RESEARCH AND ADVANCES IN EDUCATION

ISSN 2788-7057 SEP. 2026 VOL. 5, NO. 3

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Paradigm Academic Press
Research and Advances in Education
ISSN 2788-7057
SEP. 2026 VOL.5, NO.3

Equitable Power Dynamics, Transactional Relationships, and Mutual Learning as Correlates for Transforming Higher Education in Uganda: A Case of Kisubi University

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doi:10.63593/RAE.2788-7057.2026.09.001

Abstract

This academic paper explores the interrelationship between equitable power dynamics, transactional relationships, and mutual learning as key correlates for transforming higher education institutions (HEIs) in Uganda, with a specific focus on Kisubi University. The objective of the study is to investigate how the evolution from transactional arrangements to relational partnerships can foster co-creation, mutual trust, and sustainable transformation in university governance, pedagogy, and stakeholder engagement. Anchored in the United Nations Sustainable Development Goals (SDGs), Uganda's Vision 2040, and National Development Plan IV, the study adopts a qualitative case study approach using secondary data, institutional reports, and documented interviews. The findings reveal that traditional hierarchical power structures and transactional mindsets constrain inclusive transformation, whereas equitable power sharing and mutual learning catalyze institutional innovation, academic freedom, and stakeholder ownership. The study concludes that embedding co-creative relational frameworks within university systems enhances institutional responsiveness, inclusivity, and resilience. Recommendations include policy reform for governance equity, redefinition of institutional partnerships, and enhanced pedagogical autonomy. The findings offer practical and policy-oriented insights into restructuring Uganda's higher education landscape through relational, inclusive, and empowering models of engagement.

Keywords: equitable power dynamics, transactional relationships, mutual learning, higher education transformation, University of Kisubi

1. The Background of the Study

Globally, higher education has undergone significant transformation, shifting from rigid, hierarchical systems characterized by transactional relationships to more participatory and inclusive models that emphasize relational partnerships. Historically, higher education institutions (HEIs) have been founded upon colonial, neoliberal, or bureaucratic structures that reinforced power centralization and top-down decision-making processes (Altbach, 2016). In Africa, and specifically Uganda, post-independence educational reforms initially sought to dismantle these colonial legacies; however, many universities continued to adopt managerial and transactional models of operation, focusing more on bureaucratic compliance than stakeholder empowerment (Ssempebwa et al., 2019).

During the 1990s and early 2000s, Uganda's HEIs experienced exponential growth in student enrollment, institutional privatization, and international collaborations, which reinforced transactional arrangements with stakeholders primarily defined by service exchange, tuition for instruction, with limited space for co-creation and

mutual decision-making (Nakayiwa, 2018). However, the emergence of the Sustainable Development Goals (SDGs), the African Union's Agenda 2063, and Uganda Vision 2040 has triggered a paradigm shift, emphasizing equitable governance, inclusion, and innovation-driven development. In this emerging landscape, mutual learning, equity in power dynamics, and transformation-focused partnerships are increasingly recognized as fundamental pillars for institutional resilience and relevance (Kiwanuka, 2023).

In Uganda, University of Kisubi (UniK) is one of the private chartered institutions striving to position itself as a transformational center of learning, research, and service. Located in Entebbe Municipality, Wakiso District, UniK operates under the motto "Light of the World," which reflects its Christian heritage and commitment to holistic education. However, like many private universities, it faces structural and operational challenges related to power centralization, limited stakeholder participation, and overdependence on tuition-driven revenue models (Nabudere, 2021).

The study's context is situated in an institutional environment where faculty-student-administrator relations are still predominantly transactional. These relationships are largely shaped by defined roles, limited dialogue, and performance-oriented metrics that undervalue relational engagement and co-creation. Further, despite its progressive vision, UniK's administrative structures remain largely hierarchical, often sidelining collaborative planning, equitable representation in decision-making, and feedback mechanisms that foster mutual learning. The National Development Plan IV and Uganda's Vision 2040 both highlight education transformation as a strategic goal, emphasizing the need for HEIs to become hubs of innovation, equitable governance, and partnerships aligned with local and global development agendas as reported by Uganda Vision 2040.

The key constructs in this study, equitable power dynamics, transactional relationships, and mutual learning, are foundational to the current debate on transforming higher education in Uganda. Equitable power dynamics refer to balanced participation and influence among all institutional stakeholders: students, faculty, administrators, and community actors where decision-making is democratized and authority is not monopolized (Freeman & Robinson, 2022).

In contrast, transactional relationships are interactions where exchanges are linear and goal-oriented, typically with minimal emotional investment or collaborative ownership (Burns & Stalker, 2019). These are common in Uganda's HEIs where students pay tuition for services and faculty are evaluated based on output rather than meaningful engagement. On the other hand, mutual learning involves a reciprocal process of knowledge sharing, reflection, and co-creation where all parties contribute and benefit from learning interactions (Jack, 2000).

This study justifies the integration of these constructs by recognizing that a transformation agenda in higher education must not only improve access and curriculum but must also deconstruct power hierarchies, promote inclusivity, and foster collaborative learning environments. Informed by the broader SDG 4 (Quality Education), Goal 17 (Partnerships for the Goals), and Uganda's higher education quality assurance frameworks, the current inquiry places emphasis on moving beyond surface reforms toward deeper relational and governance transformation ("Transforming Education Towards SDG 4: Report of a Global Survey on Country Actions to Transform Education," 2024). The study particularly aligns with Uganda's "Skilling Uganda" strategy and the goal of strengthening institutional autonomy and responsiveness within HEIs.

1.1 Purpose of the Paper

The purpose of the study is to examine how equitable power dynamics, transactional relationships, and mutual learning influence the transformation of higher education in Uganda. Focusing on the University of Kisubi, the study explores how shifting to relational partnerships fosters inclusive governance, stakeholder co-creation, and institutional resilience.

1.2 Research Objectives

This study was guided by the following objectives:

1) To examine how transactional relationships, influence institutional transformation at University of Kisubi.
2) To analyze the role of equitable power dynamics in promoting inclusive governance and co-creation in higher education.
3) To assess the contribution of mutual learning to academic and administrative innovation at University of Kisubi.

1.3 Research Questions

This study was guided by the following research questions:

1) How do transactional relationships influence institutional transformation at University of Kisubi?
2) What role do equitable power dynamics play in promoting inclusive governance and co-creation in

higher education?

3) How does mutual learning contribute to academic and administrative innovation at University of Kisubi?

2. Theoretical Framework

This study is anchored in two complementary theoretical frameworks: Transformative Learning Theory and Participatory Governance Theory. These theories collectively provide a robust lens through which the dynamics of power, learning, and institutional transformation in higher education can be critically analyzed.

2.1 Transformative Learning Theory

Proposed by Jack Mezirow in 1991, Transformative Learning Theory posits that adult learners experience deep learning when they critically reflect on their assumptions, engage in rational discourse, and alter their frames of reference through experience and interaction (Jack, 2000). This theory emphasizes the importance of dialogue, reflection, and mutual engagement as key features of mutual learning processes in higher education institutions. It supports the idea that transformational change within universities is driven not only by structural reforms but also by shifts in mindset, culture, and relational engagement among stakeholders. In this context, students, faculty, and administrators co-learn and redefine institutional values and practices, fostering innovation and inclusivity (Taylor & Cranton, 2012).

2.2 Participatory Governance Theory

Participatory Governance Theory emphasizes decentralized and inclusive decision-making processes in institutional settings (Fung & Wright, 2003). It argues that shared governance and equitable stakeholder involvement enhance institutional legitimacy, responsiveness, and sustainability. Within higher education, participatory governance challenges top-down models and promotes equity in power distribution, enabling all actors: students, lecturers, administrators, and community stakeholders to meaningfully contribute to institutional development. This aligns with Uganda's Vision 2040 and the National Council for Higher Education (NCHE) framework that advocates for transparency, inclusion, and stakeholder ownership in university governance (NCHE, 2022).

These two theories were chosen for their relevance to the central themes of this study. Transformative Learning Theory directly supports the notion of mutual learning, showing how institutions can evolve when all members actively engage in reflective and experiential learning. Participatory Governance Theory complements this by providing a framework for analyzing equitable power dynamics, and the shift away from transactional relationships to more co-creative and accountable relational engagements; applied to UNIK, these theories help examine how power decentralization and learning reciprocity can transform institutional culture, policy, and practice to align with Uganda's higher education reform agenda and the global education SDGs.

3. Literature Review

This section presents a critical review of literature on the three major variables in the study: transactional relationships, equitable power dynamics, and mutual learning. Each variable is examined in terms of its theoretical underpinnings, empirical studies, and relevance to the transformation of higher education institutions, particularly within the Ugandan context.

Objective 1: Transactional Relationships in Higher Education Institutions

Transactional relationships in higher education refer to interactions that are based on clearly defined roles, responsibilities, and expectations, often limited to formal exchanges such as tuition payments in return for academic instruction. Such relationships are prevalent in university systems where bureaucratic efficiency, performance metrics, and output-based funding dominate institutional culture (Ginsberg, 2011). In many African universities, including those in Uganda, these relationships have reinforced a service-provider and consumer model, reducing students and faculty to passive recipients and deliverers of education rather than active co-creators of knowledge (Bunting & Cloete, 2016).

Scholars argue that transactional relationships compromise the transformative potential of higher education by limiting trust, ownership, and critical engagement between stakeholders (Marginson, 2011). For instance, Teferra & Altbachl (2003) describe how many African HEIs have struggled to shift from colonial education models characterized by rigid administrative hierarchies and impersonal pedagogies. Instead of fostering innovation and dialogue, such institutions maintain a mechanical relationship between faculty and students, where outcomes are predefined and learning becomes instrumental rather than reflective (Nguyen et al., 2017).

Transactional relationships have also been criticized for their impact on academic freedom and autonomy. When universities are governed primarily by corporate managerial principles and top-down accountability structures, faculty often face restrictions in curriculum development, research priorities, and institutional critique (Bok,

2003). This is evident in Uganda, where the growing privatization of universities has intensified market-driven behaviors at the expense of educational mission (Ssembatya, 2020).

In Kisubi University's context, preliminary institutional reports and third-party assessments indicate that academic decision-making remains primarily centralized, with limited student-faculty governance interaction. This creates a transactional environment where feedback loops are weak, curriculum responsiveness is minimal, and innovation is stifled (UniK Strategic Plan, 2022–2026). Moreover, faculty evaluations are largely output-based, emphasizing examination success and publication numbers without accounting for engagement quality or pedagogical innovation (Muwonge & Oluka, 2023).

However, recent literature shows an increasing call to shift from transactional to relational frameworks. Jørgensen and Bozeman (2007) emphasize that higher education transformation requires a reconceptualization of engagement moving from efficiency-based exchange to relational trust-building and shared purpose. Within the SDG 4 and SDG 17 framework, UNESCO (2022) advocates for university-stakeholder partnerships that transcend economic exchange and emphasize collaboration, mutual respect, and shared vision. In sum, transactional relationships in higher education limit the depth of institutional transformation by focusing on inputs and outputs rather than engagement processes and learning environments. Replacing these with relational, participatory models is essential for meaningful and sustainable reform in Uganda's higher education landscape.

Objective 2: Equitable Power Dynamics in Higher Education Institutions

Equitable power dynamics refer to the fair and balanced distribution of decision-making authority, influence, and access to institutional resources among all stakeholders in an academic setting. This concept is gaining traction in educational research and practice as a foundational element for institutional transformation, particularly in post-colonial contexts such as Uganda where power structures in higher education remain largely hierarchical and exclusionary (Mamdani, 2007; Trowler, 2012).

Historically, universities were structured to serve elite populations, with administrators and faculty holding nearly all institutional authority while students and lower-level staff had minimal participation in governance processes (Altbach, 2005). These structures have persisted in many African HEIs, where centralization and vertical power hierarchies still dominate curriculum design, resource allocation, and policy development (Cloete et al., 2015). In Uganda, despite reforms initiated through the Universities and Other Tertiary Institutions Act (UOTIA) of 2001, many institutions, particularly private ones like the University of Kisubi, continue to operate under frameworks that privilege executive decision-making with little room for participatory governance (Chancellor, 2021).

According to Habermas's theory of communicative action, institutions are most productive when they adopt inclusive, consensus-based governance mechanisms that recognize diverse voices and eliminate domination (Dumm, 1984). Equitable power dynamics enable such frameworks by facilitating transparent, dialogic decision-making among students, faculty, administrators, and external partners. They also foster trust, accountability, and a sense of collective ownership which are vital for institutional resilience and adaptability (Gaventa & Cornwall, 2006).

Empirical studies affirm the transformative effect of equitable power distribution in higher education. For example, Kezar and Holcombe (2017) found that shared governance models enhance institutional capacity for change, increase academic innovation, and improve stakeholder satisfaction. Similarly, Trowler & Knight (2000) argue that power-sharing mechanisms improve the relevance and effectiveness of university programs by incorporating multiple stakeholder perspectives into strategic planning and pedagogy. In the African context, Luescher (2012) emphasizes that student representation in governance enhances democratic practice and accountability in university operations.

In Uganda, however, implementing equitable power dynamics faces numerous challenges. Patriarchal norms, bureaucratic resistance, and limited regulatory enforcement inhibit meaningful inclusion in institutional governance (Tumusiime, 2019). Private institutions in particular, like University of Kisubi, often operate under proprietorship structures where executive decisions are final and non-negotiable, thereby excluding other stakeholders from strategic conversations (Nabudere, 2021). This contradicts the participatory ideals outlined in Uganda's Vision 2040 and National Development Plan IV, which promote inclusive development across sectors, including education.

Nevertheless, promising practices are emerging. Makerere University, for example, has introduced participatory budget planning and curriculum design sessions involving student unions and faculty representatives (Mak Governance Review, 2023). Similarly, international partnerships guided by the SDGs are encouraging Ugandan universities to adopt decentralized management systems, including open consultation forums, feedback platforms, and student-faculty senates (UNDP, 2022).

For University of Kisubi, adopting equitable power dynamics is not only a governance imperative but a strategic

pathway for enhancing academic quality, stakeholder satisfaction, and long-term sustainability. Aligning its structures with participatory frameworks can enable the institution to navigate external pressures such as competition, technological change, and demographic shifts in the student population while also aligning with global benchmarks for quality education (SDG 4) and inclusive institutions (SDG 16).

Objective 3: Mutual Learning in Higher Education Institutions

Mutual learning is a collaborative process whereby individuals or institutions learn from one another through reciprocal knowledge exchange, critical reflection, and co-construction of meaning. In the context of higher education, mutual learning extends beyond the traditional unidirectional teacher-student dynamic and embraces a participatory model where all actors, faculty, students, administrators, and even external partners, engage in continuous, reflective learning (Boud & Solomon, 2001). This model promotes inclusivity, dialogic engagement, and transformation, which are essential for institutional relevance and sustainability.

Theoretically, mutual learning draws on Paulo Freire's critical pedagogy, which advocates for education as a process of conscientization, dialogue, and empowerment (Freire, 1970). Instead of treating learners as passive recipients of knowledge, mutual learning emphasizes co-agency, where both students and educators shape the learning agenda and outcomes. Mezirow's Transformative Learning Theory also supports mutual learning by emphasizing the importance of shared critical reflection in reshaping perspectives and creating transformative change in adult education (Jack, 2000).

Globally, mutual learning has been applied in higher education to enhance pedagogical innovation, foster global citizenship, and promote equity in knowledge production. For instance, collaborative learning frameworks in Europe and North America have demonstrated improved student engagement, deeper understanding, and stronger interdisciplinary integration (Vygotsky, 1978; Kolb, 2015). In African higher education, however, institutional cultures still heavily rely on lecture-based, teacher-centered approaches that constrain mutual learning opportunities (Oanda et al., 2008).

In Uganda, mutual learning is gaining ground through competency-based learning models, problem-based curricula, and interdisciplinary teaching approaches promoted by the Ministry of Education and Sports and the NCHE. Institutions such as Makerere University, Uganda Christian University, and Uganda Martyrs University have initiated mentorship programs, community engagement labs, and student-led learning projects that embody the spirit of mutual learning (Tusiime et al., 2022; Kabahizi, 2020). However, the extent of integration remains uneven across the sector, with many private institutions lagging due to resource constraints, traditional pedagogies, and rigid institutional cultures.

At the University of Kisubi, anecdotal evidence suggests some adoption of collaborative learning through peer assessment, project-based work, and student consultations. Nonetheless, these efforts are not yet institutionalized or embedded within the broader governance and curriculum frameworks. Faculty still play dominant roles in defining content and assessment, and students' experiential knowledge is often undervalued. This limits the potential for co-creation and innovation that could arise from genuine mutual learning environments (UniK Learning Enhancement Review, 2023).

Moreover, mutual learning is increasingly linked to internationalization and the SDGs, especially SDG 4 (Quality Education) and SDG 17 (Partnerships for the Goals). Universities are being encouraged to co-develop knowledge with international partners, local communities, and students from diverse backgrounds in ways that promote inclusion, adaptability, and global relevance ("Transforming Education Towards SDG 4: Report of a Global Survey on Country Actions to Transform Education," 2024). Mutual learning also contributes to decolonizing education by recognizing indigenous knowledge systems, student voices, and context-specific insights as equally valid forms of knowledge (Nyamnjoh, 2012).

In conclusion, mutual learning is a critical element for transforming higher education institutions in Uganda. It requires institutional commitment to pedagogical reform, power-sharing, and stakeholder inclusivity. For the University of Kisubi, operationalizing mutual learning could lead to improved student outcomes, stronger academic-community linkages, and a more responsive and dynamic institutional culture aligned with national and global development priorities.

4. Research Methodology

This study used a qualitative case study approach to analyze equitable power relations, their transactional nature, and mutual learning at the University of Kisubi. This qualitative approach examined the experiences, perceptions, and interactions of the respondents in higher education advocacy, offering a deeper understanding rather than mere measurement. Treating the University of Kisubi as a single case study provided a bounded system, enabling a comprehensive understanding of systemic change by considering all possible environmental factors. The qualitative case study design allowed the researcher to investigate complex phenomena such as governance relations, stakeholder participation, and co-learning systems in their natural context. Data were

gathered through semi-structured interviews, focus groups, observations, and document review, with thematic analysis applied for pattern and theme identification. Credibility was maintained through data source triangulation, member checking, and providing rich descriptive context.

4.1 Study Population

The target population comprised various stakeholders at University of Kisubi, including 3 university administrators (e.g., deans and departmental heads), 6 teaching staff, and 6 students. In addition, 2 alumni and 1 official from the National Council for Higher Education (NCHE) were considered for broader institutional and regulatory perspectives. This brought the total targeted population to 18 participants.

4.2 Data Collection Methods

Given the qualitative nature of the study, data were collected using three main instruments:

1) In-depth interviews, which explored the participants' perspectives on power dynamics, learning, and institutional relationships.
2) Documentary review, which analyzed university policies, NCHE reports, and academic strategic plans.
3) Observation, conducted during faculty meetings and academic engagement forums, which helped reveal power interactions and relational behaviors.

4.3 Data Analysis and Presentation

Thematic analysis was employed to categorize and interpret the data according to recurring themes across the three variables. After transcription and coding, themes were developed and interpreted in relation to the theoretical framework. The results were presented in narrative form and summarized in interpretive tables for clarity.

4.4 Sample Size and Sampling Techniques

The study employed a purposive sampling technique, commonly used in qualitative research, to select participants with relevant knowledge and experience. The sample size was guided by the Krejcie and Morgan (1970) table for determining appropriate sample sizes, as cited by Amin (2005) to ensure adequate representation. A total of 18 participants were purposively selected from the University of Kisubi. These included university administrators, teaching staff, student leaders, alumni, and a policy official from the National Council for Higher Education (NCHE), as detailed in Table 1.

