps and then aligning resources and decisions to close them [12] (Drucker, 1954). This approach is consistent with contemporary public management frameworks that stress evidence-based policymaking and adaptive governance in crisis contexts [27, 39] (OECD, 2021; World Bank, 2021).

The six proposed policy guidelines reflect key Druckerian principles while also aligning with international TVET reform frameworks. Digital capacity building corresponds to Drucker's view that human capital is the most critical productive resource in a knowledge-based society [14] (Drucker, 1993). Without digitally competent trainers, investments in infrastructure or curriculum reform cannot yield meaningful results. This finding is reinforced by global evidence showing that teacher digital skills are a primary determinant of effective online and blended vocational education [21, 36] (ILO, 2020; UNESCO, 2021). Technology-enabled learning models and improved internet infrastructure further support Drucker's argument that institutions must adapt to environmental change through productivity-enhancing innovation rather than reactive expansion.

The emphasis on evaluation frameworks directly reflects Drucker's principle that "what gets measured gets managed." The absence of appropriate assessment systems during online and blended learning led to credential completion without skill mastery, undermining productivity and employability outcomes. By proposing structured evaluation mechanisms, the policy framework reinforces Drucker's insistence that effectiveness depends on continuous feedback and performance measurement [16] (Drucker, 2007). This is consistent with international quality-assurance standards in TVET, which emphasize competency-based assessment and outcome verification, particularly in non-formal education settings [21, 38] (ILO, 2021; World Bank, 2020).

Curriculum modernization and learner support systems further align with Drucker's concept of the social responsibility of institutions, particularly in education. Drucker argues that educational organizations must serve society by preparing individuals for productive participation in the economy, not merely by delivering instruction [15] (Drucker, 1999). The strong expert endorsement of these policies confirms stakeholder recognition that vocational education must shift from input-based delivery toward outcome-based, labor-market-relevant training. This shift echoes regional and global TVET reform agendas that emphasize employability, resilience, and lifelong learning as core objectives [39, 35] (ADB, 2021; UNESCO, 2020).

The policy certification results reinforce Drucker's view that effective management requires knowledge-based decision-making combined with practitioner consensus. The high level of agreement among experts suggests that the proposed framework is not only theoretically sound but also operationally feasible. Importantly, the prioritization of digital capacity and infrastructure reflects a results-oriented understanding of sequencing reforms-addressing foundational constraints before pursuing more complex institutional changes.

Similar conclusions have been drawn in comparative studies of education system recovery following COVID-19 [27, 39] (OECD, 2021; World Bank, 2021).

Taken together, these findings demonstrate that strengthening vocational education management at CLCs requires a Druckerian shift-from fragmented, activity-driven responses toward effective, outcome-oriented, and innovation-led management. By embedding digital capacity, evaluation, and sustainability into policy design, the proposed framework offers a realistic pathway for transforming CLCs into resilient institutions capable of delivering meaningful vocational outcomes, even under conditions of crisis. This aligns not only with Drucker's management philosophy but also with contemporary global frameworks for resilient education systems in developing contexts [32, 36] (UNDP, 2021; UNESCO, 2021).

### **CONCLUSION AND IMPLICATIONS**

This study examined the management of vocational education at Community Learning Centers (CLCs) in Cambodia during the COVID-19 pandemic and developed policy recommendations to strengthen their resilience in future crises. Using a two-phase qualitative research design that combined empirical field investigation with expert validation, the study generated both contextual insights and practical policy guidance. The findings demonstrate that although Cambodia has established national frameworks for lifelong learning and technical and vocational education and training (TVET), their implementation at the community level remains fragmented, under-resourced, and insufficiently adaptive to crisis conditions.

#### **Summary of Key Findings**

The findings from Phase 1 indicate that CLCs faced serious constraints in maintaining vocational education operations and program quality during the pandemic. Weak institutional capacity limited digital infrastructure, inadequate trainer competencies, insufficient learning materials, and the absence of formal accreditation significantly undermined the effectiveness of vocational education delivery. The learning models adopted-on-site, online, and on-hand learning-represented pragmatic and immediate responses to unprecedented disruptions. However, these models were implemented without adequate pedagogical preparation, technological support, or quality assurance mechanisms, resulting in fragmented learning experiences and reduced training effectiveness.

