



Rethinking Vocational Education and Training: A Systematic Review of Creativity, Innovation, and Skills Development in Sub Saharan Africa.

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Abstract: Vocational Education and Training (VET) systems globally are transitioning from traditional skills-based approaches to innovation-driven models that emphasize creativity, entrepreneurship, and adaptability. This study employs a critical realist systematic literature review (SLR), following PRISMA guidelines, to analyze how creativity and innovation are integrated into VET. The review synthesizes evidence from a curated corpus of literature, including international policy documents and regional studies. It finds that while high-income countries have successfully embedded innovation through dual training systems and strong industry partnerships, VET in Sub-Saharan Africa is constrained by systemic challenges, including a formal TVET completion rate of only 6.5% among youth and high rates of youth not in education, employment, or training (NEET). Theoretical frameworks such as Sen's Capability Approach and Mezirow's Transformative Learning Theory support learner-centered pedagogies, yet practical implementation is hampered by fragmented policies, a large informal sector, and a digital divide. To address these gaps, the study proposes an Integrated Framework for Systemic Innovation, which consolidates strategic interventions across four pillars: Policy & Governance, Pedagogy & Curriculum, Institutional Capacity, and Outcomes & Assessment. Actionable policy recommendations include formalizing Recognition of Prior Learning (RPL) for the informal workforce, revitalizing multi-stakeholder Sector Skills Councils, and investing in educator upskilling in digital literacy and maker spaces. The study concludes that sustainable VET reform requires a context-specific balance of global best practices and local realities to drive inclusive economic growth, youth employment, and resilience in the face of technological disruption.

Keywords: Vocational Education And Training (VET), Creativity, Innovation, Skills Development, Informal Sector, Transformative Pedagogy.

INTRODUCTION

Vocational Education and Training (VET) has increasingly emerged as a

critical mechanism for promoting inclusive economic growth, reducing youth unemployment



ent, and supporting sustainable development-particularly within the rapidly evolving socio-economic landscapes of Sub-Saharan Africa (Issa & Raphael, 2025). As global economies transition from resource-dependent to knowledge-driven paradigms, there is a heightened demand for a workforce equipped not only with technical expertise but also with the capacities for creativity, innovation, and entrepreneurial thinking (Mugabirwe et al., 2025). Traditional VET systems, which often emphasize manual and routine skills, are proving inadequate for addressing the demands of contemporary labor markets that increasingly value adaptability, critical thinking, problem-solving, and lifelong learning (Kabanda et al., 2024). This shift necessitates a reconceptualization of VET-not merely as a mechanism for immediate employment, but as a strategic instrument for cultivating individuals capable of contributing to

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dynamic innovation ecosystems and resilient industrial sectors (McGrath & Yamada, 2023). In this light, VET must transition from being a reactive response to labor market demands to a proactive driver of socio-economic transformation.

Globally, countries recognized for exemplary VET reforms-such as Switzerland, Germany, South Korea, and members of the European Union-have systematically embedded creativity and innovation into both pedagogical approaches and institutional structures (SERI, 2020; Mugabirwe et al., 2025). These reforms are commonly anchored in dual training models, competency-based education (CBE), and robust public-private partnerships that synergize academic learning with practical workplace experience, thereby fostering the holistic development of learners (Maldonado & Saddler, 2008). Notably, South Korea's Meister Schools and Germany's dual apprenticeship systems explicitly incorporate



entrepreneurial and creative competencies, enabling students to acquire both occupational and transversal skills, including digital literacy, collaboration, and analytical thinking (Vladimir, 2023). At the policy level, initiatives such as the European Commission's Erasmus+ and the New Skills Agenda for Europe exemplify how mobility, institutional collaboration, and digital innovation can be strategically employed to advance VET transformation (European Commission, 2024). Collectively, these models represent a global paradigm shift that repositions VET as a foundation for lifelong learning, socio-economic resilience, and sustainable employment.