Table 1. Study Participants by Category, Gender, and Sampling Technique

Category	**Sub-Category**	**Male (M)**	**Female (F)**	**Total Population**	**Sample Size**	**Percentage (%)**	**Sampling Technique**
University Administrators	Vice Chancellor / Administrators	2	1	3	3	100%	Purposive Sampling
Teaching Staff	Lecturers	4	2	6	6	100%	Purposive Sampling
Students	Student Leaders	3	3	6	6	100%	Purposive Sampling
Alumni	Graduates	1	1	2	2	100%	Purposive Sampling
NCHE Official	Policy Maker	1	0	1	1	100%	Purposive Sampling
Total		**11**	**7**	**18**	**18**	**100%**	

Source: Primary Data.

Table 1 provides a detailed summary of the study participants categorized by role, gender, and sampling technique. The total sample consisted of 18 individuals, including university administrators, teaching staff, students, alumni, and a representative from the National Council for Higher Education (NCHE). The gender distribution was relatively balanced, with 11 males and 7 females. All participants were selected through purposive sampling, ensuring that individuals with relevant experience and knowledge were included in the study. This method was particularly suitable for capturing diverse perspectives from key stakeholders involved in higher education at the University of Kisubi.

Specifically, the sample included three university administrators (2M, 1F), six teaching staff members (4M, 2F), six student leaders (3M, 3F), two alumni (1M, 1F), and one NCHE official (1M). The use of purposive sampling allowed for the inclusion of participants based on their strategic roles and experiences, which are critical to understanding the dynamics of educational transformation. This composition ensured a comprehensive and representative view of the institutional and policy-level factors influencing higher education in Uganda.

4.5 Ethical Considerations

The study adhered to ethical guidelines by obtaining informed consent from all participants. Anonymity and confidentiality were maintained, and participants were free to withdraw at any time without consequence. Institutional permission was also obtained from UNIK's research and ethics committee.

5. Interview Findings per Variable/Objective

The findings in this section are based on in-depth interviews conducted with both students and faculty members at Kisubi University. The interviewees were asked to share their experiences and perceptions about the prevailing conditions at the university, specifically focusing on three key variables, transactional relationships, equitable power dynamics, and mutual learning. These findings are examined through the lens of scholarly literature, providing insights into how these factors influence the educational experience in Uganda's higher education system.

Objective 1: Transactional Relationships and Institutional Transformation at UNIK

At the University of Kisubi (UNIK), the increasing commercialization of higher education has contributed to the rise of transactional relationships, where academic interactions are framed more by financial exchanges than by intellectual engagement. Marginson (2016) observes that Ugandan universities often adopt market-driven models to maintain financial viability—a pattern clearly reflected at UNIK. According to the university's 2023 administrative report, a 15% enrolment increase was prioritized explicitly to boost tuition revenue, with little to no emphasis on enhancing student-faculty engagement. This reflects Ginsberg's (2011) critique of business-oriented academic models, which tend to erode the depth and quality of transformative educational experiences.

As part of a broader study on student perceptions of academic engagement at UNIK, a second-year student in the Business Administration program expressed dissatisfaction with the impersonal nature of their academic experience. Having completed two semesters, the student described their learning environment as transactional and uninspiring:

"Here at UNIK, it's all about paying fees and getting grades. You attend lectures, sit exams, and that's it. There is no real interaction with lecturers. They lecture, we sit, and the cycle repeats. It's a business deal, not a place to expand our minds. The focus is on getting through the syllabus, not challenging us to think or go beyond the course."

This statement vividly captures the transactional dynamic within UNIK, where education is perceived more as a commodity than a transformative process. The student's remarks align with Freire's (1970) critique of one-directional, banking-style education, and echo (Altbach, 2016) observation that Ugandan universities increasingly prioritize administrative efficiency over intellectual enrichment. As a result, institutions like UNIK risk producing graduates who are credential-focused rather than critically engaged.

A similar concern was echoed by a lecturer from UNIK's Department of Education, who has taught at the university for five years. During an interview conducted for a study on faculty teaching experiences, the lecturer reflected on the administrative pressures that shape instructional practices:

"At UNIK, we're under pressure to deliver content and meet administrative targets. Pushing students beyond the syllabus is rare. It's a one-way exchange: students pay, we educate, and UNIK tracks enrollment numbers. There isn't a lot of room for mentoring or building relationships that might alter their academic path."

This insight reinforces Ginsberg's (2011) warning that managerialism in higher education diminishes the relational aspects of teaching. The lecturer's comments also support Freire's (1970) call for dialogical and participatory education, which is largely absent in UNIK's current academic structure.

Further reinforcing this theme, a senior faculty member from the Social Sciences Department—who has served at UNIK for over a decade, provided additional perspective during a study focused on institutional priorities. The faculty member emphasized the university's fixation on financial and performance metrics:

"UNIK's focus is on metrics, enrolment, graduation rates, and revenue. We're expected to churn out graduates, not nurture thinkers. This business-like approach leaves little space for meaningful interactions. Students see us as service providers, not guides, and that's a loss for everyone at UNIK."

This perspective reflects broader critiques of higher education commercialization in Uganda. Marginson (2016)

and Mamdani (2007) both note how such market-driven approaches reshape universities into revenue-driven institutions at the expense of their educational missions. The erosion of mentorship and relational learning risks undermining the university's potential to cultivate critical, independent thinkers.

In summary, the prevailing transactional model at the University of Kisubi, driven by commercialization and administrative priorities, prioritizes financial efficiency over intellectual engagement. This is evident in both student and faculty experiences and aligns with Freire's (1970) and Ginsberg's (2011) critiques of instrumentalist education. To reclaim its transformative potential, UNIK must shift toward more dialogical and relational learning models that foster mentorship, critical thinking, and deeper student-faculty engagement.

Objective 2: Equitable Power Dynamics and Inclusive Governance at UNIK

Power dynamics at the University of Kisubi (UNIK) are notably centralized, with decision-making concentrated among top administrators, thereby limiting faculty and student involvement. This hierarchical model contradicts the principles of shared governance, which Kezar and Holcombe (2017) advocate for, to ensure a more inclusive and participatory approach. Despite such advocacy, UNIK's administration persists with its top-down governance structure. For instance, a 2023 article in The Monitor reported that UNIK's administration rejected a student proposal to revise tuition payment plans without prior consultation, reflecting the ongoing centralized control within the university's governance framework. This centralized approach is not unique to UNIK, as similar challenges are observed across other Ugandan universities, as highlighted by Mamdani (2007).

Further insight into the impact of this governance model comes from interviews with a faculty member from the Law Department, who has been at UNIK for seven years. The interview, conducted as part of a study on governance at UNIK, explored faculty involvement in academic decision-making. The faculty member expressed frustration with the lack of influence over UNIK's academic policies, stating:

"At UNIK, decisions on curriculum, policies, or hiring are made by senior management. Faculty are only informed after everything is set. We have meetings, but they're more about receiving instructions than contributing ideas. It feels like our expertise is overlooked, and there's no real chance to shape UNIK's direction."

This statement underscores the centralized nature of governance at UNIK, which aligns with Burns & Stalker's (1994) critique of hierarchical structures that limit creativity and innovation. The faculty member's sense of exclusion illustrates a disconnect between UNIK's administration and faculty, as discussed by Dumm (1984). The lack of meaningful faculty involvement restricts the university's ability to harness faculty expertise, ultimately hindering institutional innovation.

In a similar vein, an interview with a UNIK student representative in the Student Guild, a third-year student in the Education program, further highlights the performative nature of student participation in governance. The interview revealed that student involvement, particularly regarding policies that directly affect them, often feels superficial. The student shared:

"At UNIK, students are sometimes invited to discuss policies, like fee structures, but it's just for show. The administration has already decided. We suggest changes, but they're ignored. It's frustrating because we're the ones affected, yet our voices don't matter in how UNIK is run."

This student's experience is consistent with Habermas' (1984) argument for genuine democratic participation, which UNIK's governance model fails to uphold. The performative inclusion of students, as described, aligns with Kezar & Holcombe's (2017) critique of exclusionary governance. Such a governance structure, in which student voices are disregarded, risks disengaging students and weakening the university's academic community.

In addition to the student perspective, an interview with a UNIK lecturer in the Business Department, who has been at the university for four years, highlighted the demoralizing effects of the top-down governance model. The lecturer expressed:

"UNIK's top-down system shuts out faculty input. Even when we raise concerns about academic policies, the administration pushes its agenda. It's demoralizing because we're on the ground, yet our perspectives are sidelined. This structure doesn't encourage collaboration or innovation at UNIK."

This statement further exemplifies the demoralizing effects of UNIK's centralized governance, aligning with Burns & Stalker's (1994) critique of rigid hierarchical structures. The lecturer's frustration reveals how UNIK's governance approach mirrors broader trends within Ugandan universities, as discussed by Mamdani (2007). The university's failure to incorporate faculty input limits collaboration, thereby stifling the potential for innovation and adaptability.

In conclusion, the testimonies of faculty and students illustrate the detrimental effects of UNIK's centralized governance model, which restricts both faculty and student agency. This approach, characterized by top-down decision-making, aligns with Habermas' (1984) critique of undemocratic governance structures. The lack of

genuine involvement from key stakeholders, as evidenced by the interviews, fosters disengagement and stifles innovation, which ultimately undermines the university's ability to adapt to evolving educational needs. To address these challenges, it is imperative for UNIK to adopt a more inclusive governance structure. Implementing shared governance could empower faculty, students, and other stakeholders, enhancing inclusivity and fostering a more dynamic academic environment at the University of Kisubi.

Objective 3: Mutual Learning and Institutional Innovation at UNIK

Mutual learning, which involves collaborative knowledge exchange, is constrained at the University of Kisubi (UNIK) due to its predominantly lecture-based teaching model. Freire (1970) critiques this approach, calling it the "banking" model, where students passively absorb information from instructors. This model is prevalent at UNIK, limiting student engagement and collaborative learning. A 2023 academic review at UNIK revealed that only 10% of courses incorporated interactive teaching methods, compared to 30% at Makerere University. This stark contrast underscores the structural barriers to innovation. In contrast, Nakayiwa's (2021) study on Gulu University highlights the success of collaborative initiatives, offering a clear alternative to UNIK's traditional approach.

To better understand the impact of this approach, an interview with a third-year student in the Education Department, conducted as part of a study on classroom engagement at UNIK, sheds light on the limitations of the lecture-heavy teaching model. The student expressed a desire for more interactive opportunities, stating:

"At UNIK, lectures are mostly the professor talking for hours. We take notes, but there's no discussion or space to share ideas. It's hard to feel involved when you're just listening. I wish we could engage more, challenge the material, or learn from each other's perspectives."

This statement resonates with Freire's (1970) critique of the "banking" model, which stifles student engagement at UNIK. The student's call for discussion and exchange underscores the need for mutual learning, as advocated by Mezirow (2000). UNIK's reliance on lectures risks disengaging students, limiting opportunities for critical thinking and collaborative knowledge creation.

In addition, a discussion with a UNIK lecturer in the Social Sciences Department, who has taught for six years, revealed how the rigidity of the curriculum further limits opportunities for innovative teaching methods. The lecturer explained:

"UNIK's curriculum is so rigid that we stick to delivering content. Interactive methods like group discussions are rare because we're tied to the syllabus. I'd love to try new approaches, but the system prioritizes covering material over fostering real learning or innovation at UNIK."

The lecturer's frustration highlights the structural barriers to mutual learning at UNIK, aligning with Freire's (1970) call for participatory education. The syllabus-driven approach restricts the incorporation of interactive teaching methods, as noted by Nakayiwa (2021), and stifles the potential for dynamic, innovative learning environments.

However, there are glimpses of innovation at UNIK, as evidenced by an interview with a faculty member in the Business Department. This faculty member shared an example of an innovative teaching practice that fostered mutual learning through experiential projects. The faculty member explained:

"At UNIK, in one elective, we had students work with local NGOs on community projects. They collaborated in teams, solving real-world problems. It was amazing to see them learn from each other and apply knowledge practically. These moments show what's possible when we break from tradition at UNIK."

This example aligns with Mezirow's (2000) transformative learning theory, which emphasizes the value of experiential learning in promoting collaboration. The success of this initiative demonstrates that UNIK has the potential to embrace more dynamic teaching methods, similar to the collaborative approaches seen at Gulu University (Nakayiwa, 2021). Expanding such initiatives could greatly enhance mutual learning and foster a more engaging educational environment at UNIK.

Despite these promising examples, the overall reliance on the "banking" model, critiqued by Freire (1970), continues to limit the scope of mutual learning at UNIK. While innovative practices exist, their limited implementation, as indicated by the 2023 academic review, diminishes their broader impact. To overcome this, expanding experiential learning opportunities, as supported by Mezirow (2000), could foster a more student-centered environment. By scaling these approaches, UNIK could position itself as a leader in higher education innovation within Uganda.

6. Discussion

This section discusses the findings in relation to the study objectives, theories, and reviewed literature. It is structured around the three research objectives and draws from both empirical and theoretical perspectives to

demonstrate how the transformation of higher education institutions such as Kisubi University can be advanced through addressing relational practices, power structures, and learning models.

Objective 1: Transactional Relationships and Institutional Transformation

The findings clearly indicate that transactional relationships dominate the institutional culture at Kisubi University, reflecting a broader trend in Ugandan higher education. This echoes the work of Marginson (2011) and Ginsberg (2011), who argue that when institutions operate like corporate entities, education becomes commodified and students are reduced to consumers. At Kisubi University, student-faculty interactions are largely confined to instructional delivery, with limited mentorship, collaboration, or co-creation. This transactional paradigm weakens emotional investment and inhibits innovation, an issue also flagged by Cloete et al. (2015) in their study of African universities.

Furthermore, such relationships align poorly with the principles of Transformative Learning Theory (Jack, 2000), which advocates for deep engagement, critical reflection, and the co-construction of knowledge. The lack of student-alumni engagement and minimal inclusion of experiential knowledge within curriculum development processes further undermines institutional relevance and resilience. Burns and Stalker (2019) suggest that when institutions fail to transition from transactional to relational models, they risk alienating their core stakeholders and stagnating in the face of change.

This study, therefore, affirms the need for Kisubi University to dismantle rigid input-output interactions and build ecosystems where trust, feedback, and shared ownership are embedded within academic and administrative processes.

Objective 2: Equitable Power Dynamics and Inclusive Governance

The second objective revealed significant governance asymmetries at University of Kisubi, where decision-making remains centralized and participatory structures are largely symbolic. This finding aligns with Trowler and Knight (2000), who contend that meaningful educational transformation requires inclusive power structures that empower diverse voices. Despite the rhetoric of stakeholder engagement, most faculty and students are excluded from key institutional processes.

Habermas's theory of communicative action (1984) reinforces this critique by emphasizing the value of dialogue and consensus in institutional legitimacy. Similarly, Participatory Governance Theory (Fung & Wright, 2003) asserts that shared governance fosters transparency, accountability, and long-term sustainability. Yet, at University OF Kisubi, administrative dominance and top-down control persist especially in curriculum decisions and performance evaluations.

The situation mirrors wider challenges in Uganda's private higher education sector, where proprietorship models often hinder democratization (Nabudere, 2021). However, as Makerere's participatory reforms demonstrate (Mak Governance Review, 2023), inclusive governance can be achieved with clear policies, strong student representation, and continuous feedback mechanisms. These align with Uganda Vision 2040 and the higher education quality standards established by NCHE (2021), which advocate for decentralized, equitable leadership models.

Therefore, the study confirms that equitable power distribution is not just a governance concern but a transformative imperative for institutional vitality and trust.

Objective 3: Mutual Learning and Institutional Innovation

The third objective demonstrated that while mutual learning is valued at Kisubi University, its implementation is fragmented and often informal. Most academic processes remain lecture-driven, with limited space for reciprocal learning or collaborative knowledge production. This restricts the emergence of innovative practices and undermines the development of critical thinking, an outcome Mezirow (2000) identifies as essential for transformation.

Studies by Boud and Solomon (2001) and Nyamnjoh (2012) emphasize that mutual learning expands the epistemic landscape of universities, allowing multiple forms of knowledge: experiential, indigenous, and disciplinary—to coexist. In the Ugandan context, mutual learning is essential for decolonizing curriculum, enhancing community engagement, and ensuring that universities serve as platforms for societal transformation (Tusiime et al., 2022).

At Unik, limited institutionalization of mutual learning practices is compounded by time constraints, inadequate training in participatory pedagogy, and output-focused assessment methods. This confirms findings by Oanda et al. (2008), who note that traditional academic cultures in Africa often inhibit innovative pedagogies.

Nonetheless, the study affirms that integrating mutual learning can unlock academic creativity, enhance stakeholder investment, and contribute to the achievement of SDG 4 and 17. To achieve this, the University of

Kisubi must reform its pedagogy, embed mutual learning into program structures, and recognize students, faculty, and communities as co-producers of knowledge.

7. Conclusions and Recommendations

7.1 Conclusions

The study examined how equitable power dynamics, transactional relationships, and mutual learning influence the transformation of higher education in Uganda, using Kisubi University as a case study. The findings revealed that the university remains entrenched in transactional modes of engagement, with minimal space for co-creation, shared governance, or reciprocal learning. Power remains centralized, stakeholder participation is symbolic, and pedagogical approaches are predominantly lecture-centered.

First, the dominance of transactional relationships has reduced the university experience to a service model, weakening trust and curtailing opportunities for deeper educational transformation. Second, while institutional documents promote participatory governance, actual practices reveal asymmetrical power dynamics that hinder inclusive decision-making. Third, mutual learning—though acknowledged as valuable, remains inconsistently practiced and insufficiently institutionalized, limiting innovation and stakeholder empowerment.

Collectively, these issues undermine the university's ability to deliver inclusive, responsive, and transformative education. The study concludes that a paradigm shift toward relational engagement, democratic governance, and participatory pedagogy is essential for achieving both national development goals and global education standards.

7.2 Recommendations

1) In light of the study's findings, several actionable steps are recommended to higher education institutions, policy-makers, and educational regulatory bodies. First, universities such as the University of Kisubi should institutionalize a relational engagement framework that fosters shared leadership, trust, and participatory learning. This framework should guide interactions among faculty, students, and administrators through mentorship programs, collaborative classrooms, and co-curricular activities that cultivate community and dialogue.
2) Second, education regulators like the National Council for Higher Education (NCHE) should require universities to demonstrate stakeholder engagement in curriculum development, strategic planning, and governance. Institutions must be evaluated not only by outputs like graduation rates, but also by the quality of their internal relationships and commitment to inclusive governance.
3) Third, governments and education ministries should support professional development programs for academic staff in participatory pedagogy, critical pedagogy, and experiential learning. National education policies should provide funding incentives for universities to implement community-based projects, interdisciplinary collaboration, and student-led innovation.
4) Fourth, institutions should adopt holistic performance indicators aligned with Uganda's Vision 2040 and the SDGs, particularly Goals 4 (Quality Education) and 17 (Partnerships for the Goals). Metrics should assess relational trust, student engagement, collaborative innovation, and institutional responsiveness to societal needs.
5) Finally, universities should create platforms for critical reflection and dialogue on institutional power dynamics. Through academic symposia, policy dialogues, and research collaborations with local and international partners, universities can build communities of practice that challenge status quo and promote continuous learning. For institutions like the University of Kisubi, embracing this shift is not only essential for survival in a rapidly changing educational landscape, it is a transformative opportunity to model justice, participation, and human dignity in higher education.

References

Altbach, P. G. (2016). *Global perspectives on higher education*. Johns Hopkins University Press. https://doi.org/10.56021/9781421419268

Amin, M. E. (2005). *Social science research: Conception, methodology and analysis*. Makerere University Press.