Consequently, learning outcomes were limited. Most learners acquired insufficient vocational knowledge and weak practical skills, particularly due to reduced hands-on training and the lack of workplace-based learning opportunities. Graduates of CLC programs reported low employability, unstable income prospects, and continued socio-economic vulnerability, especially among rural, older, and female learners. These findings suggest that vocational education at CLCs during the COVID-19 pandemic was unable to fulfill its core objectives of enhancing employability and improving learners' life opportunities.

Phase 2 translated these empirical findings into policy action through a systematic process of gap analysis, guideline development, and expert validation. Six critical deficiencies were identified: (1) limited digital skills among trainers, (2) the absence of flexible and technology-supported learning models, (3) unequal access to internet and

digital infrastructure, (4) weak evaluation and monitoring tools, (5) outdated and insufficiently responsive curricula, and (6) fragile sustainability mechanisms. In response, six policy recommendations were formulated and validated by experts, achieving strong consensus regarding their relevance, feasibility, and policy significance. Among these, digital capacity building and improved internet infrastructure emerged as the most urgent priorities, underscoring the foundational role of human capacity and technology in building resilient vocational education systems.

### **State of Vocational Education Management at CLCs During COVID-19**

The study further reveals that while the National Policy on Lifelong Learning (2019-2023) provided a relevant framework for vocational education under normal conditions, it lacked the flexibility and operational mechanisms required to respond effectively to large-scale crises. The COVID-19 pandemic exposed structural weaknesses in policy implementation, including the absence of emergency guidelines, inadequate and inflexible funding mechanisms, limited digital readiness, and weak coordination with the private sector.

The rapid transition from on-site learning to online and on-hand learning models highlighted deep inequalities in access, resources, and institutional capacity. Online learning was largely ineffective for vocational training due to digital divides, limited access to devices and internet connectivity, and low digital literacy among both trainers and learners, particularly in rural areas. While on-hand learning provided a more context-appropriate solution for remote communities, it depended heavily on individual trainers and external support, raising concerns about consistency, quality assurance, and long-term sustainability. Overall, vocational education management at CLCs during the pandemic was reactive rather than strategic, limiting the continuity and effectiveness of training provision.

These management and instructional constraints directly weakened learning outcomes. The lack of standardized assessment systems, formal accreditation, and industry engagement further reduced the labor-market value of CLC vocational programs. As a result, CLCs were unable to serve as effective pathways to employment and socio-economic mobility during the crisis.

### **Policy and Practical Implications**

The results carry several implications for policymakers, practitioners, and development partners.

1. **Strengthening Digital Capacity:** Building digital competency among trainers and administrators is paramount. Continuous professional development programs should focus on integrating technology into vocational instruction, ensuring that trainers can deliver hybrid or online learning effectively.
2. **Expanding Digital Infrastructure and Connectivity:** Equitable access to affordable internet and digital devices is essential to bridge the urban-rural divide. Public-private partnerships can play a critical role in expanding connectivity to remote areas where CLCs are concentrated.

3. **Modernizing Curriculum and Accreditation:** CLC curricula must be updated to reflect evolving labor market needs and technological trends. Alignment with the Cambodian National Qualifications Framework (CNQF) is necessary to legitimize non-formal vocational education and enhance graduates' employability.
4. **Developing Evaluation and Quality Assurance Systems:** Establishing monitoring frameworks to assess the effectiveness of online and hybrid learning models will ensure accountability and continuous improvement in teaching quality and learner outcomes.
5. **Ensuring Program Sustainability:** Long-term success requires stable financing mechanisms, community participation, and cross-sector collaboration. Shifting from donor dependence to government-led coordination supported by local networks will strengthen institutional autonomy and sustainability.
6. **Enhancing Community-Based Support Mechanisms:** Integrating CLCs within broader community development structures can help reinforce their role as local hubs for lifelong learning, entrepreneurship, and social resilience.

Together, these implications promote a shift from reactive crisis management to proactive system strengthening. By embedding digital transformation, equity, and sustainability into vocational education policy, Cambodia can build a more inclusive and adaptive learning environment that benefits both individuals and communities.

### Abbreviations

|        |                                                                   |
|--------|-------------------------------------------------------------------|
| CLC    | Community Learning Center                                         |
| CNQF   | Cambodian National Qualifications Framework                       |
| TVET   | Technical and Vocational Education and Training                   |
| UNESCO | United Nations Educational, Scientific, and Cultural Organization |

### Author Contributions

**Borey Bun:** Primary writer, study design, data curation, methodology

**Dwight Christopher Watson:** Editing, submission, revising

**Robert William Larsen:** Consultation, review, mentor support

### Conflicts of Interest

The authors declare no conflicts of interest.

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