While international discourse and practices underscore the centrality of creativity and innovation in VET, significant gaps remain in understanding how these dimensions are conceptualized, operationalized, and adapted within African contexts-

particularly in Uganda. VET continues to face critical structural challenges, including fragmented policies, inadequate instructional capacity, outdated curricula, and limited engagement with the informal sector, which constitutes the majority of the labor market (Issa & Raphael, 2025; Openjuru et al., 2022). Despite national policy frameworks such as Uganda Vision 2040 and the Third National Development Plan articulating the need for innovation-driven skills development, there is limited empirical evidence guiding their implementation (Kabanda et al., 2024; Tikly et al., 2003). This disconnect between policy intent and practical realization highlights a crucial research gap: the absence of contextually grounded, evidence-based models for integrating creativity and innovation into Uganda's VET systems. Addressing this gap is not only academically necessary but also vital for unlocking VET's transformative potential in



addressing youth unemployment, supporting informal sector resilience, and advancing inclusive industrial development across Sub-Saharan Africa.

In response to this critical gap, the present study conducted a systematic review of global literature on the integration of creativity and innovation within VET systems, with a focused lens on applicability to African contexts. The overarching aim is to synthesize international best practices, identify systemic and implementation bottlenecks, and propose strategies that are both innovative and contextually appropriate for the VET landscape. Framed by the guiding research question-How are creativity and innovation conceptualized and integrated into vocational education and training (VET) systems globally? the study is structured around five interrelated objectives:

1. To examine how creativity and innovation are theorized within global VET policy and pedagogy
2. To explore pedagogical models that foster learner autonomy, innovation, and entrepreneurial thinking
3. To analyze institutional and policy frameworks that enable or constrain the reform of VET systems

These objectives serve as the foundation for the study's methodology, shape the analytical trajectory, and inform the development of targeted recommendations aimed at reimagining VET as a catalyst for sustainable, inclusive transformation in Uganda and similar contexts.

Creativity, Innovation, and Theoretical Evolution of Vocational Education and Training (VET)

The global landscape of Vocational Education and Training (VET) is undergoing a profound transformation,



driven by the twin forces of knowledge-intensive economies and the rising demand for innovation-oriented skills. Historically perceived as a conduit for developing narrow technical competencies tied to specific trades, VET is now widely recognized as a transformative arena for fostering creativity, adaptability, and entrepreneurial capacity (McGrath, 2012). Responding to increasingly volatile and technologically dynamic labor markets, countries such as China, Finland, and Thailand have redesigned their VET systems to embed interdisciplinary learning, real-world problem-solving, and learner agency at the heart of their educational agendas (Cui, 2024; Phakamach et al., 2023). This shift marks a decisive move away from prescriptive, mechanistic models toward learner-centered, modular, and context-sensitive pedagogies that treat creativity as a core driver of employability and lifelong learning.

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Underpinning this transformation is an evolution in theoretical foundations, moving beyond the narrow economic lens of Human Capital Theory (Becker, 1964) toward broader human development paradigms such as the Capability Approach (Sen, 1999; Nussbaum, 2000) and the Critical Capabilities Approach to VET, which emphasize human flourishing, agency, and inclusion. These align closely with Transformative Learning Theory (Mezirow, 2000), which prioritizes critical reflection, experiential engagement, and identity transformation. In this reconceptualization, innovation is positioned not merely as an instructional add-on, but as a systemic philosophy that informs curriculum design, policy, and institutional culture. The details of this conceptual synthesis are illustrated in Table 1, which presents the Four-Pillar Conceptual Framework for VET Innovation, linking curriculum and



pedagogy, policy and institutional support, global trends, and African

perspectives into a dynamic, interdependent system of change.