Burns, T., & Stalker, G. M. (1961). *The management of innovation*. Tavistock Publications. https://doi.org/10.1093/acprof:oso/9780198288787.001.0001

Chancellor, V. (2021). Strategic plan 2020/21–2024/25. https://ir.busitema.ac.ug/handle/20.500.12283/647

Dumm, T. L. (1984). The theory of communicative action: Vol. 1, reason and the rationalization of society. *American Political Science Review, 78*(4), 1185–1186. https://doi.org/10.2307/1955926

Freire, P. (1970). *Pedagogy of the oppressed*. Herder and Herder. https://opus4.kobv.de/opus4-Fromm/frontdoor/index/index/docId/9470

Ginsberg, B. (2011). *The fall of the faculty: The rise of the all-administrative university and why it matters*. Oxford University Press. https://doi.org/10.1093/oso/9780199782444.001.0001

Habermas, J. (1984). *The theory of communicative action: Reason and the rationalization of society* (Vol. 1). Beacon Press.

Jack, M. (2000). Learning to think like an adult: Core concepts of transformation theory. Charles Darwin University.

Kezar, A., & Holcombe, E. (2017). Shared leadership in higher education: Important lessons from research and practice. American Council on Education.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Luescher-Mamashela, T. M. (2013). Student representation in university decision making: Good reasons, a new lens? *Studies in Higher Education, 38*(10), 1442–1456. https://doi.org/10.1080/03075079.2011.625496

Marginson, S. (2011). Higher education and public good. *Higher Education Quarterly, 65*(4), 411–433. https://doi.org/10.1111/j.1468-2273.2011.00497.x

National Council for Higher Education. (2021). Strategic plan 2020/21–2024/25.

National Planning Authority. (2020). Uganda Vision 2040.

Singer-Freeman, K., & Robinson, C. D. (2020). Using assessment to increase equity, innovation, and pedagogical improvements in higher education. *Journal of Applied Research in Higher Education, 12*(3), 469–482. https://doi.org/10.1108/JARHE-05-2019-0117

Taylor, E. W., & Cranton, P. (2013). *The handbook of transformative learning: Theory, research, and practice*. Jossey-Bass.

Teferra, D., & Altbach, P. G. (2004). African higher education: Challenges for the 21st century. *Higher Education, 47*(1), 21–50. https://doi.org/10.1023/B:HIGH.0000009822.49980.30

Trowler, P., & Knight, P. T. (2000). *Teaching and learning at university: A guide to theory and practice*. Sage Publications.

UNESCO. (2022). Transforming education towards SDG 4: Report of a global survey on country actions to transform education. https://doi.org/10.54675/obbc3458

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Paradigm Academic Press
Research and Advances in Education
ISSN 2788-7057
SEP. 2026 VOL.5, NO.3

Reform Pathways for the Examination and Admission System of International Graduate Students in China: A Sino-American Comparative Perspective

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doi:10.63593/RAE.2788-7057.2026.09.002

Abstract

Over the seven decades since the founding of the People's Republic of China, China's education for international students has passed through five developmental stages, entering a phase of rapid expansion after the launch of reform and opening up. Since the beginning of the twenty-first century, the share of international students enrolled in degree programmes—especially postgraduate programmes—has risen continuously, while their disciplinary distribution has extended from language-related fields towards non-language fields. Drawing on lessons from a comparison with the United States and on China's own conditions, the examination and admission system for international students should be adjusted and refined. At the macro level, the reform principle of separating admission from examination functions should be upheld; at the micro level, the language proficiency examination system should be further standardised and a corresponding academic aptitude examination system established, so as to raise the overall quality of the selection and training of international graduate students in China.

Keywords: international graduate students in China, examination and admission system, selection quality, talent strategy

1. Introduction

According to statistics from the Ministry of Education, 489,200 international students were studying at Chinese higher education institutions in 2017, with the rate of growth remaining at 10 per cent for two consecutive years. Of these, 241,500 were students in degree programmes, accounting for 49.38 per cent of the total and representing a year-on-year increase of 15.04 per cent. The scale of China's international student population has thus continued to expand. In October 2018, the Ministry of Education issued the *Quality Standards for Higher Education for International Students in China (Trial)* (hereafter the *Standards*). The *Standards* were the first quality assurance document formulated specifically for education for international students in China, and they set out explicit provisions on admission criteria, institutional recruitment policies, and admission procedures. Their promulgation elevated the improvement of selection quality for international students to the level of institutional design. Compared with major exporters of education, however, China still faces numerous problems in its examination and admission system for international graduate students, with the result that the system for selecting and evaluating these students cannot meet the increasingly pressing needs of domestic universities and other educational institutions (Xia, Q., 2011), nor can it satisfy the requirements for raising the quality of higher education for international students in China.

2. An Overview of the Development of Education for International Students in China Since 1949

2.1 Analysis of Development Stages

Overall, the development of education for international students in China has been closely bound up with the country's political, economic, and cultural development, and it displays distinct characteristics in the periods before and after reform and opening up. From the founding of the People's Republic to the beginning of reform and opening up, this development can be divided into three stages. The first was the initial stage (1949–1965), during which a cumulative total of 7,259 international students came to China from 70 countries, an annual average of only 454. The second was the stagnation stage (1966–1972), when higher education and education for international students in China were largely suspended under the impact of the Cultural Revolution. The third was the recovery stage (1973–1977): following the thaw in Sino-American relations in 1972, the scale of international student enrolment in China returned to the level of the period before 1966.

Reform and opening up created favourable conditions for the development of education for international students in China. Measured by the pace of development, this period can in turn be divided into two stages. The first was the stage of steady development (1978–2004), in which a cumulative total of 731,678 international students came to China from 170 countries, an annual average of 27,099. The second was the stage of rapid growth (2005–2018), in which an annual average of 300,000 international students came to China over thirteen years, a markedly faster rate of expansion than before 2005.

2.2 Analysis of Characteristics

Since 2000, in addition to pronounced changes in scale, countries of origin, the number and types of host institutions, regional distribution, and the number of scholarships, education for international students in China has displayed new trends in its disciplinary and degree-level composition.

First, the disciplinary structure has become increasingly diversified. According to scholars' statistics on the disciplinary distribution of international students in China between 1995 and 1998 (Cheng, J., 2012), students in the humanities accounted for 83.60 per cent, while all other fields (medicine, engineering, art, science, physical education, and agriculture) together accounted for only 16.40 per cent; within these, science accounted for just 1.14 per cent. After 2000, as China's comprehensive national strength grew, the proportion of international students studying management, medicine, and science and engineering rose steadily. Among international students in China, the share studying science was 11.67 per cent in 2002 and 22.8 per cent in 2008, a twenty-fold increase over 1998. On the whole, Chinese language and literature remains the principal choice of international students in China, but the trend towards extending the disciplinary structure into non-language fields has become increasingly clear.

Second, the degree-level structure displays two features. On the one hand, the proportion of international students in China pursuing degree programmes has risen continuously, from 31.67 per cent in 2003 to 49.38 per cent by 2017, so that students in degree programmes now account for roughly half of the total. On the other hand, within degree education the proportion of students at master's and doctoral levels has climbed steadily. In 2003, master's and doctoral students accounted for 13.80 per cent and 6.65 per cent of degree students respectively, a combined 20.45 per cent; by 2017 the corresponding shares had risen to 21.86 per cent and 9.52 per cent, a combined 31.38 per cent.

These marked changes in both the disciplinary and the degree-level composition of international students in China place new demands on the corresponding examination and admission evaluation system. In the past, when Chinese-language majors and non-degree education predominated, administering only the Chinese Proficiency Test (Hanyu Shuiping Kaoshi, HSK) was sufficient to establish whether students possessed the basic ability to undertake study in China. Today, however, an increasing proportion of international students in China choose non-language majors, and a growing share pursue formal degree education at master's and doctoral levels. Against these new trends, establishing a scientifically grounded examination and admission system for international graduate students in China is both necessary and urgent.

3. The Graduate Examination and Admission System in the United States

The United States was the earliest country to admit international students to graduate degree programmes, and it remains one of the largest recipients of international graduate students (Johnson, P., 1988). It has established a graduate examination and admission system with sound governance structures and relatively fair and effective procedures and content. The most notable feature of this system is that essentially the same examination and admission model is applied to domestic and international applicants alike; the only difference is that applicants whose first language is not English must take an English proficiency examination (Spolsky, B., 1995). To understand the structure and functions of the American graduate examination and admission system in full, it is necessary to analyse both its macro structure (governance arrangements) and its micro structure (the components of examination and admission).

3.1 Macro Structure

The governance of graduate education in the United States is typically decentralised: the federal government

generally influences graduate admission and training only through funding and legislation. Consequently, at the four stages of examination and admission—planning, application, examination, and admission—the market and higher education institutions exercise considerable control. Shaped by this governance arrangement and by the tradition of academic self-governance, American universities enjoy substantial admissions autonomy. Admission plans are determined by individual schools and colleges, generally on the basis of the number and quality of applicants, the research projects for which supervisors apply, and research funding. The application stage is led by the applicants themselves, who prepare the required materials according to the requirements of their target institutions and submit them within the specified period. Two parties take part in the examination stage—examination bodies and candidates. American graduate entrance examination bodies are non-governmental organisations responsible for designing and scoring examination content. The admission stage is led by higher education institutions, which evaluate applicants comprehensively through application materials and other assessment methods and then decide the list of admitted students on the basis of the results of that comprehensive evaluation.

3.2 Micro Structure

If the actors and their functions within the governance system constitute the macro structure of the examination and admission system, with its emphasis on administration, then the assessment components, standards, and specific content involved in student selection constitute its micro structure. The American admission and examination system takes four forms: individual selection, certificate-based admission, comprehensive selection, and open admission, of which comprehensive selection is widely applied across all levels of American higher education (Tang, Y., & Liu, H., 2007). Comprehensive selection is based on the application materials submitted by applicants, uses diversified assessment instruments to evaluate them comprehensively, and admits students according to the resulting composite assessment results. At the graduate level, comprehensive selection in the United States comprises two assessment systems, namely an examination system and a selection system. The function of the examination system centres on objective measurement and evaluation that is free of value judgements, whereas the function of the selection system centres on evaluation and admission.

(1) The examination system

Graduate examinations in the United States cover two areas: language proficiency and academic aptitude. American universities set minimum language proficiency score requirements for applicants whose first language is not English. Generally, applicants must take the Test of English as a Foreign Language (TOEFL) administered by the Educational Testing Service (ETS) and obtain a corresponding score before their application requirements are met. In recent years, as the influence and reliability of the International English Language Testing System (IELTS) have continued to grow, American universities have also taken applicants' IELTS scores into account when admitting graduate students.

Beyond language proficiency requirements for applicants whose first language is not English, institutions also require all graduate applicants to provide evidence of academic aptitude, and the evidence that institutions weigh most heavily is the Graduate Record Examination (GRE). The GRE comprises the General Test and the Subject Tests. Most institutions in the United States require applicants to submit only General Test scores, although a considerable number of highly selective institutions also require Subject Test scores. The General Test focuses on the measurement of general academic aptitude and covers three dimensions: verbal reasoning, analytical writing, and quantitative reasoning. The Subject Tests assess subject-specific attainment in a number of fields, including literature, biology, chemistry, computer science, physics, mathematics, and psychology, with a focus on applicants' domain-specific academic aptitude. Beyond the GRE, which has a wide reach, there are also examinations in particular specialised fields—for example, the Law School Admission Test (LSAT) for law programmes, the Medical College Admission Test (MCAT) for medical programmes, and the Graduate Management Admission Test (GMAT) for business and management programmes.

(2) The selection system

The instruments by which American universities evaluate applicants comprehensively include the assessment of application materials and interviews. Institutions generally require applicants to submit the following materials: first, transcripts covering their undergraduate studies; second, two or three letters of recommendation from professors, which offer an objective assessment of the applicant's academic level, professional competence, and capacity for research; third, evidence of academic aptitude scores; fourth, research or academic achievements; and fifth, language proficiency scores for applicants whose first language is not English. Institutions impose further requirements on these materials according to their own circumstances in order to select the best candidates; highly selective institutions, for example, set corresponding requirements for undergraduate grade point average, language scores, academic aptitude scores, and research or academic achievements. On the basis of a rigorous assessment of the submitted materials, graduate supervisors interview applicants. The interview serves not only to verify the authenticity of the materials that applicants have provided but, more importantly, to

assess applicants' cognitive and non-cognitive knowledge directly, authentically, and specifically (Schmitt, N. & Keeney, J., 2009).

It can thus be seen that, at the macro level, the American graduate examination and admission system adopts a model of decentralised governance shared among government, universities, and society, in which the participating actors each perform their own functions. This embodies the principle of separating examination from admission and forms a pattern of multi-party coordination and multi-linkage in which professional bodies organise examinations, universities admit students independently in accordance with the law, government exercises macro-level management, and society participates in oversight (Zhou, H., & Jing, A., 2014). Separating examination from admission helps examination bodies to enhance the professionalism of tests and their operational capacity. At the micro level, the American examination system assesses international students' language proficiency and academic aptitude comprehensively, while the selection system emphasises comprehensive and multi-dimensional evaluation, seeking to appraise applicants truthfully and objectively so as to admit the best candidates. These features offer useful insights and lessons for reforming the examination and admission system for international graduate students in China.

4. Adjusting and Refining the Examination and Admission System for International Graduate Students in China

Reforming the examination and admission system for international graduate students in China is a systemic undertaking. Building on the experience of developed countries while taking account of China's actual conditions, the macro and micro structures of this system should be adjusted and refined in a planned, step-by-step, and appropriately prioritised manner.

4.1 Adjusting the Macro Structure

The adjustment of the macro structure should uphold the reform principle of separating admission from examination functions (also referred to as the "separation of admission and examination"). Unlike admission units, whose functions centre on teaching, research, and service to society, examination bodies are the vehicles that develop and operate examination systems. Separating examination from admission functions not only helps to relieve admission units of their workload, allowing universities to focus their efforts on talent development, knowledge creation, and service to society, but also makes the functions of examination bodies clearer, more specific, and more professional. In China, since Hanban (the Office of Chinese Language Council International; renamed the Center for Language Education and Cooperation, CLEC, in July 2020) formally implemented the HSK in 1990 and began promoting it overseas, it has accumulated rich experience in independently developing, administering, and operating language tests, thereby providing a useful practical foundation for separating examination from admission in the system for international graduate students in China. In upholding this principle, it is also necessary to further clarify and adjust the functions of the examination body.

In light of China's actual conditions, expanding and strengthening the following two functions should be the current focus of reform. On the one hand, Hanban's functions should extend beyond language proficiency testing services to include academic aptitude testing services. There are two possible operational pathways: first, without creating a new functional department, to expand the functions of the Division of Examinations and Scholarships under Hanban so that it can develop a standardised item bank for an academic aptitude examination for international graduate students in China (provisionally designated LHYK); or, second, to establish a new Division of Examination Services for International Graduate Students under Hanban and assign responsibility for developing the LHYK examination to it. On the other hand, Hanban also needs to strengthen its capacity for overseas examination services and operations, drawing on the operational experience of the Educational Testing Service (ETS) and cooperating with overseas universities to provide localised examination services to candidates worldwide.

4.2 Refining the Micro Structure

(1) Standardising the language proficiency examination system

Language proficiency differs from language knowledge. Language knowledge refers to grammatical and lexical knowledge, whereas language proficiency (or language skills) refers to the listening, speaking, reading, and writing abilities that people possess on the basis of language knowledge (Wang, W., 2012). For international students, language is the basic instrument of communication and classroom instruction, and the requisite language proficiency is a precondition for the successful completion of degree education. Language proficiency testing is therefore one of the important guarantees of the quality of student selection (Foster, G., 2012). In the current HSK system, the test covers only listening, reading, and writing, while the speaking test—which is best able to measure candidates' overall ability to use the language in practice—is placed in a separate examination, the HSK Speaking Test (HSKK). Conducting the written and spoken tests separately and issuing separate score certificates reduces the validity of the language proficiency examination and fragments the integrity of language

learning. To address this problem, the Division of Examinations and Scholarships under Hanban needs to reform the current Chinese proficiency examination as soon as possible. A feasible approach would be for the Division, drawing on well-established language tests such as IELTS and TOEFL and taking account of the characteristics of Chinese, to conduct systematic research on the assessment components, grading standards, content, and format of the Chinese proficiency examination, and to accelerate the development of a new HSK that integrates the four assessment components of listening, speaking, reading, and writing.

(2) Establishing an academic aptitude examination system

As the degree-level and disciplinary composition of students entering graduate programmes in China changes, accelerating the establishment of a standardised academic aptitude examination system for international graduate students in China has become the foremost task in raising the quality of their selection and training. The development of this system should follow the principle of phased development. By "phased" is meant that the order in which each academic aptitude examination project is developed and implemented should be determined according to urgency and to the scale of students in each disciplinary field. Under current conditions, the specific development path is as follows. In the first phase, given the continuously rising proportion of international students in China pursuing degree education, and in order to ensure that applicants possess the general academic aptitude required for graduate degree education, a general academic aptitude examination should be developed, provisionally designated LHYK (General Test) and abbreviated LHYK(g). This is the most urgent task and should be placed at the top of the development agenda. In the second phase, subject-specific academic aptitude examinations should be developed in sequence according to the disciplinary composition of international students in China, provisionally designated LHYK (Subject Test) and abbreviated LHYK(s). On the basis of the scale of international graduate students in China in each field between 2001 and 2016, examinations could be developed in the following order: economics and management, provisionally LHYK(s1); science and engineering, provisionally LHYK(s2); the humanities, provisionally LHYK(s3); medicine, provisionally LHYK(s4); and law, provisionally LHYK(s5).

Following such adjustment and refinement, the examination and admission system for international graduate students in China would, at the macro level, essentially achieve the separation of admission and examination, with Hanban acting as the unified examination body responsible for the language proficiency examination (the HSK) and the academic aptitude examination (the LHYK) for international graduate students in China, and with universities responsible for admission. At the micro level, the HSK would have better assessment validity and would be able to measure applicants' Chinese listening, speaking, reading, and writing abilities more objectively and truthfully; and the establishment of the LHYK system would ensure that universities can select international graduate students with stronger academic aptitude, thereby raising the quality of the selection and training of international graduate students in China.

References

Cheng, J. (2012). *A historical study of the structure of education for international students in China (1950–2010)*. Tongji University Press.

Foster, G. (2012). The impact of international students on measured learning and standards in Australian higher education. *Economics of Education Review, 31*(5), 587–600. doi.org/10.1016/j.econedurev.2012.03.003

Johnson, P. (1988). English language proficiency and academic performance of undergraduate international students. *TESOL Quarterly, 22*(1), 164–168. doi.org/10.2307/3587070

Schmitt, N., Keeney, J., Oswald, F. L., Pleskac, T. J., Billington, A. Q., Sinha, R., & Zorzie, M. (2009). Prediction of 4-year college student performance using cognitive and noncognitive predictors and the impact on demographic status of admitted students. *Journal of Applied Psychology, 94*(6), 1479–1497. doi.org/10.1037/a0016810

Spolsky, B. (1995). *Measured words: The development of objective language testing*. Oxford University Press.

Tang, Y., & Liu, H. (2007). *A study of the college admission and examination system in the United States*. Central China Normal University Press.

Wang, W. (2012). *Introduction to applied linguistics*. China University of Geosciences Press.

Xia, Q. (2011). An exploratory analysis of the reform of the entrance examination system for international students in China. *Higher Education of Sciences*, (3), 53–56.

Zhou, H., & Jing, A. (2014). The significance, connotations, and pathways of separating admission from examination. *China Higher Education Research*, (10), 8–10, 51.

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Paradigm Academic Press
Research and Advances in Education
ISSN 2788-7057
SEP. 2026 VOL.5, NO.3

A Mathematical Model for Predicting Teacher Training Demand in Kenya

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doi:10.63593/RAE.2788-7057.2026.09.003

Abstract

Since independence in 1963, Kenya has expanded teacher training through teacher training colleges, universities, and postgraduate programs in response to rising enrollment, curriculum reforms, and changing educational needs. Despite this expansion, Kenya continues to face mismatches between the supply of trained teachers and the employment capacity of the Teachers Service Commission (TSC), between supply and demand by subject combination, and between supply and regional deployment. Currently, nearly 40% of university students in Kenya enroll in education- related programs. Of these, less than 10% are absorbed immediately after graduation. The majority wait for up to ten years or more to be employed. Hence, there is a backlog of about 350, 350,000 unemployed teachers. Simultaneously, the country is short of teachers for science, technology, engineering, and mathematics (STEM)- related subjects. This shortage is likely to be magnified as 60% of all senior school students are required to take the STEM pathway. Equally, there is a mismatch between the supply and the regional distribution of teachers, with some regions experiencing an acute shortage while others have an oversupply. This study develops a mathematical model for predicting teacher training demand in Kenya by integrating historical trends in learner enrollment, teacher recruitment, pupil–teacher ratios, attrition, infrastructure, regional disparities, and the requirements of the Competency- Based Education (CBE) framework. The study therefore recommends a transition from supply- driven to demand- driven teacher education through dynamic enrollment caps linked to projected recruitment capacity, subject- specific quotas prioritizing STEM and technical fields, county- based recruitment planning, and alignment of teacher training with infrastructural expansion and CBE demands. The study concludes that sustainable teacher workforce planning in Kenya requires integrated forecasting mechanisms linking teacher education, labor market demand, fiscal capacity, infrastructure, and regional equity.

Keywords: modelling, teacher demand, teacher supply, competency-based education (CBE)

1. Introduction

At independence in 1963, Kenya faced an acute shortage of qualified teachers at both the primary and secondary levels, a legacy of colonial neglect of African education. The few teacher training colleges (TTCs) in operation primarily served missionary or government schools and produced teachers with limited pedagogical training. The first two decades of independence saw deliberate government investment in expanding teacher education infrastructure and access (Republic of Kenya, various years).

Teacher education remains the cornerstone of any nation's educational development and, by extension, the country's economic development, as it directly shapes instructional quality and learning outcomes in schools. Since Kenya's independence in 1963, the country has prioritized teacher education to achieve national development goals, including universal primary education and the nurturing of a knowledge-driven economy. Over the past six decades, the evolution of teacher training in Kenya has not only mirrored changes in

educational policy but also responded to demographic, socioeconomic, and technological transformations.

Teacher training in Kenya is offered through several pathways:

1) Primary Teacher Education (PTE): Diploma programs for primary school teachers.
2) Diploma in Secondary Education: For secondary school teaching, often in technical or specialized subjects.
3) Technical teacher education.
4) Bachelor of Education (B.Ed.): University-level degree for secondary and, increasingly, primary teaching.
5) Postgraduate Diploma in Education (PGDE): For university graduates converting to teaching.

This diversification is aimed at aligning teacher preparation with evolving curricular demands, particularly in science subjects, technology, and vocational subjects, and to facilitate upward mobility for practicing teachers.

The situation of employment in schools in Kenya over time is reflected in Table 1.

Table 1. The enrollment of learners in preprimary, primary, and secondary school in Kenya from 1963 to 2025

YEAR	Pre-primary / ECDE enrolment	Primary enrolment	Secondary enrolment
1963	—	0.892 553 million	0.029-0.03 million
1965	—	1.042 146 million	0.047976 million
1967	—	1.133 179 million	0.088779 million
1969	—	1.282 297 million	0.115246 million
1971	—	1.515 498 million	0.140722 million
1973	—	1.816 017 million	0.174767 million
1975	—	2.881 155 million	0.226835 million
1977	—	2.974 849 million	0.320310 million
1979	—	2.698 246 million	0.384389 million
1981	—	4.134 345 million	0.464721 million
1983	—	4.570 444 million	0.545053 million
1985	—	5.000 000 million	0.600000 million
1986		4,012777 million	
1987		4,138,463 million	
1988		4,212,741 million	
1989		4,389,124 million	
1995		4,540,471 million	
1999		6,504479 million	0.829641 million
2000		5,034,858 million	0.758967 million
2002	—	6.062 742 million	—
2003	—	7.159 523 million	—
2006	—	7.394 763 million	—
2007		8,253,800 million	1,180267 million
2008		8,563,800 million	1,382211 million
2009		8,986,400 milliom	1,472634 million
2010		9,352,800 million	1,653,384 million
2011		9,561,100 million	1,767,720 million
2012	2,710,806 million	9,757,600 million	1,914,823 million
2013	2.865 348 million	9.8576 million	2,104,262 million

2014	3.019 865 million	9.9508 million	2,331,697 million
2015	3.167855 million	10.090900 million	2559883 million
2016	3.199841 million	10.280100 million	2,723,900 million
2017	3.293813 million	10,290155 million	2,782744 million
2018	3,390545 million	10389826 million	3,013415 million
2019	2.7 million	10,072040 million	3262951 million
2020	2,832897 million	10,076828 million	3569279 million
2023	2.9 million	10.2 million	4.1 million
2024	2.91 million	—	4.32 million

Source: Kenya National Bureau of Statistics (KNBS).

Such an exponential increase in the number of learners demands that the number of teachers employed be commensurate with an appropriate teacher: pupil ratio.

The sharp increase in primary school enrollment and access to education following the introduction of Free Primary Education (FPE) in 2003 placed an immediate strain on teacher supply and deployment systems (Oketch & Rolleston, 2007). This led to severe shortages of teachers in most regions of the country, especially in remote and marginal counties. Accordingly, the government instituted measures to accelerate teacher training, hire temporary and contract teachers, and expand the use of volunteer or community-based systems in some schools. FPE thus dramatically altered the teacher staffing landscape and exposed the limitations of existing deployment mechanisms (Ogola, 2010).

Between 1963 and 1980, the number of TTCs rose from fewer than ten to more than thirty, while enrollment in teacher training programs surged to meet the rapid expansion of primary and secondary education. The introduction of the 8-4-4 education system in 1985 further intensified demand for teachers, particularly at primary and newly established secondary schools.

Table 2 below summarizes the total number of students admitted and graduated as primary school teachers in selected years since independence.

Table 2. Admissions and Graduations in Primary Teacher Training Colleges in Kenya, 1963-2023

Year	Primary Admissions	Primary Graduates	Secondary Admissions	Secondary Graduates
1963	1800	1500	400	300
1980	7500	6000	1500	1200
1990	8200	7100	2800	2300
2000	10500	9200	4500	3900
2010	8500	7800	7200	6600
2020	8000	7500	9100	8300
2023	7900	7400	10200	9600

Source: Kenya National Bureau of Statistics (KNBS).

Table 3 presents the number of students admitted and graduated from university-based B.Ed. and diploma programs.

Table 3. Admissions and Graduations in Secondary Teacher Training (Universities and Diploma Colleges), 1970-2023

Year	Secondary Admissions	Secondary Graduates
1980	1500	1200
1990	2800	2300

2000	4500	3900
2010	7200	6600
2020	9100	8300
2023	10200	9600

Source: *Commission for University Education, Kenya Universities and Colleges Placement Service (KUCCPS), 1980-2023.*

The level of teachers in service by type between 1964 and 1969 is summarized in Table 4.

Table 4. Teachers in employment in Kenya between 1964-1969

Category	**1964**	**1965**	**1966**	**1967**	**1968**	**1969**
Primary Schools						
Trained teachers	19,179	20,112	23,305	25,050	27,485	29,997
Untrained teachers	8,649	10,480	10,217	10,622	10,438	8,308
Secondary Schools						
Trained teachers	1,490	1,866	2,160	2,470	2,743	3,260
Untrained teachers	510	628	844	1,583	1,902	2,000
Teacher Training Colleges (Trained)	316	366	400	424	468	515
Trade Schools						
Trained	N/A	133	125	94	123	145
Untrained	–	–	–	7	7	–
Total	**30,144**	**33,586**	**37,051**	**40,250**	**43,166**	**44,225**

Source: Kenya National Bureau of Statistics (KNBS).

The level of teachers, particularly at the primary and secondary school level, had almost doubled in 6 years from 1490 in the year 1964 to 3260 in the year 1969. The number of untrained teachers, on the other hand, increased threefold from 510 in 1964 to 2000 in 1969. The required supply of teachers, on the other hand, reflected the following scenario.

Table 5. Required and supply of teachers (‘000)

Category	**1969**	**1970**	**1971**	**1972**	**1973**	**1974**
Primary school pupils	1,283	1,385	1,487	1,593	1,723	1,833
Pupil-teacher ratio	34	35	36	37	38	40
Demand for teachers	37.7	39.6	41.3	43.1	45.3	45.8
Teacher Supply						
From previous years	26.4	28.8	31.3	34.0	36.9	40.0
College output	2.4	2.5	2.7	2.9	3.2	3.2
Upgraded	1.1	1.1	1.2	1.2	1.3	1.3
Untrained	7.8	7.2	6.1	5.0	3.9	1.3
Supply of teachers	37.7	39.6	41.3	43.1	45.3	45.8

Source: Development Plan 1970–1974, p. 467.

Although it may appear that the supply of teachers matched demand, this could not be further from the truth. Of the total supply numbers, a significant number (31300) were untrained teachers. Moreover, of the 16900 college graduates over the 6-year period, there was no guarantee that all of them would end up in classroom teaching.

Some could have pursued other interests after completing their studies. It was on this assumption that the government planned for the production of more teachers, as shown in Table 6.

Table 6. Planned production of teachers for secondary schools and primary teachers training colleges

Institution / Category	**1970**	**1971**	**1972**	**1973**	**1974**
Kenyatta College	310	320	330	350	370
Kenya Science Teachers' College	50	90	120	120	130
Egerton College	40	40	40	40	40
Subtotal	400	450	490	510	540
University graduates	110	150	150	160	160
Total	**510**	**600**	**640**	**670**	**700**

Source: Development Plan 1970–1974, p. 469.

This data confirms the mismatch that was obtained between the projections and realities on the ground.

1.1 Policies on Teacher Recruitment and Replacement

Since Kenya attained independence in 1963, various governments and institutions have implemented policies to ensure an adequate teacher supply, equitable distribution, and professionalization (Ministry of Education, 2021). Teacher placement policy has shifted from highly centralized post-independence systems aimed at national integration to more complex arrangements that balance equity-focused frameworks, evidence-based decision-making, transparency, school responsiveness, and institutional professionalism (Ochieng & Wanjala, 2021).

Teacher placement policies have been shaped by shifting national priorities, including nation-building in the 1960s, the expansion of access through the establishment of Free Primary Education (FPE) in 2003 and free day secondary education in 2008 (Mutegi et al., 2017), constitutional reforms (2010), and evolving human resource practices and curricular demands, such as the Competency-Based Curriculum (CBC) (Aloo et al., 2011). See & Gorard (2020) argue that government policies have a significant influence on teacher recruitment. This includes funding policies, the allocation of teacher training places, and the development of training routes and marketing strategies.

Immediately after independence, Kenya faced the double challenge of expanding access to education and promoting national unity. The Ominde report of 1964 laid the logical and administrative foundations for a centrally planned education system, which included the expansion of teacher training, centralized recruitment and posting of teachers, certification of teacher qualifications, and professional norms, all used as tools for national integration and standardization. Although centralization ensured uniform standards and facilitated mobility, the policy ignored local community needs and struggled to retain teachers in remote areas of the country. Earlier policies featured a civil-service-type deployment system that ensured centrality in postings and national staffing plans driven by transfers (Sifuna, 2019). The Gachathi Report (1976) & Mackay Report (1981) advocated expanding teacher recruitment and rural postings. With most teachers opting for urban schools, there were inequalities, with rural schools suffering deficiencies. This led to persistent rural-urban inequities with huge shortages in remote areas.

Before 2000, TSC recruitment involved the automatic assignment of trained teachers to public primary, secondary, and tertiary institutions. This practice ended in 2001 when the government introduced a school-based teacher recruitment policy for public secondary schools (Aloo, 2011). The School Board of Management made staff recruitment decisions responsive to local curricular and co-curricular needs under national standards (Teachers Service Commission, 2012; Sifuna & Sawamura, 2010). This shift from a supply-driven to a demand-driven system of teacher recruitment was intended to ensure staff retention in schools, improve local matching, enhance equitable teacher distribution, and improve the efficiency of the Teachers Service Commission.

The 2010 Constitution of Kenya mandated the TSC to manage teachers, providing a legal framework for merit-based and transparent deployment criteria. The Constitution empowers the TSC to recruit, deploy, promote, re-centralize oversight, and delegate administrative tasks to regional offices. In 2022, the TSC revised its policy on teacher recruitment and selection for primary and secondary schools (Teachers Service Commission, 2022). This revision was informed by the need to enhance its capacity to execute its mandate in teacher recruitment. In 2024, the Policy on Teacher Recruitment and Selection was further revised to specify recruitment principles,

selection criteria, dispute resolution processes, process automation, and calibrated delegation to lower offices, while retaining critical standards at the center (Teachers Service Commission, 2024). The policy acknowledges problems encountered under previous decentralization experiments and attempts to codify transparent, merit-based procedures to reduce discretion and increase fairness.

However, gaps still exist with County-level disparities in key subjects' combinations like sciences and mathematics.

There has been a notable increase in female participation in teacher training, with women accounting for over 60% of primary teacher graduates and 45% of secondary teacher graduates by 2023. Regional disparities persist, with the North Eastern region and parts of the Rift Valley consistently underrepresented due to security and socio-cultural factors.

An analysis of enrolment and graduation rates shows that some attrition takes place during training (see Table 7).

Table 7. Summary of Teacher Training Enrollments and Graduations, 1963–2023

Year	Primary Admissions	Primary Graduates	Secondary Admissions	Secondary Graduates
1963	1,800	1,500	400	300
1980	7,500	6,000	1,500	1,200
1990	8,200	7,100	2,800	2,300
2000	10,500	9,200	4,500	3,900
2010	8,500	7,800	7,200	6,600
2020	8,000	7,500	9,100	8,300
2023	7,900	7,400	10,200	9,600

Source*: Aggregated from Ministry of Education annual reports, TSC data (1963-2023).*

1.2 Overproduction and Unemployment

While Kenya has made significant strides in increasing the quantity of trained teachers, the mismatch between supply and demand remains a pressing challenge. As illustrated in Table 8 below, the gap between teacher graduates and TSC recruitment has widened over the past decade, resulting in elevated levels of teacher unemployment and underemployment. This is despite the 'attrition' noticed between admissions and graduation.

Table 8. Teacher Graduates vs. TSC Employment, 2010-2023

Year	**Teacher Graduates**	**Teachers Employed by TSC**
2010	7,500	4,000
2012	8,000	4,300
2014	8,600	4,700
2016	9,200	5,000
2018	9,800	5,300
2020	10,100	5,700
2021	10,400	5,800
2022	10,700	6,000
2023	11,000	6,200

Source: *TSC Annual Reports, 2010–2023.*

In general, the TSC can employ only about half of those who graduate in any given year. This trend leads to a backlog of unemployed teachers over time. As of 2025, there were 343,485 registered teachers not employed by TSC, comprising 134,914 ECD, 124,061 primary, and 84,510 post-primary teachers (People Daily, 2025). Of

these, 39,017 teachers aged 45 years and older remain outside the TSC payroll (Standard Digital, 2025).

Historically, the Ministry of Education (2014) noted that by 1967, approximately 30–40% of Kenya's teachers were employed outside the TSC framework. This proportion fell to 10–15% in the 1980s, but with the rapid expansion of private and NGO-run schools in the 2000s, non-TSC employment rose again to 40,000–50,000 teachers, representing 12–15% of the total teaching workforce (World Bank, 2019). Even with the involvement of such private-sector actors, the backlog of unemployed teachers continues to grow.

1.3 TSC Employment Trends and Current Recruitment Patterns

The number of teachers employed by TSC has risen over the years, from approximately 37,000 in 1967 to 360,635 in 2025 (TSC, 2024). Despite this overall increase, there has been no significant rise in teacher employment since 2014, particularly at the primary school level. According to the Kenya National Bureau of Statistics (KNBS) Economic Survey (2023), the number of primary teachers remained nearly constant between 2014 (242,071) and 2023 (219,727), with a negative deviation in the number of teachers employed between the years.

Since 2021, TSC has recruited 56,000 teachers, comprising 10,000 on permanent and pensionable terms and 46,000 interns. This shift toward intern-based hiring (82% of recent recruits) is significant: interns receive temporary contracts without job security or pension benefits, suggesting TSC lacks capacity for permanent employment. The plan to transition interns to permanent positions depends on future funding, which is uncertain.

An analysis of teacher recruitment from 1963 to 2025 reveals three major recruitment phases:

1) Expansion (1963–1985): Mass recruitment to support universal education.
2) Contraction (1986–2005): Hiring freezes during economic reforms.
3) Stagnation and Reform (2006–2025): Modest growth with increased use of temporary contracts.

1.4 Pupil–Teacher Ratio (PTR) Since Independence (1963)

Kenya experienced relatively low PTRs in the 1970s–1990s, followed by deterioration around the late 1990s–early 2000s, with worsening classroom crowding. A major enrollment surge after the Free Primary Education (FPE) policy in 2003 sharply increased PTR, peaking around 2012 in some series. Subsequent government hiring and policy reforms reduced PTR in later years, though levels and timing vary by dataset. PTR varied widely, from about 28–30 in the late 1990s, to a spike to about 56.6 around 2012 in some series, then declined to about 30.7 by 2015. This reflects large short- to medium-term fluctuations tied to policy and data definitions.

From 1963 to the 1980s, the PTR was affected by post-independence expansion and the mushrooming of community-supported (Harambee) schools. PTRs in these decades were relatively moderate compared with later crisis years. PTRs in the 1990s–early 2000s changed due to fiscal constraints and declining quality. Structural adjustment policies pushed by the International Monetary Fund (IMF) and constrained public spending during parts of the 1980s–1990s affected teacher hiring and school resources. Some regions experienced rising PTRs and crowded classrooms.

In 2003, Kenya abolished primary school fees (FPE). Enrollment rose rapidly by about 25–30%), but teacher numbers did not rise fast enough initially. That created a sharp increase in PTR (crowding) in many public primary schools. PTR increased to 50+:1 or more. PTR rose in many series into the late 2000s and peaked around 2011–2013 reaching a maximum of 56.6 in 2012 for primary PTR) The government later increased hiring, revised capitation grants, and invested in teachers and infrastructure, which gradually lowered PTRs.

The period from 2013 to the 2020s saw stabilization, legal reforms, and curriculum changes. The Basic Education Act (2013) was enacted to align it with the Constitution; the rollout of the Competency-Based Curriculum (2017); and ongoing recruitment have stabilized PTRs (though subnational and urban/rural disparities remain).

In short, PTR has been affected over time by policy shocks such as the proliferation of harambee schools after independence and the 2003 free primary education policy; demographic growth, as seen in high population growth and expanding school-age cohorts, which increase demand for teachers and facilities; fiscal constraints and teacher hiring lags: budgeting and recruitment processes delay hiring, and the capitation grant and resource allocation influence teacher deployment. Regional disparities and urbanization also show different PTRs.