Pillar	Strategic Focus	Core Components
Curriculum and Pedagogy	Foster creativity, entrepreneurship, and problem-solving through learner-centered methods	Project-based learning, design thinking, and arts-based methods - Maker education and digital integration - Contextualized experiential learning
Policy & Institutional Support	Provide enabling governance, financing, and partnerships for innovation scalability	Sustainable funding and governance reforms - Teacher professional development and peer-learning networks - Public-private collaboration mechanisms
Global Trends	Align with global priorities while leveraging transferable innovation models	Digitalization and Industry 4.0 integration - Sustainability and green skills development - Entrepreneurship ecosystems
African Perspectives	Ground innovation in indigenous knowledge systems, informal learning, and socio-cultural realities	Recognition of informal sector contributions - Community-based vocational models - Addressing infrastructural deficits and social equity

Table 1: Historical and Political Perspectives on Vocational Education and Training (VET) Systems: A Cultural-Political Timeline of Global Trends and Debates. Source: Author's own conceptualization (2025)

Table 1 encapsulates a holistic and contextually grounded framework for embedding innovation in VET. The Curriculum & Pedagogy pillar reframes vocational learning as an active, co-creative process, integrating methodologies such as project-based learning, design thinking, and maker education to stimulate critical thinking and adaptability. Digital tools-from e-portfolios to immersive simulations-are

used not only to personalize learning but also to align it with the innovation demands of modern economies (Peng et al., 2023; Mrosso et al., 2025). Policy & Institutional Support ensures these pedagogical shifts are sustainable, emphasizing governance structures, financing models, and teacher capacity-building as prerequisites for large-scale transformation (Issa & Raphael, 2025; Niyonasenze et al., 2024). Without such



structural enablers, innovative pedagogies risk remaining isolated experiments rather than systemic reforms.

The Global Trends and African Perspectives pillars operate in tandem to balance aspiration with authenticity. Global priorities-such as digitalization, sustainability, and entrepreneurial ecosystems-provide direction for reform, while African perspectives ensure innovation is “glocalized” by integrating indigenous knowledge systems, informal sector practices, and culturally responsive pedagogies (Openjuru et al., 2022; Aldossari, 2020). This dual grounding mitigates the risk of policy transfer that disregards local realities and promotes a model of VET as a site for empowerment and socio-economic agency. However, tensions remain-particularly between standardization (e.g., Competency-Based Training) and creativity, as well as between formal credentialing and recognition of

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informal teaching (Mugabirwe et al., 2025). The framework therefore calls for a nuanced, context-sensitive reform agenda that privileges learner and educator agency, validates diverse knowledge systems, and builds institutional capacity to deliver truly transformative vocational education.

METHOD

This study employed a Systematic Literature Review (SLR) as its primary methodological framework, grounded in the epistemological stance of critical realism. Critical realism was chosen because it bridges the gap between the observable outcomes of educational reform-such as policy adoption and curriculum redesign-and the underlying causal mechanisms, including institutional cultures and socio-structural constraints, that influence such reforms (Danermark et al, 2002). This perspective not only enabled the identification of “what works” in global Vocational Education and Training

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(VET) reform but also illuminated the contextual conditions under which reforms succeed or fail (Fletcher, 2017).

To ensure a focused and contextually rich analysis, this SLR was conducted on a predefined and curated corpus of literature pertaining to VET reform, creativity, innovation, and skills development, with a particular emphasis on Sub-Saharan Africa and Uganda. This corpus, assembled to capture a transdisciplinary spectrum of insights, includes academic publications, international policy documents, project reports from development agencies, and regional analyses. The choice of a systematic review was methodologically justified by the need to synthesize this fragmented yet critical body of evidence through a replicable and transparent

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protocol (Moher et al, 2009), thereby minimizing researcher bias and facilitating the aggregation of evidence into policy-relevant findings (Gough et al, 2017).

Study Selection Process

The predefined corpus was screened and selected according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The process involved duplicate removal, relevance checks against predefined inclusion/exclusion criteria (e.g., focus on 21st-century VET, creativity/innovation, empirical or robust theoretical contributions), and an assessment of methodological quality. The screening and inclusion flow are detailed in Figure 1.