2. The Problem

It is estimated that 40% of all students admitted to various universities for the 2025/26 academic year are enrolled in education courses. This trend is likely to continue. By contrast, the Teachers Service Commission has been recruiting very small numbers, largely to replace those exiting the service. The TSC cannot hire all qualified teachers. Other employers also hire very few. Consequently, many qualified teachers are unemployed,

and some have been so for over 10 years. Over time, this practice has led to a backlog of over 300,000 unemployed teachers. Paradoxically, while many remain unemployed, TSC does not have enough teachers to deploy in certain subjects, such as the sciences and technical subjects. The government is concerned about aligning the number of students placed to train as teachers with TSC's actual demand to guarantee employment for those qualifying as teachers. A model is required to predict the relationship between teacher enrollment and demand by TSC and other employers.

3. The Mathematical Model

3.1 Measurement and/or Estimation of Model Parameters

Based on the historical data presented above, model parameters were quantified using the following methods: Enrollment was measured directly via administrative counts from the Ministry of Education Annual Reports and the Kenya National Bureau of Statistics (KNBS) Economic Survey. The Attrition Rate was calculated by analyzing historical payroll data from the Teachers Service Commission (TSC) to measure exits due to retirement, natural attrition, and resignations. The Unemployed Backlog Pool was estimated directly using the TSC registry of certified, non-employed teachers, which stood at about 343,485 in 2025. The parameter 'Graduates' was compiled from graduation records through the Commission for University Education and the Kenya Universities and Colleges Placement Service (KUCCPS).

To calculate formal empirical standard errors, data from the tables were treated as historical time-series observations. The standard error of an empirical estimate measures the variability of the sample mean or standard deviation over time.

Other existing models are those developed by UNESCO and the World Bank. UNESCO's model uses a gap-closing approach to achieve UN Sustainable Development Goal 4 (SDG 4) by 2030. UNESCO's global projection model estimates that the world needs an additional 44 million teachers by 2030. Sub-Saharan Africa bears the heaviest burden, accounting for more than a third of the total deficit. The UNESCO model is driven by both demographic pressures and the attrition crisis. Sub-Saharan Africa's population continues to expand. UNESCO's models estimate attrition rates of about 9.06% by 2022. A large number is said to leave the profession within the first year.

The World Bank's modeling centers on structural economics, balancing a state's fiscal constraints with its teacher recruitment policy. The World Bank's models focus heavily on the national wage bill. In many African countries, teacher salaries consume 80-90% of the public education budget. The World Bank's models emphasize that lowering PTRs or arbitrarily raising teacher wages can spike a country's public wage bill by 30% or more, making absolute gap-closing structurally impossible without crowding out other development sectors. World Bank analytics model market friction, noting that countries like Kenya suffer from high student-teacher ratios despite having large pools of unemployed, qualified graduates. World Bank research highlights that strict fiscal ceilings push local communities and private entities to hire low-cost, uncertified, or 'intern' teachers, who are paid about 10-30% of the standard teachers' pay.

This model differs because it relies on historical data. The model tracks teacher workforce dynamics using four primary equations. The core equations are total teacher demand, TSC Recruitment Capacity, Effective Teacher Supply, and Oversupply Ratio.

The relationship between teacher demand and supply can be defined through three primary components, namely, Gross Demand, Effective Supply, and the Employment Gap.

Total Teacher Demand (D_t)

This is driven by enrollment and target pupil-teacher ratios across sectors such as ECDE, Primary, Secondary, plus any carried-over teacher shortage. The total demand for teachers in Kenya in any given year t is driven by the total student enrollment and the government-mandated Pupil-Teacher Ratio (PTR). This can be expressed thus:

$$D_t = \sum \left(\frac{E_{i,t}}{PTR_i} \right) + S_{t}$$

Where:

- $E_{i,t}$: Enrollment in sector i (such as ECDE, Primary, Secondary) at time t.
- PTR_i: Target Pupil-Teacher Ratio for sector i.
- S_t: Shortage of teachers carried over from previous years (unmet demand).

TSC Recruitment Capacity (R_t)

The sum of replacement recruitment (based on payroll attrition) and new expansion positions funded by the National Treasury. As noted earlier, TSC recruitment is not always equal to demand due to budget constraints.

Recruitment is usually done as:

1) **Replacement Recruitment (R_{rep}):** Filling slots left by exits (retirement, natural attrition, resignations), and
2) **Expansion Recruitment (R_{exp}):** New slots created by government policy (e.g., CBC or FPE).

The TSC recruitment capacity can thus be modeled as:

$$R_t = (T_{t-1} \times \alpha) + G_t$$

Where:

- T_{t-1}: Total teachers on payroll the previous year.
- α: Attrition rate (historically around 3–5%).
- G_t: New positions funded by the National Treasury.

Effective Teacher Supply (S_{eff})

The active pool of job seekers composed of new graduates adjusted by their propensity to teach plus the existing unemployed backlog. The supply is the sum of new graduates and the existing pool of unemployed registered teachers.

$$S_{eff} = (G_{rad} \times \beta) + U_{pool}$$

Where:

- G_{rad}: Total graduates from universities and TTCs.
- β: Propensity to teach (the % of graduates who actually seek teaching jobs, acknowledging that some pursue other interests).
- U_{pool}: The "backlog" of unemployed teachers (currently estimated at 343,485).

3.2 Analysis of the Kenya Context (1964–2025)

Based on the preceding data, the following can be observed in respect of the model:

Period	Model Driver	Result
1964–1969	High Supply Deficiency	$D_t > S_{eff}$. Government forced to use "Untrained Teachers"
2003–2010	Policy Shock (FPE)	Rapid increase in $E_{i,t}$ caused D_t to spike, leading to mass recruitment.
2015–2025	Budgetary Ceiling	R_t (Recruitment) became decoupled from D_t (Demand). While schools need more teachers, R_t is limited by Treasury allocations.

The "Employment Gap" Equation

The biggest challenge for the Ministry of Education is the **Oversupply Ratio (OR)**. The metric determining whether training institutions are overproducing relative to market capacity. This can be represented thus

$$OR = \frac{G_{rad}}{R_t}$$

- If $OR > 1$: The training institutions are producing more teachers than the TSC can hire, leading to the "10-year unemployment" mentioned in the text.
- Presently, more and more students join colleges to train as teachers. At the university level, 40% of the students are enrolled in education, but recruitment is limited largely to replacement, in which the OR is significantly higher than 1.

3.3 Model Assumptions

The mathematical framework rests on several explicit and implicit assumptions. First is the homogeneity of personnel. The baseline Oversupply Ratio assumes all teachers are perfectly interchangeable units. It glosses over subject-specific shortages, such as in STEM fields, and regional deployment gaps. Second is the Constant Propensity to Teach. It assumes the willingness of graduates to enter the teaching market remains static, despite textual evidence showing that candidates face up to a 10-year waiting period to secure a job. Third is the Sustained Intern Transition. The recent reliance on 46,000 interns assumes a smooth fiscal transition into

permanent roles, though the text clarifies that future funding for this is highly uncertain.

3.4 Limitations of the Model

Three major limitations emerge. The first is a lack of disaggregation. The equations measure total aggregate demand and supply, failing to mathematically isolate the 60% STEM pathway required by the Competency-Based Education (CBE) framework. Secondly, geographic friction is excluded. The model does not include a resistance variable to account for regional supply deficits caused by security issues and socio-cultural factors, such as in the North Eastern and parts of the Rift Valley. Thirdly, the non-TSC sector is underrepresented. While the text notes that private and NGO schools historically absorb 12-15% of the workforce, the model's recruitment capacity equation is heavily focused on public treasury allocations.

Based on the Model, the following policy recommendations can be made. First, Dynamic Enrollment Caps: The government should adjust university admission quotas for education courses based on the projected R_t (TSC capacity) for the next 4 years, rather than allowing 40% of all students to enroll in education. This can be done by raising the minimum entry requirements for the course. Second, Subject-Specific Modeling: Instead of aggregate demand, the model must be broken down by subject (e.g., STEM versus Humanities) to address the "unmet demand in certain subjects" despite a general oversupply. Third, Incentivizing Private Sector Absorption: Since the TSC cannot hire everyone, policies should be strengthened to standardize terms in private schools to absorb the 343,485 registered teachers currently outside the TSC payroll. Fourth, Attrition, which represents teachers leaving the service due to retirement, death, resignation, or transfer to other sectors, should be addressed. To calculate the specific attrition rate (α), it is necessary to consider the internal movement of the existing workforce.

The attrition rate (α) can be derived by comparing the total number of teachers in a given year against the number of "teachers from previous years" retained in the following year.

The Attrition Formula can thus be expressed as:

$$T_t=(T_{t-1}\times(1-\alpha))+R_t$$

Where:

T_t: Total teachers in the current year.

T_{t-1}: Total teachers in the previous year.

R_t: New entrants (College output + Upgraded + Untrained).

α: The attrition rate.

To find α, we rearrange the formula based on the "Teacher Supply":

$\alpha=1-(T_{t-1}$Supply from previous years)

The calculation of the attrition rate using the 1969–1970 data for the transition from 1969 to 1970 would yield:

Total Teachers in 1969 (T_{t-1}): 44,225

Supply from previous years in 1970: 28,800

The Calculation:

$\alpha=1-(44,22528,800)$

$\alpha=1-0.651$

$\alpha=0.349$ or 34.9%

A critical observation is that in the 1970s context provided, the "attrition" appears unusually high (34.9%). This is because, historically, "Untrained Teachers" were often on short-term contracts and were dropped or replaced annually, creating a high "turnover" rate compared to the modern permanent pensionable attrition rate of 3–5%.

Calculating the Modern Attrition Trend (2020–2023)

Using the second set of data (Table 8), we can estimate the attrition of the modern TSC workforce.

Year	Total Employed (T)	New Graduates Employed (R)
2022	6,000	—
2023	6,200	(Assume most new hires are from recent graduates)

If the TSC employed 6,200 teachers in 2023, but the net growth from 2022 was only 200 (6,200 - 6,000), it implies that 6,000 teachers were hired just to replace those who left.

We can visualize this "Leaky Bucket" effect in human resource planning:

Why α is Essential for the Model

If the Ministry of Education wants to guarantee employment, they must solve for Grad:

$$\text{Grad}=(\text{Tt}\times\alpha)+\text{New Growth Slots}$$

If α is 3% of a workforce of 360,635 (2025 data), then:

Replacement demand ≈ 10,819 teachers/year.

If universities graduate 30,000+ teachers/year, the model predicts a surplus of nearly 20,000 unemployed teachers annually.

If we factor in the "Unemployed Pool" (Upool), we can predict how many years it will take to clear the current backlog of 343,485 teachers.

To predict how long it will take to clear the backlog of 343,485 unemployed teachers, we have to consider the "net absorption capacity" of the Teachers Service Commission (TSC).

This is essentially a queueing model. The "length" of the queue is determined by how many teachers enter the pool versus how many the TSC (and other employers) can pull out each year.

The Clearance Time Formula (Tclear)

The time required to clear the backlog can be expressed as:

$$\text{Tclear}=\text{RnetUpool}$$

Where Rnet is the Net Annual Absorption, calculated as:

$$\text{Rnet}=(\text{Rrep}+\text{Rexp})-\text{Grad}$$

Rrep: Replacement recruitment (based on the attrition rate α).

Rexp: New expansion slots (CBE implementation, etc.).

Grad: Annual new graduates entering the pool (the 40% enrollment trend).

Variable Estimation (2025/26 Projection)

Using the data provided earlier and historical trends, we can estimate the variables for the current Kenyan context:

Current Backlog (Upool): 343,485 teachers.

Replacement (Rrep): Assuming a workforce of 360,635 and a modern attrition rate (α) of 3%, we get ≈ 10,819 slots.

Expansion (Rexp): Based on recent TSC patterns, let's assume 6,000 new slots for CBE and Junior Secondary.

New Graduates (Grad): If 40% of university admissions are in Education, and graduation rates follow the upward trend, we estimate ≈ 25,000 new teachers entering the pool annually.

The "Stagnation" Reality Check

Substituting these numbers into the Rnet calculation:

$$\text{Rnet}=(10{,}819+6{,}000)-25{,}000$$

$$\text{Rnet}=16{,}819-25{,}000=-8{,}181$$

The Result: Under current conditions, the net absorption is negative. This means the backlog is not shrinking; it is actually growing by 8,181 teachers every year.

How can Kenya clear the current backlog?

For Tclear to be a positive, finite number, the government would need to intervene in one of two ways:

Scenario A: The "Freeze" Strategy

If the government froze new admissions to education courses (Grad=0) and maintained current hiring:

$$\text{Tclear}=\frac{16{,}819}{343{,}485}\approx 20.4 \text{ years}$$

Even with no new graduates, it would take two decades to hire everyone currently waiting. This strategy could also lead to the 'overage' phenomenon in which most of the teachers will be old with little hope of being replaced by younger ones. Additionally, the concept of succession planning would be difficult to implement for 20 years.

Scenario B: The "Mass Absorption" Strategy

To clear the backlog in 5 years while still allowing new graduates to be hired:

16,819(current capacity)+X(extra hiring)−25,000=5343,485

X≈76,878 extra teachers hired per year

This approach would require a massive increase in the TSC budget that historical data suggests is unlikely.

Remarks on the Model

The mathematical model confirms the government's concern: the current 40% enrollment trend is mathematically unsustainable. The Unemployed Pool acts as a "buffer" that is currently overflowing. Unless Grad (enrollment) is significantly reduced or Rexp (funding for new schools) is drastically increased, the Tclear value remains "undefined" because the queue is infinite.

A formula for predicting teacher numbers required to be trained

To prevent the "negative absorption" and growing unemployment backlog identified in the previous steps, the government needs a Targeted Enrollment Formula (Gtarget).

This formula determines exactly how many students should be admitted to teacher training programs today to meet the actual demand when they graduate (usually n years later).

The Prediction Formula can be expressed thus:

$$Gtarget=\gamma(Dt+n\times\alpha)+\Delta Rexp+(YUpool)$$

Where:

Dt+n (Projected Total Establishment): The total number of teaching posts expected in the service by the time the current freshmen graduate (e.g., in n=4 years).

Calculation: (Projected Enrollment ÷ Target PTR).

α (Attrition Rate): The percentage of the workforce expected to exit (retirement, etc.).

ΔRexp (Expansion Growth): The number of new teaching posts the government plans to fund over that period (e.g., for new schools or CBC shifts).

Upool (The Backlog): The current 343,485 unemployed teachers.

Y (Clearance Window): The number of years the government decides is "acceptable" to clear the backlog (e.g., 10 years).

γ (Wastage/Success Rate): The percentage of students who actually graduate and enter the job market (correcting for dropouts or career changes).

Prediction for 2030

If the government wants to know how many students to admit in 2026 to be ready for 2030, we use the estimates derived from the text:

Replacement Need (D×α): ≈11,000 slots/year.

Planned Expansion (ΔRexp): ≈5,000 slots/year.

Backlog Absorption (Upool÷10): 34,348 slots/year (to clear the pool in a decade).

Wastage (γ): Assume 0.90 (90% of trainees seek TSC jobs).

$Gtarget=0.9011{,}000+5{,}000+34{,}348\approx55{,}942$

Thus, in the academic year 2026/27, the Ministry of Education should admit only 55,942 students to train as teachers.

The "40% Enrollment" Correction

If 40% of all university students are in Education, and total university intake is roughly 150,000–170,000, then 60,000–68,000 teachers are being "produced" annually.

Conclusion

The model suggests that if the government does not intend to spend the massive budget required to clear the Upool (the 34,348 slots in our example), the Gtarget must be lowered even further. Otherwise, the "10-year unemployment" cycle for new graduates is likely to persist.

Another challenge to the Ministry of Education is that while many teachers are unemployed, there is a deficit in the supply of teachers for certain subjects. This then calls for a subject-specific demand.

To prioritize subject-specific demand, there is need to move away from a "bulk" prediction and use a

Disaggregated Teacher Demand Model. This is crucial because Kenya faces "County-level disparities in key subjects' combinations like sciences and mathematics" even while a general oversupply exists.

The Subject-Specific Requirement Formula

For any specific subject (e.g., Physics, Biology, Geography), the number of teachers required depends on the total weekly lesson load divided by the standard teacher utilization rate.

Where:

- **:** Enrollment in a specific grade/class level.
- **:** Number of lessons per week for subject in that grade (e.g., 5 lessons of Maths per week).
- **:** Standard teaching load per teacher (e.g., 27 lessons per week in Kenya).
- **:** The "Periodicity" factor (accounting for subject combinations, like a teacher handling both Bio/Chem).

The Subject Demand-Supply Gap

The true "required to be trained" number for a specific subject is the difference between the **Subject Demand** and the **Qualified Available Supply**.

Key Variables for Specific Subjects are:

- **(Subject-Specific Attrition):** Science and Math teachers often have higher attrition rates than Arts teachers because they are more easily absorbed into the private sector (e.g., tech, engineering, research).
- **:** Current qualified teachers in the service for that subject.
- **:** The number of unemployed teachers who possess that specific subject combination.

How can we visualize the Mismatch: Science versus Arts?

In the Kenyan context, the "40% enrollment" trend often leans heavily toward Arts subjects (CRE, History, Kiswahili) because they are perceived as "easier" to pass at the university level. This creates a **Skewed Labor Market**. It can be observed as follows:

Feature	**Science/Math (STEM)**	**Arts/Humanities**
Current	Low (relatively)	Very High
Attrition ()	High (Industry competition)	Low
Policy Driver	High (CBE & STEM focus)	Stable
Training Priority	**High/Urgent**	**Low/Restrictive**

In order to do justice to the subject areas, there is need to have 'training quotas' by subject.

Predicting "Training Quotas" by Subject

To guarantee employment, it is suggested that the Ministry of Education should set **Training Quotas** for universities:

Example Scenario: If the model predicts a need for 10,000 new teachers in 2030, but the curriculum data shows that 60% of unmet lesson loads are in Science/Technical subjects, then the quotas can be set as follows:

- **Science Quota:** 6,000 admissions.
- **Arts Quota:** 4,000 admissions.

Policy implications:

The government must transition from **Supply-Led Training** (where students choose whatever subjects they like) to **Demand-Led Training** (where government funding and university placements are tied to the subject-specific value). Without this, the country will continue to be "top-heavy" with Arts teachers while rural schools continue to lack Physics and Chemistry teachers.

Modelling for Regional Disparities

In Kenya, while the urban areas often face overcrowding (high demand for numbers of teachers), rural areas, particularly in ASAL (Arid and Semi-Arid Lands) counties, face a "Retention Crisis" (high demand for stability).

The Regional Demand Index (Dreg)

Demand cannot just be a function of student numbers, but of Hardship (H) and Retention (ρ).

$$Dreg=(PTRtargetEr\times\rho 1)+Sv$$

Where:

Er: Enrollment in the specific region.

PTRtarget: The mandated ratio (e.g., 1:40). In urban areas, this is often exceeded (reaching 1:68 in Nairobi), creating "Invisible Demand."

ρ (Retention Rate): The probability that a teacher remains in that post for more than 3 years. In rural/hardship areas, ρ is low, meaning the TSC must "over-recruit" just to maintain basic staffing levels, or give serious incentives such as hardship allowances.

Sv: Vacancies caused by insecurity or lack of amenities (such as the "Lamu/Mandera effect").

Urban versus Rural: The Modeling Mismatch

Considering the Factor 'Urban' (e.g., Nairobi, Kisumu), the main driver of teacher recruitment is overcrowding, which puts the PTR in crisis. There is a surplus of teachers, as many prefer urban life. As a result, a significant share of the backlog is absorbed by private schools. The attrition rate is low, as the environment is stable. In contrast, Rural/ASAL (e.g., Isiolo, Turkana) areas are driven by understaffing. The basic presence of teachers is the crisis. Teachers seek transfers out of such areas. As a result, such areas rely on "Untrained" or BoM teachers. The attrition (α) is very high due to isolation and security risks. To balance the distribution of teachers, the model for predicting training and recruitment must include a Hardship Weight (Wh):

$$Rbudget=\sum(Rs\times Wh)$$

If Wh>1, the government allocates more money to recruit for that region to cover the Hardship Allowance and Retention Bonuses required to keep teachers there. As of 2026, the TSC is being pressured by Parliament to cluster these hardship areas more accurately to reflect actual local costs. Indeed, hardship areas have been classified into two.