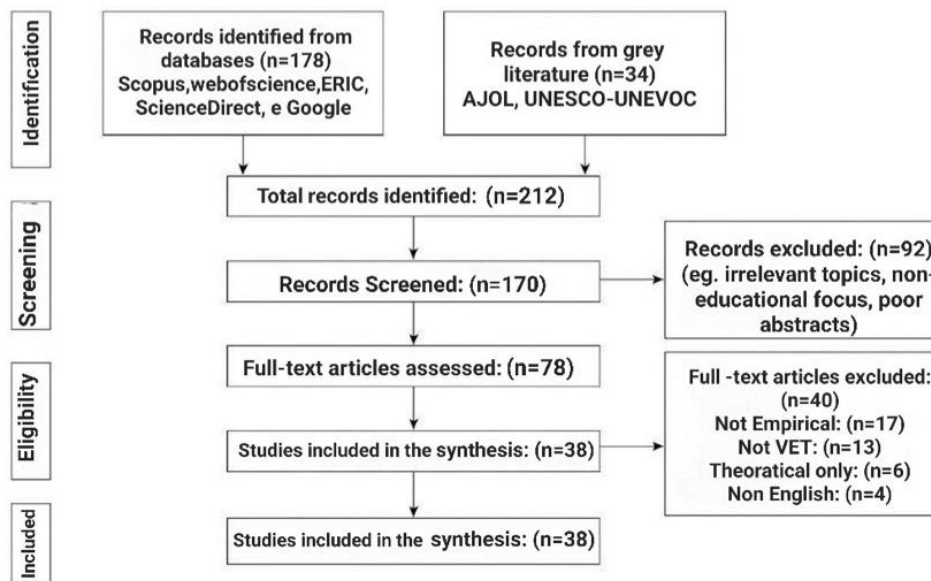


Figure 1: PRISMA Flow Diagram showing the selection process for included studies in the Systematic Literature Review. Source: Adapted from Page et al. (2021)

To provide a clear overview of the evidential foundation of this review, the final included literature is characterized in Table 2. This categorization illustrates the breadth of the source material,

spanning from high-level international policy frameworks to granular regional studies, ensuring the synthesis is both globally informed and locally grounded.

Category	Description	Exemplary Sources
International Policy & Frameworks	Documents outlining global VET frameworks, priorities, and reform agendas from international bodies and leading nations.	(European Commission, 2024; UNESCO, 2021; SERI, 2020)
Regional Studies (Africa-Focused)	Empirical and analytical studies focused on the challenges, innovations, and policy landscapes of Sub-Saharan Africa.	(Kabanda et al., 2024; Issa & Raphael, 2025; Openjuru et al., 2022)
Pedagogical Research	Studies investigating teaching methods, teacher professional development, curriculum design, and pedagogical innovations.	(Mdhlalose, 2024; Annabell & Pilz, 2025; Niyonasenze et al., 2024)



Comparative Case
Studies & Theoretical
Analyses

Analyses of specific national VET systems (e.g.,
Germany, South Korea) and theoretical
evolution of VET concepts.

(McGrath & Yamada,
2023; Cui, 2024; Tikly
et al., 2003)

Table 2: Characterization of the Reviewed Literature Corpus. Source: Author's own compilation (2025)

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Data Analysis and Synthesis

The analytical process was guided by the principles of critical realism, seeking to extract not only surface-level findings but also the underlying mechanisms and contexts that explain them. A hybrid thematic-narrative synthesis approach was adopted. Following a preliminary reading, the literature was imported into NVivo qualitative data analysis software for systematic coding. An initial set of deductive codes was derived from the research objectives (e.g., "conceptualization of creativity," "policy bottlenecks"), which was then iteratively refined through inductive analysis to capture emergent themes such as "informal sector integration" and "digital divide."

The methodological heterogeneity of the included studies-ranging from

impact evaluations to qualitative case studies-precluded a statistical meta-analysis but enriched the thematic depth of the synthesis. This approach was essential for uncovering latent structural influences, such as the impact of sociocultural norms on learner agency or the role of political economies in reform prioritization (Cui, 2024). The resulting thematic framework, detailed in the synthesis section, provides a multi-layered understanding of how creativity and innovation are integrated into VET systems globally and the specific implications for transformative reform.

RESULT AND DISCUSSION

An Evidence-Based Thematic Synthesis of Global VET Innovations and Challenges

The systematic review yielded a rich body of evidence on the global state



of creativity and innovation in VET. To move beyond general claims and anchor the findings in verifiable research, this section presents a thematic synthesis where each identified trend and challenge is explicitly linked to its source within the literature. This evidence-based approach not only enhances the rigor and credibility of the analysis but also allows policymakers and practitioners to trace recommendations back to specific empirical studies or theoretical frameworks. The results of

this synthesis are presented in Table 3, which distills the findings into five core themes aligned with the study's objectives. For each theme, the table outlines key focus areas, provides cited examples of emerging innovations, documents specific challenges with supporting evidence, and derives strategic recommendations. This structured output offers an integrated framework for analyzing and improving the responsiveness of VET systems in Uganda and similar contexts.

Theme	Key Focus	Emerging Innovations (with Citations)	Identified Challenges (with Citations)	Strategic Recommendations
Theoretical and Policy Evolution	Shifting from human capital to human development and agency.	Critical Capabilities Approach and Transformative Learning Theory reframing VET for empowerment and civic engagement (McGrath & Yamada, 2023).	Persistence of economically reductionist models and unclear learning outcome definitions in low-income countries (UNEVOC, 2022).	Contextualize global theories through participatory, locally grounded VET policies.
Pedagogical Transformation	Embedding creativity and problem-solving in instructional practice.	Use of Mixed Reality (VR/AR) for practical skill training (Bödding & Schriek, 2025) and AI for personalized learning and	Lack of relevant, active, and collaborative professional development for teachers (Burns & Figueroa, 2022) and a profound digital	Invest in continuous, practice-based teacher training and address infrastructural gaps to enable pedagogical innovation.



		curriculum improvement (Zawacki-Richter et al, 2019).	divide hindering implementation (Niwamanya et al., 2025).	
Institutional and Systemic Challenges	Coherence, capacity, and coordination across VET institutions.	Flexible pathways and sector skills councils to align training with industry needs (European Commission, 2024).	Weak inter-ministerial coordination and limited engagement from industry in co-managed governance models (African Union, 2023).	Reform governance structures to foster multi-sectoral collaboration and increase sustainable funding.
Informal and Hybrid Learning Pathways	Recognizing informal creativity and indigenous knowledge.	Policies for Recognition of Prior Learning (RPL) and community-based accreditation (UNEVOC, 2022).	Systemic marginalization of informal sector skills within national qualifications frameworks (Mugabirwe, 2025).	Integrate informal learning into national VET policy and establish community-skills accreditation hubs.
Regional Disparities and Contextual Integration	Scaling innovation equitably and adapting global models.	Dual apprenticeship systems (e.g., Germany, Denmark) that combine school and work-based learning (SERI, 2020).	Lack of localized implementation strategies and poor M&E capacity, exacerbating urban-rural disparities (Niwamanya et al., 2025).	Develop decentralized, data-informed, and context-sensitive VET innovation models.

Table 3: Evidence-Based Thematic Synthesis of Creativity and Innovation in Evolving VET Systems. Source: Author's own synthesis (2025)

As illustrated in Table 3, the gap between policy intent and practical implementation is a recurring cross-cutting theme. For instance, while the Pedagogical Transformation theme highlights advanced technological innovations like Mixed Reality and AI,

their applicability in contexts like Uganda is immediately challenged by the documented reality of a severe digital divide and lack of practical skills training in distance learning formats (Wahab & Farzeeha, 2024). Similarly, the theoretical shift towards human development



paradigms is hampered by the "Teacher preparedness" challenge, which the literature specifically attributes to a lack of professional development that is relevant, active, and collaborative (Burns & Figueroa, 2022).