CBE and the Regional Gap

The transition to Grade 10 (Senior School) in 2026 introduced a new disparity. Urban schools generally have better labs for STEM pathways, while rural schools face a "facilities-staffing deadlock." Hence, urban demand is driven by the need for specialized "Track" teachers (e.g., Arts vs. Science), whereas rural demand is driven by a "Generalist" shortage, in which one teacher may need to handle three different Grade 10 subjects due to low staffing.

Prediction for the Unemployed Pool (Upool)

The model predicts that if the TSC continues to prioritize "First Appointments" within a teacher's home county (as per 2024/25 policy), the Upool will clear faster in rural counties but remain stagnant in urban centers where the competition for limited slots is highest.

Policy implications on regional modelling:

To solve the regional gap, the formula for training should not be "National," but County-Based. Each County should have a specific Gtarget quota based on its unique attrition and student growth rates.

Prediction Model under CBE

The transition to Competency-Based Education (CBE)—now fully realized in 2026, as the pioneer cohort enters Grade 10 (Senior School)—fundamentally shifts the teacher-demand model from a general "enrollment-based" system to a "Pathway-Based" Specialist Model. In CBE, teacher demand is no longer just about having a teacher in front of 40 students; it is about having the right specialist for one of the three Senior School pathways: STEM, Social Sciences, or Arts & Sports Science.

The CBE Adjusted Demand Formula (DCBE)

Under the old system, one teacher could often cover multiple grades of a general subject. In CBE, the demand is driven by the Pathway Selection Ratio (σ).

$$DCBE=\sum(Up\times PTRpE\times\sigma p)$$

Where:

σp: The percentage of students choosing a specific pathway (the government target is 60% for STEM).

Up: Utilization rate for specialized facilities (e.g., a Physics teacher cannot teach without a lab, so demand is capped by lab availability).

PTRp: Pathway-specific Pupil-Teacher Ratio. Practical pathways like Sports or Technical STEM require

lower ratios (e.g., 1:20) compared to Social Sciences (1:40).

Critical Staffing Shifts in 2026

Data from the current 2026 transition reveals a "double-squeeze" on the teaching workforce:

The staffing status shows that Primary/Comprehensive schools are overstaffed by about 18,000. These teachers need "retooling" or redeployment to JSS. The Junior Secondary (JSS) has a shortage of about 65,000. Therefore, there is a strong demand for "Generalist-Specialists" (teachers who can handle integrated sciences). Senior School (Grade 10) has a shortage of about 58,000. This school has a high demand for "Track Specialists" (e.g., sports, robotics, performing arts).

The "STEM 60%" Paradox

The government's goal of pushing 60% of learners into the STEM pathway creates a specialized vacuum. Currently, only 21% of JSS teachers are STEM-trained. Even if the Upool (the 343,485 unemployed teachers) is large, the Effective Supply (Seff) for the STEM pathway is critically low. There is likely to be a "Surplus-Shortage Coexistence"—where thousands of Arts-trained teachers remain in the Upool while STEM positions remain vacant or are filled by unqualified staff.

Adjusting the "Required to be Trained" Formula

To factor in CBE, the Gtarget (Target Enrollment) must be weighted by the Pathway Weighting Factor (Wp):

$$\text{Gtarget} = \text{Replacement Need} + (\text{Rexp} \times \text{Wp})$$

If WSTEM=1.5 and WArts=0.5, universities must be mandated to admit 3 STEM education students for every 1 Arts student.

Policy implications:

For the government to "guarantee employment," the model must now enforce Pathway-specific quotas. If 40% of university admissions continue to be in Education but 80% of those are in "Social Sciences," the transition to CBE will fail due to a lack of STEM and Technical instructors, while the unemployment backlog for Arts teachers will grow exponentially.

The infrastructure-staffing link

In the Kenyan public school system, the Teachers Service Commission (TSC) cannot deploy a teacher to a "non-existent" workstation. The TSC cannot post a teacher for metalwork to a school that lacks a metal workshop. As of 2026, the 2,800-classroom shortfall serves as a physical "bottleneck" that prevents expansion of the teaching workforce, even if the budget for salaries were available.

The Workstation-Deployment Formula (Wd)

In human resource modeling, the capacity to hire is capped by the number of viable "workstations."

$$H_{max} = (C_{existing} + \Delta C_{new}) \times T_{pc}$$

Where:

$C_{existing}$: Current functional classrooms.

ΔC_{new}: New classrooms built (the shortfall represents a negative ΔC).

T_{pc}: Teachers per class (In CBE/Senior School, this is roughly 1.5 to 2.2 teachers per class due to subject specialization).

The 2026 Impact: A shortfall of 2,800 classrooms effectively locks out between 4,200 and 6,100 potential teaching jobs from the TSC payroll, regardless of how many teachers are in the Upool.

Infrastructure as a "Hard Constraint" on CBE

Under the Competency-Based Education (CBE) framework, the link between infrastructure and staffing is tighter because of Pathway Specialization. For example, for metalwork, a specialist STEM teacher is required. Without a workshop, the TSC cannot justify a full-time metalwork teacher, even if students choose that pathway. A Workshop (Wood/Metal) requires a Technical Instructor. A shortfall leads to "Theory-only" teaching, reducing the need for practical instructors. In the case of a standard classroom for the Humanities/Languages, overcrowding (exceeding 1:50) leads to teacher burnout and a drop in "Effective Demand."

The "Invisible Demand" Trap

While the mathematical model shows an unmet demand for teachers, the Infrastructure Shortfall creates a phenomenon called "Invisible Demand." The reality is that schools need the teachers to handle the 1.13 million Grade 10 learners. However, without the 2,800 classrooms, schools resort to "merging" classes (e.g., 90 students in one room). To the TSC, if two classes are merged into one room, the TSC only "sees" one workstation,

reducing the number of teachers it is legally allowed to post to that school.

Financial "Crowding Out"

As of the 2026/27 Budget Policy, the TSC is requesting Sh422.9 billion. However, a significant portion of education funding is currently being diverted to the Ministry of Education's infrastructure budget to build the Grade 9 and 10 blocks. The Paradox is that every shilling spent on "bricks and mortar" to fix the 2,800-classroom gap is a shilling not spent on the Sh1.9 billion required to hire the next 16,000 teachers.

Summary Prediction

The model predicts that until the 2,800-classroom shortfall is closed:

Stagnant Hiring: The TSC will prioritize "Replacement" (attrition) over "Expansion" because they lack physical space for new hires.

Increased BoM Reliance: Schools will continue to hire teachers via Boards of Management (BoM) to handle merged, overcrowded classes, as these teachers don't require an official "TSC Workstation" code.

STEM Pathway Failure: Since STEM requires the most infrastructure (labs), the 58,590-teacher shortage in Senior School will remain the highest in the very areas the government wants to promote.

In sum, infrastructure is the "gatekeeper" of the teaching profession. It is not possible to clear the Upool (unemployed backlog) until you build rooms to house them.

4. Conclusion

The mismatch between teacher demand and supply in Kenya has led to an increasing backlog of unemployed teachers. This situation is made worse by an oversupply of teachers in certain subject combinations and a similar shortfall in others. The fact that some regions of Kenya lack enough teachers, coupled with limited financial provision for teacher hiring, complicates the task of balancing teacher demand and supply. The government is determined not to spend public money training teachers it does not need. Hence, the proposed models in this paper adequately address the problem as intended. Indeed, the Ministry of Education must move aggressively to cut down the number of student teachers. At the same time, the government must take steps to progressively reduce the backlog of unemployed teachers.

References

Aloo, J. O., Simatwa, E. M. W., & Nyang'ori, R. A. (2011). Impact of the school-based teacher recruitment policy on the distribution and retention of teachers in public secondary schools in Kenya: A case study of Nyando District. *Educational Research, 2*(3), 1006–1020. http://www.interesjournals.org/ER

Dong, C., Liu, L., & Shang, J. (2024). Toward student-oriented teacher network training for knowledge distillation. ICLR 2024. http://arxiv.org/pdf/2206.06661v2

Indire, F., Hanson, F., & John, W. (1971). *Secondary level teachers: Supply and demand in Kenya*.

Inyega, J., Adeela, A., Naseem, M., Mahaya, E., & Elsayed, D. (2021). Post-independence basic education in Kenya: An historical analysis of curriculum reforms. *Forum for International Research in Education, 7*(1), 1–23.

Maangi, E. N., Benecha, N. J., Wekesa, N. W., Ongaga, E., & Orina, F. (2013). The changing trends in the development of teacher education in Kenya: The role of the Teacher's Service Commission. *Research on Humanities and Social Sciences, 3*, 19.

Mayer, R. V. (2013). A study of Monte-Carlo method in a teachers' training institute. In *New educational technologies in higher education institution: The collection of reports of the tenth international scientific and methodical conferenc*e (pp. 1–7). Yekaterinburg, UGTU UPI. http://arxiv.org/pdf/1401.2001v1

Ministry of Education. (2021). Teacher placement and deployment policy in Kenya: A review of post-independence reforms. Government Printer.

Mutegi, R. G., Muriithi, M. K., & Genevieve. (2017). Education policies in Kenya: Does free secondary education promote equity in public secondary schools? *International Journal of Development Research, 7*(11), 16696–16699.

Ochieng, P., & Wanjala, M. (2021). Teacher placement policy reforms in Kenya: Balancing equity, evidence, and professionalism. *Journal of Education Policy and Practice in Africa, 6*(2), 45–58.

Oketch, M., & Rolleston, C. (2007). Policies on free primary and secondary education in East Africa: Retrospect and prospect. *Review of Research in Education, 31*(1), 131–158. https://doi.org/10.3102/0091732X07300046131

Park, H.-J., Zhu, P., Lopez Moreno, I., & Subrahmanya, N. (2021). Noisy student-teacher training for robust

keyword spotting. http://arxiv.org/pdf/2106.01604v1

Republic of Kenya. (1976). Report of the National Committee on Educational Objectives and Policies (Gachathi Report). Government Printer.

Republic of Kenya. (1981). Report of the Presidential Working Party on the Establishment of the Second University in Kenya (Mackay Report). Government Printer.

Republic of Kenya. (1971). *Economic development plan 1979–1974*. Government Press.

Schulz, S., & Jacob, J. (2025). Lecturers' perspectives on the integration of research data management into teacher training programmes. http://arxiv.org/pdf/2505.21704v1

See, B. H., & Gorard, S. (2020). Why don't we have enough teachers? Reconsideration of the available evidence. *Research Papers in Education, 35*, 416–442.

See, B., Morris, R., Gorard, S., Kokotsaki, D., & Abdi, S. (2020). Teacher recruitment and retention: A critical review of international evidence of most promising interventions. *Education Sciences, 10*, 262. https://doi.org/10.3390/educsci10100262

Sifuna, D. N. (2019). The historical development of education in Kenya: From colonialism to the 21st century. *Journal of African Educational Studies, 5*(1), 23–40.

Sifuna, D. N., & Sawamura, N. (2010). *Challenges of quality education in sub-Saharan Africa: Some key issues.* Nova Science Publishers.

Teachers Service Commission. (2022). Policy on teacher recruitment and selection (reviewed 2022). Government Printer.

Teachers Service Commission. (2023–2027). Strategic plan 2023–2027. TSC.

Teachers Service Commission. (2024). Policy on teacher recruitment and selection: Revised 2024. Government Printer.

Ukrop, M., Švábenský, V., & Nehyba, J. (2019). Reflective diary for professional development of novice teachers. In Proceedings of the 50th ACM Technical Symposium on Computer Science Education (SIGCSE '19), February 27–March 2, 2019, Minneapolis, MN, USA. ACM. http://arxiv.org/pdf/1811.02965v1

Wanyama, P. M., & Chang'ach, J. K. (2013). Education reforms in Kenya for innovation. *International Journal of Humanities and Social Science, 3*(9).

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Paradigm Academic Press
Research and Advances in Education
ISSN 2788-7057
SEP. 2026 VOL.5, NO.3

Continuing Professional Development for Filipino Educators: A Systematic Literature Review on PLCs, Reflective Practice, and In-Service Training Models

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doi:10.63593/RAE.2788-7057.2026.09.004

Abstract

Continuous professional development (CPD) under Philippine law and teaching professionalism standards remains underexplored in the literature. The present study synthesizes existing research on CPD for Filipino teachers, its relation to professional communities and learning-enhancement practices, and teachers' professional development. The PRISMA procedure was used to accurately extract data from a small Scopus dataset. In summary, the study analyzed 177 sources in two stages. 61 empirical studies published or soon to be published were selected for the analysis. Four main themes have been highlighted: (a) While in-service training is fundamentally episodic, lecture-based, and weakly evaluated, needs-based, experiential, and technology-driven training courses are beginning to surface; (b) Professional learning communities, Learning Action Cells, and lesson study are collaborative models that foster collegial and pedagogical progress factor, but performance is hampered by workload issues, leadership dilemmas, and Filipino culture, especially in terms of *pakikisama* and *hiya*; (c) while reflective practice can be enriched by means of mentoring during practicum, feedback, and action research, it is never organized or maintained; and (d) the pre-service-in-service continuum lacks coherence and research capacity.

Keywords: continuing professional development, professional learning communities, reflective practice, in-service training, teacher education, Philippines, systematic review

1. Introduction

Teacher quality is viewed as the most important school lever for transforming learning, especially in the Philippines, which has changed its curriculum, basic education duration, and criteria for selecting and evaluating teachers several times. Continuing Professional Development (CPD) has become increasingly relevant in this context. The Continuing Professional Development Act (Republic Act No. 10912) makes CPD compulsory for renewing professional licenses; Department of Education (DepEd) Order No. 42, s. 2017 introduced the Philippine Professional Standards for Teachers (PPST) as the standard for teaching quality; DepEd Order No. 35, s. 2016 established the Learning Action Cell (LAC) as the framework for school-based CPD; and the Excellence in Teacher Education Act (Republic Act No. 11713) aimed at connecting pre-service and in-service training. Teacher educators in state higher educational institutions must undertake CPD in accordance with rules related to their academic positions and advancement.

Yet, policy density differs from actual evidence. Filipino educators, on one side, claim that they appreciate professional development as an avenue towards professional advancement and lifelong learning (Ancho & Arrieta, 2021; Dayagbil & Alda, 2024), while research from the different parts of the country shows that training for work is mainly content-centered and consists of lectures (Tupas & Noderama, 2020), teachers think that CPD is not beneficial to them (Padillo et al., 2021), and that teachers who deliver training do not engage in CPD

activities (Tulo & Lee, 2022). The shift to remote learning due to the COVID-19 pandemic led to a boom of webinars and a syndrome called webinar fatigue (Tanucan et al., 2023); post-pandemic recovery entails new needs that need addressing in terms of content, technology integration, and research (Abella et al., 2024; Valle, 2024).

The research studies in question are scattered across different journals, academic disciplines, regions, and career stages and have not been systematically assembled. Standalone studies cannot assess whether the challenges acknowledged in one school are valid worldwide, whether approaches that work well in one context remain effective in another, or whether the phases of teacher development in policy and practice are similar. As such, a comprehensive literature review is required in order both to consolidate the accumulated knowledge and to assess where the information is lacking, especially at the time when the government of the Philippines reviews the work of its education system and when DepEd puts into operation a new version of the MATATAG curriculum (Peña et al., 2026).

This evaluation addresses the important task of identifying, reviewing, and synthesizing Scopus-indexed data on CPDs for Filipino teachers. The work concentrates on three types of CPD popular in the Philippines: professional learning communities, widely involving LACs, professional communities in education, lesson study, and similar methods; reflective practice using mentoring, feedback, and action research as a means for teachers' self-reflection; and in-service training, including workshops, seminars, conferences, outreach programs, and graduate programs. Since PPST and RA 11713 describe the teacher development process as a long process starting with initial education, the review also considers research on pre-service teacher training. There are four questions according to which the review is conducted.

1) What are the bibliographic and methodological characteristics of empirical research on CPD for Filipino educators?
2) What in-service training models are documented, and what do Filipino educators report about their design, relevance, and effects?
3) How are PLCs and other collaborative models enacted in Philippine educational institutions, and what conditions enable or constrain them?
4) How is reflective practice, including mentoring and action research, cultivated across the pre-service and in-service phases of Filipino teachers' careers?

2. Method

2.1 Review Design and Reporting

The review aimed to follow a systematic literature review approach with qualitative evidence synthesis, structured according to the PRISMA 2020 guidelines for systematic review reporting. This systematic approach makes study identification, selection, and synthesis transparent and reproducible. The review protocol, outlining the research questions, eligibility criteria, search string, and synthesis strategy, was finalized before screening began.

2.2 Eligibility Criteria

The eligibility definition considered four aspects: population, concept, context, and research design. Studies were deemed eligible for inclusion if they satisfied the following criteria: (a) focused on Filipino educators, including in-service teachers, school principals with instructional functions, teacher educators, or pre-service teachers; (b) investigated CPD, or any form of professional development and training programs for teachers; (c) were carried out in the Philippines or involved Filipino teachers; (d) reported original empirical results through qualitative, quantitative, or mixed methods studies, including those that followed design-based implementation research; and (e) were peer-reviewed and published in reputable journals and in English. Non-eligible studies included those focused on non-educational professionals (students) without professional development implications, those not conducted in the Philippines, and those without empirical data.

2.3 Information Source and Search Strategy

This research used only Scopus because Scopus offers a comprehensive range of peer-reviewed educational publications, including local journals that often publish scholarly articles from the Philippines. The database also allows for systematic searches with specified filters for document type, subject area, language, and country of affiliation. The search was conducted in October 2026 based on the search string:

TITLE-ABS-KEY (("professional development" OR "teacher professional development" OR "teachers' professional development" OR (teacher W/3 (professional OR development)) OR "in-service training" OR "inservice training" OR CPD OR "continuing professional development" OR "teacher training" OR "pre-service training" OR "preservice training" OR "workshop" OR "coaching" OR mentoring OR "teacher coaching" OR

“instructional coaching” OR “lesson study” OR “peer observation” OR “teacher mentoring” OR “reflective practice” OR “reflective teaching” OR “professional learning” OR “professional learning community” OR PLC OR “communities of practice” OR “teacher communities”) AND (Philippines OR Filipino OR “Philippine” OR “Republic of the Philippines”) AND (teacher OR educator* OR “teaching staff”)) AND (LIMIT-TO (SUBJAREA, “SOCI”) OR LIMIT-TO (SUBJAREA, “ARTS”)) AND (LIMIT-TO (DOCTYPE, “ar”)) AND (LIMIT-TO (LANGUAGE, “English”)) AND (LIMIT-TO (AFFILCOUNTRY, “Philippines”))

The three concept blocks outlined CPD and its related models, the Philippine context, and the group of educational practitioners being studied. The criteria limited the search results to documents in the social sciences, arts, and humanities, published in English, and with at least one author based in the Philippines. No date limit was applied to reflect the development of CPD research before and after the enactment of the CPD Act of 2016 and the PPST.

2.4 Study Selection

All the records obtained from Scopus were exported, and full texts were obtained for each record. Because only one database was searched, duplicate records did not arise. Selection occurred in two phases. The first phase involved title and abstract screening against eligibility criteria and excluding records that did not meet the population or concept criteria. The second phase entailed assessing the remaining records against all eligibility criteria. We logged selection decisions, phases, and reasons for ethical decisions. The other reviewer independently reviewed borderline decisions, and the third reviewer resolved disagreements through consultation.

2.5 Data Extraction

A systematic data collection form was created for each of the included studies, capturing the authorship and publication year, research design, study subjects and setting, the CPD model or focal point, the theoretical or conceptual framework if mentioned, and main results such as the mentioned barriers, facilitators, and results of the study. The study was assigned to one of the main CPD themes (in-service training and CPD, PLC and collaborative models, reflective practice and mentoring, and pre-service training), depending on the study’s main focus. Studies belonging to several categories contributed to every section of the synthesis where relevant.

2.6 Appraisal of the Evidence

Because the review aimed to map and collate an emerging body of evidence rather than assess a specific impact, studies were not excluded on methodological grounds. Nonetheless, aspects of evidence quality such as the methodology of a study, the sampling method employed, the sample size, the type of outcome measurement used (self-reported or observational), and whether or not the study in question assessed the impact of CPD were collected for each of the studies and factored into the synthesis process and the discussion of evidence.

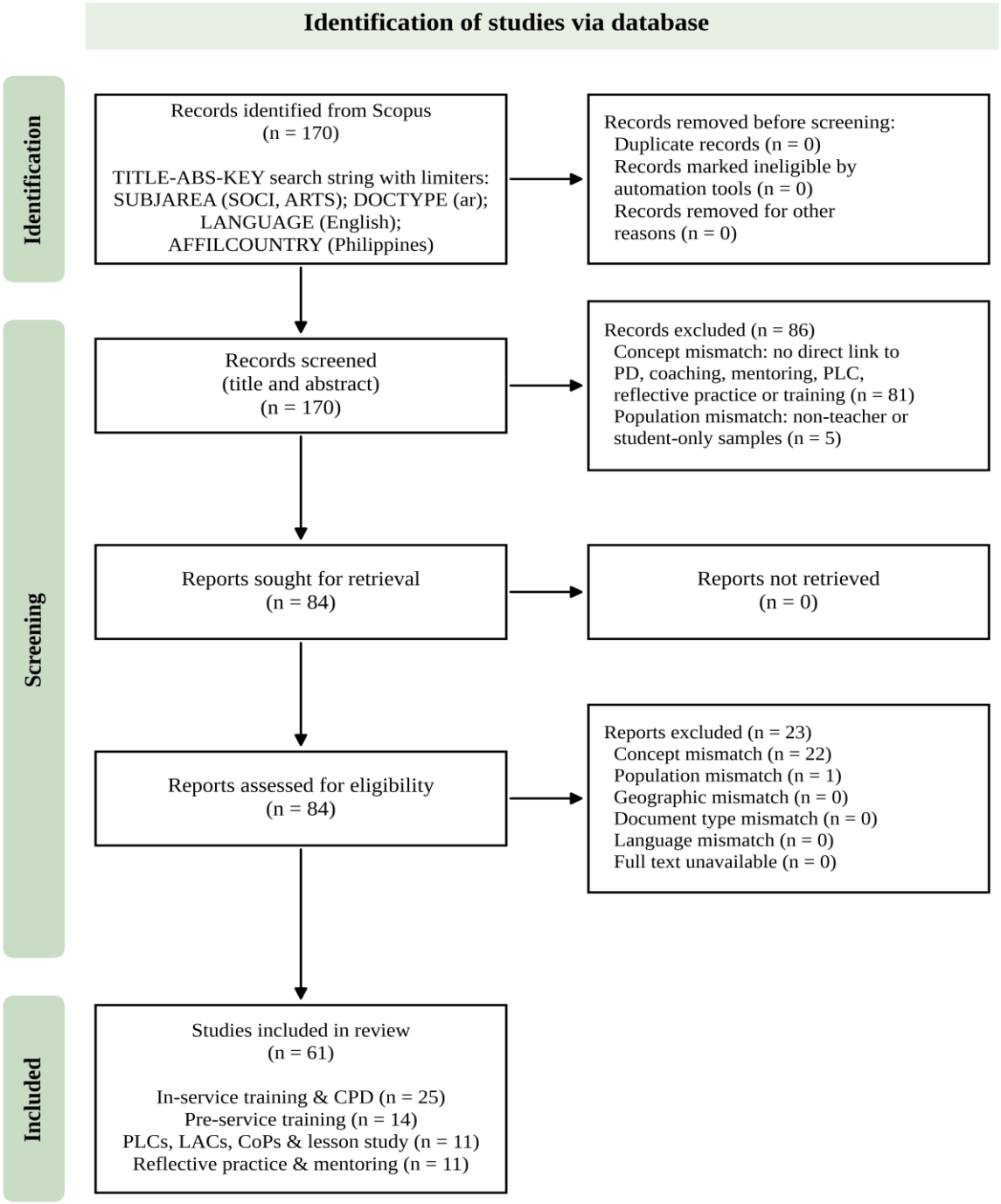
2.7 Synthesis

Because the studies varied in design, sample, and outcomes, meta-analysis was unsuitable. The results were synthesized applying reflexive thematic synthesis. All the extracted results were first coded inductively according to the studies’ research objectives, while recurrent themes and culturally relevant factors affecting the results were transformed into analytical themes. During this process, we paid special attention to overall similarities and differences between studies, the education system levels from which the results originated, and their robustness.

3. Results

3.1 Study Selection

The Scopus search produced 170 results, as shown in Figure 1. There was no elimination of duplicates. The first screening step (titles and abstracts) excluded 86 results; 81 were rejected because they did not meet the definitions of CPD, mentoring, reflective practice, PLC, or training. The remaining five results were excluded, as participants in these studies were not educators. The eligibility test was then run on the remaining text of the papers for analysis. The results showed that 84 papers passed the analysis, but 23 studies did not meet the inclusion requirements: 22 because of a mismatch in concepts, and one because of a mismatch in the population studied. The reports were not rejected because of their geographical location, document type, or language of presentation, as the search limiters accounted for these factors.



Adapted from Page et al. (2021), the PRISMA 2020 statement. Search date: October 2026.

Figure 1. PRISMA 2020 Flow Diagram of Study Identification, Screening, and Inclusion

3.2 Characteristics of the Included Studies

Table 1 presents the characteristics of the 61 studies included in this research, while Appendix A provides brief details on each study. The studies show that the evidence is recent. The earliest recorded study dates back to 2015 (Valdez & Lapinid, 2015), while 95% of the studies were published between 2020 and 2023. The peak period was marked in 2025, when 23 studies were published. This growth can be attributed to the post-pandemic recovery and the advanced status of the PPST methodological framework.

Qualitative designs predominated (n = 27, 44%), chiefly phenomenological studies, case studies, lesson studies, and one grounded theory (Bongco & Ancho, 2023). Mixed-methods designs accounted for 18 studies (30%), quantitative designs for 13 (21%), and design-and-development or research-and-development studies for three (5%). Quantitative studies were mostly descriptive surveys; only one tested a structural model (Awado et al.,

2024) and two validated measurement instruments (Alia et al., 2025; Tulang et al., 2023). Only a small number of studies evaluated a CPD intervention directly, through pre–post comparisons of an AI-focused course for pre-service teachers (Antonio, 2025), an eight-hour AI seminar for higher education faculty (Cordero et al., 2026), and an Appreciative Inquiry workshop for teacher education students (Hilao-Valencia & Ortega-Dela Cruz, 2023), or through comparison of face-to-face and online sections of a hybrid graduate program (Sintos, 2026). None used a comparison or control group, and none linked CPD participation to measured student learning, except for a study that found no significant relationship between teachers' PD activities and their teaching competencies (Padillo et al., 2021).

In total, 24 studies focused on basic-education teachers, 21 concerned pre-service teachers and their practice or training, nine involved higher-education faculty/teacher-educators, three dealt with education graduate students who are practicing teachers, and four were studies on mixed or cross-sector groups. The studies drew on information from Luzon, Visayas, and Mindanao, including far-flung and rural areas, although institutions of teacher education in Metro Manila and regional state universities were the most common settings. Overall, 25 studies addressed in-service training and CPD; 14 addressed pre-service training; 11 addressed PLCs and collaborative models; and 11 addressed reflection, such as mentoring.

Table 1. Characteristics of the Included Studies

Characteristic	Category	*n*	%
Publication year	2015–2019	3	5
	2020–2022	11	18
	2023–2024	16	26
	2025–2026	31	51
Research design	Qualitative	27	44
	Mixed methods	18	30
	Quantitative	13	21
	Design and development	3	5
Population	Basic-education teachers	24	39
	Pre-service teachers and teacher preparation	21	34
	Higher education faculty and teacher educators	9	15
	Graduate students who are practicing teachers	3	5
	Mixed or cross-sector groups	4	7
Primary CPD focus	In-service training and CPD	25	41
	Pre-service training	14	23
	PLCs and collaborative models	11	18
	Reflective practice and mentoring	11	18

3.3 In-Service Training Models

3.3.1 The Dominant Model: Episodic, Content-Driven, and Weakly Evaluated

Short-duration, scheduled training events are the most common form of CPD observed across industries. According to an assessment of DepEd's INSET program for the academic year of 2019-2020, the summer sessions and those that took place throughout the breaks turned out to be focused predominantly on information, making no use of practical knowledge besides writing action plans and neglecting the themes associated with Education 4.0 (Tupas & Noderama, 2020). The research showed that the CPD before the pandemic meant a diverse use of effective teaching strategies such as content delivery, pedagogical practices, technology, action learning, postgraduate programs, and others, while during the pandemic the focus turned to webinars connected

to online learning, technological advancement, and mental health (Ancho & Arrieta, 2021). The consequences of the development of webinars seem to be negative: educators stating they experienced fatigue mentioned the effects occurring in all spheres of their existence (physical, emotional, mental, social, and even economic), low retention of information learned during the webinars, and perceiving attendance as a necessity for winning (Tanucan et al., 2023).

The results of this model seem to be contradictory. Most teachers from Cebu reported becoming skilled planners and instructors, yet they felt the institution's activities were almost useless and that CPD did not significantly influence their skills (Padillo et al., 2021). In state universities and colleges, teachers' engagement in CPD was low, although it was required by law, and their participation grew with higher academic titles and personal circumstances that limited participation (Tulo & Lee, 2022). A survey of 1,063 teachers in Central Visayas found that teachers faced obstacles to participation, including a shortage of time, funding, and heavy workloads (Dayagbil & Alda, 2024). The state CPD program in Biliran improved teachers' classroom work but faced challenges from high workload and time limitations, as well as unequal access for urban and rural teachers (Concepcion, 2025). These studies show that CPD quantity is high, but it is not based on teachers' needs, their daily work, or its effects on them.

3.3.2 The Turn Toward Needs-Based Design

Another area of research that has gained momentum since 2020 focuses on applying diagnostic information to CPD design. The training needs were determined on the basis of various factors: five years of data on National Achievement Test scores indicating a drop in performance in the areas of science and mathematics (Junio-Sabio et al., 2020); self-perception of teachers with respect to their research skills as positive regarding knowledge and attitude but negative regarding research efficiency, availability of resources, and excessive teaching loads (Abella et al., 2024); and a combination of an analysis of the difficulties elementary mathematics teachers of different experience levels encounter in enriching the knowledge about mathematics and implementing new technologies after the pandemic (Valle, 2024). Furthermore, a combination of qualitative and quantitative methods was used to conduct a needs assessment, which showed that while science teachers are good at identifying research problems, they lack knowledge in data processing and research writing (Walag et al., 2025).

Additional research has been based on established PPST-related training, as demonstrated by the lack of faculty expertise of non-pre-school graduates in Kindergarten and elementary education, small achievement rate in academic knowledge, pedagogical skills and learner diversity (Valdez & Begnalen, 2026), school principals' high rating of administrative support in teaching quality with the exception of learner diversity (Araneta et al., 2020), and teachers' knowledge of the historical misinterpretation resulting in social studies departments' appeal to run workshops and conferences on misrepresented history of the Philippines (Briones, 2025). Needs assessment was also used to plan higher education outreach programs in rural institutions (Daminar & Galusan, 2025), while the evaluation of 3 such programs revealed their efficiency and the need to update materials and extend both time and individualized follow-up (Martin & Ildefonso, 2025).

The studies all follow a common logic: CPD needs to respond to identified gaps rather than take a more generalized approach. The drawback is also common. The studies conclude with a proposed program that is never implemented or evaluated, creating an abundance of needs analyses and a deficit of program evaluations in the field.

3.3.3 Experiential, Immersive, and Technology-Focused Models

Documentation on a third model refers to the model that is developed outside of the workshop. Professionals who participated in industry-based professional development training, which consisted of a series of science-industry visits by science teachers in Central Visayas, reported building their confidence as instructors, establishing linkages with industry standards, and enhancing their interdisciplinary programs (Cutillas et al., 2025). Teachers from Agusan del Sur, Surigao del Norte, and Samar emphasized the importance of practical, culturally relevant interdisciplinary workshops that blend creativity and rationality, and noted the need for support beyond training so learning can be applied later (Peligro et al., 2025). Regional academic meetings were seen as beneficial because they covered teaching innovations and offered opportunities for research collaboration, grounded in respect, open conversation, and integrity to support continuous development (Vivero, 2025). For teacher trainers, higher education and interactions with teachers worldwide are also linked to shifts from teacher-oriented approaches to student-centered education and technology use (Borbon et al., 2025).

Artificial intelligence has quickly become a critical area in CPD. Faculty members who attended an 8-hour seminar on AI were able to overcome their need to further develop their understanding of AI in relation to course completion and text creation (Cordero et al., 2026). Graduate studies will also contribute to CPD provision as teachers learn new practices. Graduate students in English language education found that connecting teaching and research in their programs enhanced their research and teaching skills (Ulla et al., 2025). At another

university, education graduates reported a strong interest in research but low confidence and productivity (Castulo et al., 2025). In a mixed-approach program for mathematics educators, face-to-face modules outperformed online ones in examination performance and attendance; however, successful learning outcomes were defined by the quality of engagement, not attendance alone (Sintos, 2026). In teaching the Chinese language, when foreign volunteers were unavailable during the pandemic, the instructional process continued through in-service training and higher education programs for teachers in local institutions (Pamintuan, 2021).

3.4 Professional Learning Communities and Collaborative Models

3.4.1 Forms of Collaborative Professional Learning

The studies examined indicated four main types of collaborative CPD. One is the Learning Action Cell, an institutionalized, school-based CPD model developed by DepEd. In researching the perceptions of 403 science teachers from remote areas, it was found that LACs structured in line with specific objectives improved their attitudes towards professional growth, supported students' holism and technological advancement, created an environment for exchanging ideas and experiences between fellow teachers, enabling teachers to develop their leading roles as well (Vega & Orleans, 2025). A study of virtual school-based LACs implemented in 16 primary schools found that they were essentially characterized as specialist-member interactions resembling regular teacher-student relationships and problematically involved choosing which classroom activities to focus on and how to implement them (Tulang et al., 2023).

The second type is known as the PLC, or a community of practice. Secondary teachers and school leaders have reported that implementing PLCs provides new strategies and materials, supports first-year teachers, improves communication between school leaders and teachers, and offers opportunities for more contextualized discussion of school and student problems (Tayag, 2020). There were four outstanding schools that were selected by DepEd regional offices as successful PLCs, and they depended on a good leadership style, devoted membership, and many chances for effective communication: means of participation in the PLC made teachers more cooperative, flexible, and innovative and strengthened their relations, trust, and motivation (Confesor & Belmi, 2022). Another collegial resource is informal intergenerational ties. The grounded theory of multigenerational school communities states that teachers of different generations can realize professional opportunities only with effective multigenerational communication, but generational gaps, seniority, and isolating school structures prevent this (Bongco & Ancho, 2023).

Lesson study is the third form of collaborative practice. Lesson study was used by teacher groups to contextualize a senior high school lesson on simple interest with the help of example–conclusion maps, which led to meaningful discussions and deeper thinking and showed that contextualized examples required further elaboration (Ngiwas et al., 2022), and to enhance the instruction of synthetic division in a post-pandemic HyFlex class, where the cycle revealed both misconceptions and practical barriers in the form of scheduling meetings online and imperfect internet connection (Agsalon et al., 2023). Finally, the former form includes collaborative schemes that extend beyond classrooms. Researchers among teachers in the Asia-Pacific region, comprising the Philippines, have defined virtual collaborative research writing as useful and effective in boosting professional skills, research skills, and efficiency (Villarama et al., 2025). Furthermore, validation of a collaborative lesson-planning technique that brought together student teachers and already employed science teachers during their internship showed it was effective in enhancing lesson quality, teamwork, and reflective practice (Ebillo-Canalita & Jugar, 2025). More importantly, classroom observations aligned with the Results-based Performance Management System and the PPST appeared to be an inherently collegial and developmental process when supported by pre- and post-observation discussions (Peña et al., 2026).

3.4.2 Conditions That Enable and Constrain Collaboration

In this way, the studies reveal enabling conditions: active, visible leadership; fully committed membership; safe opportunities for interaction; and clear meeting goals (Confesor & Belmi, 2022; Vega & Orleans, 2025). They also indicate limitations. Teacher participants in PLCs noted that they had to deal with such problems as excessive work and time conflicts, low level of trust in their peers, contradiction between their cooperative nature of learning and the system of personal ranking and promotion, and low understanding of the real advantages of participation, all of them being rooted in the school functions and culture. (Tayag, 2020). Time and schedule restrictions also limited the number of lesson study cycles (Agsalon et al., 2023) and collaborative lesson plans, and the model was threatened by disparities in participation levels and fixed mindsets (Ebillo-Canalita & Jugar, 2025).

A notable outcome is the mediating role of Filipino relational values. In a six-month study on the lesson study process in a low-cost private institution, it was found that smooth interpersonal relations, *pakikisama* (community), and *hiya* (feeling of propriety/shame) mean that the idea of critique that is critical for the lesson-study method cannot be put into effect, whereas bilingual language practices influence the depth of

collaboration (Espinosa & Elipane, 2025). Other scenarios, such as the tradition of smooth intergenerational relations shaped by the school's atmosphere, Filipino social relations, and gender, could be observed (Bongco & Ancho, 2023). Moreover, classroom observation was seen as positive when feedback was given for development and stressful when seen as evaluative (Peña et al., 2026). Therefore, it can be inferred that although Filipino schools tend to show a lack of collegiality, it is because of a tradition of collegiality that fosters harmony.

3.4.3 Action Research as Peripheral Participation

Action research has found itself in a somewhat unclear position between individual and group learning. Teachers of mathematics in Catholic schools who participated in an action research course were placed on the outskirts of the research community, with little chance for formal socialization in scientific circles due to non-conducive material, social, and political factors (Valdez & Lapinid, 2015). Even though action research was acknowledged as helping teachers improve their teaching methods, students' learning, and the curriculum, teachers suffered from difficulties associated with writing reports and analyzing results, mentioned a lack of time, and stated that participation in action research is connected to their career growth in terms of getting higher ranks and making promotions (Aguilar-de Borja, 2018). Finally, science teachers have indicated that the lack of mentoring and institutional support was the main barrier to their development in action research, urging institutions to provide online training and analytics seminars (Walag et al., 2025). Overall, action research is widely implemented but poorly supported as a form of professional research.

3.5 Reflective Practice and Mentoring

3.5.1 Structured Reflection in Teacher Preparation

Explicitly theorized reflective practice emerged primarily in the context of pre-service training, and often in relation to the use of new technologies. Using Schön's differentiation between reflection-in-action and reflection-on-action, first-year pre-service mathematics teachers engaged in lesson planning using generative AI technologies, trained in comparative literacy skills before AI technologies, and working with prompts and AI outputs using their pedagogical judgment, maintaining humans' involvement in ensuring accuracy, curriculum compliance, and ethics (Farillon-Labis, 2025). Courses in the use of AI technologies for teaching that offered a combination of conventional lectures, hands-on training, collaborative lesson design, and reflective practice showed impressive results in different dimensions of the TPACK model in 84 pre-service science teachers, whose reflections highlighted their positive outcomes as well as the limitations of AI, including the ethical aspect and contextual limitations (Antonio, 2025). The second application of reflective practice in teacher education involved students' participation in an Appreciative Inquiry workshop, where they reframed negative self-talk into self-confidence and determination (Hilao-Valencia & Ortega-Dela Cruz, 2023).