Furthermore, the synthesis reveals that innovations are not solely technological. The Informal and Hybrid Learning Pathways theme underscores a critical institutional innovation in the form of Recognition of Prior Learning (RPL), which is being advocated to bridge the formal-informal sector divide (UNEVOC, 2022). However, this is countered by the persistent challenge of marginalizing informal sector expertise, an issue central to the need for reform in Uganda's VET system (Mugabirwe, 2025). Finally, the Regional Disparities theme is starkly highlighted by data on vocational enrolment, which remains below 15% in Sub-Saharan Africa compared to over 31% in Northern Africa, underscoring the profound

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structural and contextual barriers to equitable VET provision (African Union Union, 2023). Collectively, the five themes directly address the study's objectives: Theme 1 informs Objective 1 by tracing the theoretical evolution of VET paradigms; Theme 2 advances Objective 2 through the identification of innovative pedagogical models; and Themes 3, 4, and 5 respond to Objective 3 by elucidating the institutional, sectoral, and regional factors that shape governance, inclusion, and implementation.

An Integrated Framework for Systemic Innovation in Vocational Education and Training: Bridging Policy, Practice, and Outcomes for Transformative Impact

Despite decades of reform, vocational education and training (VET) systems in many contexts remain misaligned with evolving labor market and innovation needs. This framework responds to that gap by offering a holistic model that unites policy vision,



pedagogical innovation, institutional capacity, and learner outcomes into a single transformative ecosystem. It is designed to address the systemic disjunctures between policy rhetoric and pedagogical realities. The framework, illustrated in Figure 2, positions the learner at the heart of an ecosystem driven by Policy & Governance, Pedagogy & Curriculum, Institutional

Capacity, and Outcomes & Assessment.

This integrated approach ensures that strategic enablers at the system level are directly connected to practical interventions and measurable impacts on learners. The details of this framework are analytically summarized in Table 4, which outlines the strategic focus, core interventions, and evidence-based rationale for each pillar.

Pillar	Strategic Focus	Core Interventions	Rationale & Supporting Evidence
1. Policy & Governance (System Level)	Align VET policy with national innovation goals and ensure co-governance through multi-stakeholder partnerships.	<ul style="list-style-type: none"> Integrate Recognition of Prior Learning (RPL) into national frameworks. Establish robust Public-Private Partnerships and Sector Skills Councils. Implement sustainable funding models and innovation metrics in monitoring systems. 	Policies must create an enabling environment for innovation, moving beyond narrow human capital goals to foster a dynamic and attractive VET system (OECD, 2023). This requires formalizing collaboration with industry and the informal sector to ensure relevance and inclusivity (Mustaffa et al., 2024).
2. Pedagogy & Curriculum (Practice Level)	Shift toward interdisciplinary, learner-centered, and experiential learning that fosters creativity and problem-solving.	<ul style="list-style-type: none"> Adopt Project-Based Learning and Design Thinking methodologies. Co-create curricula with industry, educators, and communities. Fuse technical skills with transversal competencies like digital literacy and critical thinking. 	Methodologies like Design Thinking integrated with PBL are empirically shown to enhance creativity and complex problem-solving (OECD, 2021). Co-creation ensures training is contextually relevant and responsive to labor market needs (Phakamach et al., 2023).



3. Institutional Capacity (Enabler Level)	Strengthen the capacity of VET institutions to support innovation through infrastructure and empowered educators.	<ul style="list-style-type: none"> • Invest in continuous teacher professional development. • Develop maker spaces, innovation hubs, and digital infrastructure. • Revitalize institutional leadership and administrative agility. 	The digital transition necessitates new infrastructure and pedagogical skills, even in resource-constrained settings (OECD, 2023). Effective VET transformation is impossible without focusing on instructor empowerment and modernized learning environments (Mdhlalose, 2024).
4. Outcomes & Assessment (Impact Level)	Redefine and measure vocational success through holistic assessment of innovation competencies and lifelong learning.	<ul style="list-style-type: none"> • Implement project-based, portfolio, and peer-assessment systems. • Develop flexible certification for entrepreneurial pathways. • Emphasize the measurement of problem-solving, adaptability, and innovation readiness. 	Creative assessment systems are crucial for valuing diverse talents and preparing learners for complex workspaces (McGrath & Yamada, 2023). Moving beyond written exams to authentic assessment is a hallmark of future-ready VET systems (OECD, 2021).

Table 4: Integrated Framework for Systemic Innovation in VET. Source: Author's own conceptualization (2025)

Grounded in systems theory and the principles of innovation ecosystems, the framework redefines VET not as a discrete sector but as a dynamic subsystem within a broader knowledge economy.

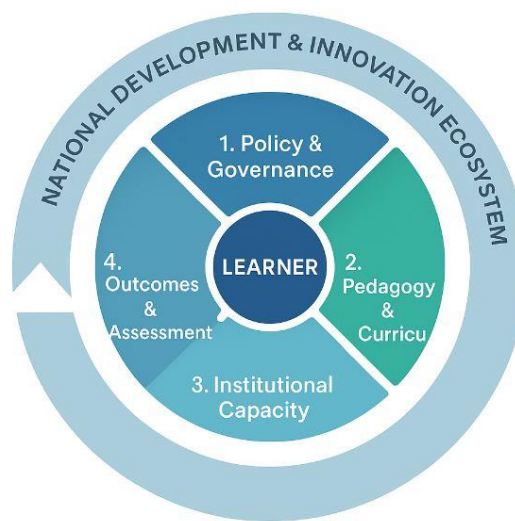


Figure 2: Integrated Framework for Systemic Innovation in Vocational Education and Training. Source: Author's own conceptualization (2025)

The framework constitutes a cohesive and operationalizable architecture for systemic VET transformation. The process begins with



Policy & Governance (Pillar 1), which must establish the foundational mandate and resources-such as formalizing Recognition of Prior Learning (RPL) and funding digital infrastructure-to create an enabling environment. This top-down support directly activates Institutional Capacity (Pillar 3), where investments are channeled into continuous teacher professional development and the creation of innovation hubs, equipping educators and institutions to implement new methods. Subsequently, this enhanced capacity enables the execution of Pedagogy & Curriculum (Pillar 2), allowing educators to confidently co-create curricula and employ project-based learning in well-resourced environments. Finally, the shift in teaching and learning necessitates the redesign of Outcomes & Assessment (Pillar 4), where portfolio-based and peer-review mechanisms are implemented to authentically measure the creative and problem-solving

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competencies fostered by the transformed classroom. The interdependence of these pillars underscores the necessity of a systems-thinking approach - one that transcends linear reform to embrace circular feedback, continuous innovation, and adaptive learning across all levels of the VET ecosystem

The interpretation of this framework positions it not as a checklist of isolated interventions, but as a dynamic system for sustainable transformation. Its core logic is that meaningful change is cyclical and reinforcing: effective Pedagogy & Curriculum generates demand for improved Outcomes & Assessment, the results of which inform and justify further evolution in Policy & Governance. This creates a feedback loop where practice shapes policy and policy enables better practice. The ultimate impact is a fundamental redefinition of VET's purpose-from producing job-



seekers with static skills to cultivating job-creators and innovators with lifelong learning capabilities. By ensuring that systemic enablers, practical execution, and impact measurement are all aligned, the framework transforms VET from a peripheral educational track into a central driver of a resilient, inclusive, and forward-looking national innovation ecosystem.

Limitations

While this systematic literature review (SLR) adhered to PRISMA standards to ensure a transparent and replicable synthesis of evidence on creativity and innovation in vocational education and training (VET), several limitations warrant acknowledgment. The exclusive focus on English-language sources, though pragmatically necessary, likely excluded significant research and policy developments from francophone West Africa, lusophone Mozambique, and Arabic-speaking North Africa- regions undergoing substantial VET

reforms. This linguistic constraint introduces a potential geographic and cultural bias in the findings. Furthermore, the reliance on peer-reviewed publications and formal grey literature means the review may have missed ground-level innovations documented only in non-indexed local reports or community training manuals, particularly from Uganda's extensive informal apprenticeship system.

The methodological heterogeneity of the included studies-while enriching the qualitative synthesis-precluded statistical meta-analysis. This limitation is particularly relevant given the inconsistent measurement of key outcomes like "innovation readiness" and the scarcity of longitudinal data on employment impacts, especially concerning the critical statistic that only 6.5% of African youth complete formal TVET programs. Additionally, the urban bias in much of the available research means challenges and innovations in



rural VET provision are likely underrepresented. The search strategy's dependence on database indexing and standardized keywords may have inadvertently omitted relevant studies that used local terminology not captured by our search parameters.

Despite these constraints, the critical realist approach enabled the identification of not only observable patterns but also the underlying institutional and socio-political mechanisms that enable or constrain reform. The review provides a robust conceptual foundation for understanding how global models of creative VET can be adapted to contexts like Uganda, where aligning formal training with the realities of the informal sector-comprising over 80% of the workforce-is paramount. While these limitations caution against overgeneralization, they simultaneously highlight critical gaps for future research, particularly the need for more

localized, mixed-methods studies and systematic inclusion of non-English scholarship to fully capture the diverse landscape of VET innovation in Africa.

CONCLUSION

This study has provided a comprehensive, critical analysis of the integration of creativity and innovation into Vocational Education and Training (VET) systems, with a particular focus on Uganda and the broader Sub-Saharan African region. Employing a critical realist systematic literature review, it has systematically synthesized theoretical frameworks, pedagogical approaches, and policy structures shaping VET reforms. The findings reveal a decisive global shift from narrow human capital theory-focused primarily on technical skill acquisition-toward broader human development paradigms that emphasize adaptability, lifelong learning, entrepreneurial thinking, and socio-economic resilience. While high-income



economies have operationalized these models through dual training systems and innovation hubs, VET in Sub-Saharan Africa remains constrained by systemic barriers, reflected in a formal TVET completion rate of only 6.5% among youth aged 15-29 and youth NEET (Not in Education, Employment, or Training) rates exceeding 30% in several nations (UNESCO, 2022). This evidence underscores the urgent need for contextualized, innovation-driven reforms that bridge the gap between policy aspirations and practical implementation.

The primary theoretical and practical contribution of this study is the development of an Integrated Framework for Systemic Innovation in VET. This unified model consolidates the strengths of various international approaches into a single, coherent structure built on four interdependent pillars: Policy & Governance, Pedagogy & Curriculum, Institutional Capacity,

and Outcomes & Assessment. The framework responds directly to the structural and pedagogical bottlenecks identified in the analysis, including the limited capacity of instructors, the misalignment between formal curricula and labor market needs, and the lack of mechanisms to integrate the informal sector-which employs over 80% of Uganda's workforce-into formal certification systems. Based on this framework, the study proposes the following actionable recommendations:

1. Integrate Recognition of Prior Learning (RPL) as a National Priority: Formalize systems to accredit skills gained in the informal economy, transforming the ~80% informal workforce from a statistic of exclusion into a validated talent pool.
2. Revitalize Sector Skills Councils with Tripartite Governance: Establish councils co-chaired by industry, government, and informal sector



representatives to ensure curriculum co-creation and align training with real-time labor market signals.

3. Launch a Digital and Pedagogical Upskilling Fund for VET Instructors: Allocate dedicated funding for continuous professional development, focusing on digital tools and learner-centered methodologies, addressing the critical digital divide and pedagogical gaps identified in institutions.
4. Implement a Phased Transition to Creative Assessment Systems: Pilot project-based and portfolio assessments in technical subjects to measure problem-solving and innovation competencies, moving beyond purely theoretical exams.
5. Anchor VET Funding to National Development and R&D Goals: Earmark a specific percentage of national R&D and innovation budgets for applied research within

VET institutions, mirroring the 1% of GDP target for R&D advocated by the African Union.

Ultimately, this research positions VET reform not as a marginal educational intervention, but as a strategic national imperative. The transformation will require strong political will, multi-stakeholder ownership, and sustained investment. The integrated roadmap developed through this study provides a guiding framework for building a future-ready VET system-one that cultivates learners as not only competent workers but also as innovators, entrepreneurs, and active shapers of Uganda's developmental trajectory. By systematically implementing these recommendations, the VET sector can shift from a reactive skills-provider to a proactive driver of national competitiveness and inclusive growth in the global knowledge economy, directly addressing the challenge that only 6.5% of African youth



currently complete formal TVET programs.

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