3.5.2 Mentoring and Feedback in the Practicum

The practicum setting is where reflective practice combines with mentoring. Pre-service teachers experienced feedback not only as an evaluation process, but as a phenomenon that formed a body and a timeline, revealing students' readiness and growth (Tubal et al., 2025). Cebu public high school student teachers have learned that real-world practice differs greatly from the training setting, and that mentors are essential, even when communication skills are lacking (Origenes et al., 2024). Passive language participation does not connect to readiness for practicum among English pre-service students; active communication, proper mentoring, modeling, reflective feedback, and real-life teaching experiences do (Dimzon, 2026).

Mentoring activities of cooperating teachers have been analyzed and deliberated upon in great detail. Cooperating teachers of pre-service English teachers taught them how to observe and analyze practices, carry out questioning, and conduct formative and authentic assessment in line with assessment principles through discussions (Reyes, 2023). In mathematics, mentors of practice teachers demonstrated their performances and offered feedback while providing different assessment options and mentoring towards independence (Tandas, 2025). Using the Cooperating Teacher Mentoring Scale, which included 265 student teachers, Alia et al. (2025) identified three forms of mentoring. The analysis of the documents in the portfolio, which included lesson plans, observation materials, and reflective journals, revealed that practice teachers were familiar with the competencies of the PPST but could not adapt the lessons, manage the classroom, and use inclusive approaches to assessment, and that there was a need for a structured approach in this area.

3.5.3 Reflection Across the Career

There has been limited research into reflective practice during professional life. Teachers with between 15 and 30 years of experience tend to prefer self-reflection and self-development over mentoring, and they struggle to find common ground between their traditional teaching methods and the preferences of Generation Y learners (Aguirre & Faller, 2018). Reflection was indirectly included in collaborative practices, such as lesson study methodology (Espinosa & Elipane, 2025), the deeper reflection mentioned in collaborative lesson planning (Ebillo-Canalita & Jugar, 2025), or action research (Aguilar-de Borja, 2018).

4. The Pre-Service–In-Service Continuum

Studies of teacher preparation reveal how CPD needs are seeded before teachers enter service. Teacher education institutions were working to integrate the PPST into curricula but reported difficulties with instructional materials, outcomes-based assessment tools, and training seminars, and faculty and pre-service teachers disagreed in their ratings of competence in content and pedagogy, assessment, and community linkages (Atienza, 2026). Curriculum greening in early childhood education was regarded as vital, but its integration with PPST domains was only moderately evident, weakest for learner diversity (Lacea, 2026). Program-level studies proposed curriculum models to align technical-vocational teacher education with industry demands and emerging fields (Moreno et al., 2025), recommended integrating competencies benchmarked against international large-scale assessments through stronger content teaching and more pedagogical content knowledge courses (Espinosa et al., 2024), and developed outcomes-based instructional materials for professional education courses (Romarate et al., 2023).

Pre-service technical-vocational teachers rarely attend or complete program-related training or certification (Estubio & Sarsale, 2024), while alumni are highly satisfied with their training and call for more involvement in teaching and research (Bansiong & Alawas, 2024). Teacher educators' teaching styles influence pre-service teachers' views about their engagement, self-perception, and performance in mathematics (Awado et al., 2024), and pre-service physical education teachers find undergraduate research to be both a technical and emotional challenge, which requires a fusion of social-emotional and technical support (Tolentino et al., 2024).

The pandemic revealed vulnerabilities in the practicum process. Several pre-service teachers who did their student teaching through remote learning noted that the experience was difficult but limited due to issues of poor connection, technology issues, and lack of feedback provided (Camayang & Bautista, 2022), while another group of students revealed that they generally had a great experience thanks to familial and institutional help and the quality of the educational program they took part in (Arnilla et al., 2025). Online teachers noted that the transition to face-to-face classrooms after pandemic restrictions was both expected and shocking, as they learned classroom management and social interaction in real time (Lemana et al., 2026).

Table 2. Cross-Study Synthesis of Enablers, Constraints, and Evidence Strength by CPD Model

CPD model	Reported enablers	Reported constraints	Strength of evidence
In-service training (INSET, seminars, webinars, conferences)	Needs-based content; hands-on and interdisciplinary activities; post-training support; respectful, collaborative climate (Peligro et al., 2025; Vivero, 2025)	Content-heavy lectures; time, funding, workload; webinar fatigue; urban–rural access gaps (Concepcion, 2025; Dayagbil & Alda, 2024; Tanucan et al., 2023; Tupas & Noderama, 2020)	Mostly self-report surveys and interviews; two pre–post evaluations without controls (Antonio, 2025; Cordero et al., 2026)
PLCs, LACs, and communities of practice	Active leadership; committed membership; clear session objectives; support for new hires (Confesor & Belmi, 2022; Tayag, 2020; Vega & Orleans, 2025)	Overload; low trust; conflict with promotion schemes; difficulty choosing and executing plans (Tayag, 2020; Tulang et al., 2023)	Qualitative case studies and descriptive surveys; no outcome evaluation
Lesson study and collaborative lesson planning	Contextualised lessons; substantive collegial dialogue; teamwork (Ebillo-Canalita & Jugar, 2025; Ngiwas et al., 2022)	*Pakikisama* and *hiya* inhibit critique; scheduling; connectivity; unequal involvement (Agsalon et al., 2023; Espinosa & Elipane, 2025)	Small-team lesson studies and one validated model; no comparative designs
Reflective practice and mentoring	Dialogic, affective feedback; modelling; progressive independence; structured reflective tasks (Antonio, 2025; Tandas, 2025; Tubal et al., 2025)	Unstructured mentoring; judgemental feedback; restricted access to structured development (Ormilla, 2025; Peña et al., 2026)	Phenomenological studies; one validated mentoring scale (Alia et al., 2025)
Action research and research	Perceived value for teaching and promotion; mentoring; digital	Time; statistics and writing skills; peripheral participation;	Needs assessments and surveys; no evaluated

CPD model	Reported enablers	Reported constraints	Strength of evidence
capacity building	tools (Aguilar-de Borja, 2018; Walag et al., 2025)	scarce resources (Abella et al., 2024; Valdez & Lapinid, 2015)	research-mentoring programmes

Note. CPD = continuing professional development; INSET = In-Service Training for Teachers; PLCs = professional learning communities; LACs = Learning Action Cells.

5. Discussion

This review aims to collate empirical findings on CPD for educators in the Philippines. Overall, the 61 articles reviewed present a CPD system that is rich in policy, activity, and concept but poor in both design and impact. Based on this review, four interpretations emerge from the information collected.

5.1 From Episodic Training to Coherent Professional Learning Systems

The predominant finding of this research is that the prevailing pattern of Filipino CPD is episodic and transmissive. Content-based INSET (Tupas & Noderama, 2020), as well as the blooming number of webinars (Ancho & Arrieta, 2021; Tanucan et al., 2023) and the activities assessed as of little value (Padillo et al., 2021) is still accompanied by the real desire to develop (Dayagbil & Alda, 2024). The current conflict lies not between teachers and institutions but in the high volume of CPD provided. Teachers' appeals describe a lack of practical activities, feedback, need-based content, and time that should be provided under the episodic approach (Concepcion, 2025; Peligro et al., 2025; Walag et al., 2025). Many assessments in this study indicate diagnostic capacity; however, one gap remains: implementing programs after diagnosis. Coherence, therefore, can be understood as the process of aligning diagnosis, provision, and follow-up.

5.2 Collegiality Is Abundant; Critical Collaboration Is Scarce

The second conclusion relates to collaborative CPD. The reviewed investigations show that LACs, communities of practice, and lesson study can produce effective pedagogical and relational outcomes (Confesor & Belmi, 2022; Vega & Orleans, 2025). They also reveal that the intense relational culture found in schools has a dual character. The cultural constructs like *pakikisama* and hiya, which foster harmony and help people support each other, prevent open assessment critique, which is essential in collaborative inquiry (Espinosa & Elipane, 2025), while hierarchies, seniority, and the individualistic nature of promotion facilitate avoidance of open exchange (Bongco & Ancho, 2023; Tayag, 2020). Instead of regarding these ideas as limitations, the developers of CPD should make the best of them, for instance, through the use of structured protocols, with the help of which one can depersonalize the critique and redirect the focus of discussions from teachers to students and create relationships before providing an evaluation.

5.3 Reflection Is Concentrated at the Beginning of the Career

The third conclusion suggests that structured reflection is mainly limited to teacher training. Pre-service educators practice Schön's reflection theory, prepare portfolios, and maintain reflective journals while benefiting from measurable feedback from mentors (Alia et al., 2025; Farillon-Labis, 2025; Ormilla, 2025). After entering the profession, however, reflection becomes implicit and integrated into collaboration methods and action research, which teachers find challenging and inadequately supported (Aguilar-de Borja, 2018; Valdez & Lapinid, 2015). Experienced educators prefer private self-reflection over mentorship (Aguirre & Faller, 2018), while peer observation can cause anxiety because it is perceived as an evaluation process (Peña et al., 2026). The mentorship system for pre-service educators provides no support for novice and expert teachers, so reflection is not seen as necessary outside of training.

5.4 Research Capacity as a Cross-Cutting Gap

The fourth conclusion about the developmental gap across career stages is that research capability has been most consistently highlighted. For instance, basic education teachers, graduate students, teacher educators, and college students in teacher education have reported a consistent lack of confidence and effectiveness in research, especially in research writing and analysis. These individuals have expressed frustrations regarding the limited time, resources, and mentoring available to them while conducting research (Abella et al., 2024; Castulo et al., 2025; Tolentino et al., 2024; Walag et al., 2025). In fact, a researcher's results can be instrumental in academic promotion; hence, research CPD has significant implications for educators in the Philippines (Aguilar-de Borja, 2018; Tulo & Lee, 2022). Some encouraging solutions have been proposed, such as graduate courses integrated with research (Ulla et al., 2025) and virtual collaborative research writing (Villarama et al., 2025), although no research has assessed the effectiveness of a structured mentoring approach for teachers.

5.5 Implications for Policy and Practice

The implications for Philippine policymakers are as follows. For DepEd, it is advisable to shift INSET from content-delivery sessions to a cycle of instructional technology sessions based on identified needs and including follow-ups. Workshop sessions organized under DepEd Order No. 35, series of 2016, should also be evidence-based. Implementing evidence-oriented learning or inquiry is an important requirement (Dayagbil & Alda, 2024; Tayag, 2020). Teacher observations are implemented under the RPMS and PPST programs.

According to the findings, the Professional Regulation Commission and the continuing professional development providers under RA No. 10912 must not confuse the total number of CPD units with their corresponding significance in professional learning. Accreditation may reward ongoing, integrated, and evaluated programs instead of one-off activities and prevent over-training, which the teacher reported as burnout (Tanucan et al., 2023). The Commission on Higher Education and teacher education institutions may consider evidence that points in favor of making the practicum more robust through organized mentoring, implementing tools like the Cooperating Teacher Mentoring Scale (Alia et al., 2025), and including PPST competencies in teaching materials and curricula (Atienza, 2026; Ormilla, 2025). In compliance with RA No. 11713, teacher education institutions and the Department of Education (DepEd) may collaborate to develop induction programs for graduates whose preparation was affected by circumstances (Lemana et al., 2026). Finally, equality should be maintained since educators in out-of-the-way places had significant difficulties in accessing professional development programs (Concepcion, 2025; Vega & Orleans, 2025), which will be achieved as a result of the extension work of teacher education institutions (Daminar & Galusan, 2025; Martin & Ildefonso, 2025).

6. Limitations

There are limitations to this review. In particular, the search was limited to a single database and to articles with at least one author affiliated with an institution in the Philippines. While this ensures a comprehensive review of studies conducted within the Philippines, it may overlook important findings published under another author's name or by an author with no affiliation with the Philippine system. Further complicating matters, limiting the search to articles mostly in the social sciences and arts and humanities may exclude studies written in fields not included in the review. In addition, the keywords chosen may yield some irrelevant articles. Some articles will have to be removed because they address unrelated studies in the field of coaching. This highlights a problem: broad search terms can return many articles but reduce precision. Finally, some included articles are published in journals with different editorial policies, and readers should take that into account.

7. Directions for Future Research

The gaps identified point to a clear research agenda. First, the field needs evaluations of CPD programs, ideally with comparison groups, longitudinal follow-up, and measures of observed teaching practice and student learning, to move beyond needs assessment and self-reported benefit. Second, research should examine how collaborative models can be adapted to Filipino relational values, for instance by testing structured critique protocols within LACs and lesson study. Third, studies of induction and early-career mentoring are notably absent and are needed to connect the practicum to in-service development. Fourth, sustained in-service reflective practice, including instructional coaching and video-based reflection, remains unexamined. Fifth, research capacity-building programmes for in-service teachers should be designed and evaluated, given the centrality of research to promotion. Finally, studies of school heads as designers and leaders of CPD, and of CPD in Indigenous, island, and conflict-affected communities, would strengthen the equity dimension of the evidence base.

8. Conclusion

This systematic review examined 61 empirical studies listed in Scopus on continuing professional development among Filipino educators. Findings indicate that while there is a profession of education that embraces growth and a policy system that promotes that growth, the CPD system itself is still heavily reliant on episodic and content-based training; it is even employing collaborative models; however, the implementation of those models did not undergo the necessary transformations to fit into Filipino schools' culture; this explains the promotion of reflection and mentoring either in preparation or at the capacity of some other stages of CF development; however, research in this area is underfunded at every level of institutionalization.

Although evidence on CPD in the Philippines is relatively young and expanding, this work still relies on one-organization and self-assessment studies, as well as needs-assessment findings. In order for the implications of CPD policy structure in place in the Philippines to be translated into real teaching practice, coherent, culturally sensitive, and career-long learning programs need to be developed.

References

Abella, J. Y., Cadorna, E. A., Taban, J. G., & Ramirez, L. V. (2024). An assessment of Filipino public school teachers' research competence: A basis for an enhancement professional development programme. *International Journal of Learning, Teaching and Educational Research*, *23*(12), 258–278.

https://doi.org/10.26803/ijlter.23.12.14

Agsalon, J. C. D., Anore, J. M., Salinas, H. A., Dipasupil, P. P., & Lapinid, M. R. C. (2023). Utilizing lesson study in teaching synthetic division for procedural fluency in a post-pandemic classroom. *Infinity Journal*, *12*(2), 193–206. https://doi.org/10.22460/infinity.v12i2.p193-206

Aguilar-de Borja, J. M. (2018). Teacher action research: Its difficulties and implications. *Humanities & Social Sciences Reviews*, *6*(1), 29–35. https://doi.org/10.18510/hssr.2018.616

Aguirre, E. B., & Faller, S. D., Jr. (2018). Lived stories of mid-career teachers: Their struggles with millennial learners in the Philippines. *Journal of Educational and Social Research*, *8*(1). https://doi.org/10.2478/jesr-2018-0005

Alia, L. C., Magday, E. R. J., & Palompon, D. R. (2025). Development and validation of a cooperating teacher mentoring scale for student teachers. *International Journal of Evaluation and Research in Education*, *14*(3), 2381–2388. https://doi.org/10.11591/ijere.v14i3.31565

Ancho, I. V., & Arrieta, G. S. (2021). Filipino teacher professional development in the new normal. *Education and Self Development*, *16*(3), https://doi.org/10.26907/esd.16.3.04

Antonio, R. (2025). Fostering preservice science teachers' AI-TPACK competence and reflections through an AI-focused pedagogical learning course. *Journal of Technology and Science Education*, *15*(3), 784-809. https://doi.org/10.3926/jotse.3693

Araneta, M. L. R., Catalan, R. D., & Martir, E. M. (2020). Administrative support and teaching quality: Inputs to professional development program. *Journal of Higher Education Theory and Practice*, *20*(6). https://doi.org/10.33423/jhetp.v20i6.3134

Arnilla, A. K., Samar, A. C. R., Sarabia, T. J. A., Gonzaga, F. M. S., & Salazar, C. F. (2025). Resilience in crisis: A mixed-methods analysis of pre-service teachers' sentiments on remote learning and practice teaching experience. *Journal of Education and e-Learning Research*, *12*(2), 320–326. https://doi.org/10.20448/jeelr.v12i2.6895

Atienza, R. D. (2026). Attuning pre-service teachers' competencies in the context of Philippine professional standards for teachers. *International Journal of Education and Practice*, *14*(1), 43–62. https://doi.org/10.18488/61.v14i1.4579

Awado, T. M., Abalos, T. J., Pelago, H. R., Morales, V., Torres, J. G., Milano, M. L., Hallarte, D. K., Gonzales, R., & Gonzales, G. (2024). Impact of teaching style on perceived mathematics achievement of elementary education preservice teachers: The mediating roles of attitude and math self-concept. *Discover Education*.

Bansiong, A. J., & Alawas, D. E. (2024). Alumni's retrospective evaluation of their undergraduate secondary teacher education training. *Mountain Journal of Science and Interdisciplinary Research*, *84*(1), 46–65.

Bongco, R. T., & Ancho, I. V. (2023). Smooth intergenerational relationship building among Filipino teachers: A grounded theory. *Asia Pacific Journal of Educators and Education*, *38*(1), 97–117. https://doi.org/10.21315/apjee2023.38.1.6

Borbon, N. M. D., Alcoba, R. C., Palupit, A. D., Alfaro, C. M., Repollo, N. A. M., Vizconde, A. M. L., & Samaniego, A. S. (2025). Exploring the lived experiences of teachers with international macro exposure: Impacts on professional identity, pedagogy, and global educational perspectives. *International Journal of Learning, Teaching and Educational Research*, *24*(3), 480–499. https://doi.org/10.26803/ijlter.24.3.23

Briones, J. H. (2025). Historical awareness of social science teachers in Albay community colleges. *Humanities, Arts and Social Sciences Studies*, *25*(1), 140–149. https://doi.org/10.69598/hasss.25.1.271895

Camayang, J. G., & Bautista, R. G. (2022). Teaching in the midst of the pandemic: Insights and perspectives from the lenses of the pre-service teachers. *International Journal of Evaluation and Research in Education*, *11*(4), 1664–1672. https://doi.org/10.11591/ijere.v11i4.23016

Castulo, N. J., Marasigan, A. C., Buenaventura, M. L. D., de Vera, J. L., Bagaporo, E. C., San Juan, M. P. C., & Dalida, N. S. (2025). Contextualizing the challenges of education graduate students in the Philippines: Translating needs analysis into strategic solutions. *Discover Education*.

Concepcion, G. L. (2025). State-facilitated development support: Precursor to higher education teachers' positive professional outlook. *Environment and Social Psychology*, *10*(2). https://doi.org/10.59429/esp.v10i2.3261

Confesor, R. F., & Belmi, R. M. (2022). Structure, activities and teacher development in the Philippine science teachers' community of practice. *International Journal of Learning, Teaching and Educational Research*, *21*(6), 71–89. https://doi.org/10.26803/ijlter.21.6.5

Cordero, E. M., Rafols, R. C. J. D., Rivera, H. J. L., Farillon-Labis, S. J., & Nietes, A. M. (2026). Shifts in

digital immigrant educators' perceived needs for AI integration: Evidence from a professional development seminar in Philippine higher education. *International Journal of Learning, Teaching and Educational Research*, *25*(4), 329–350. https://doi.org/10.26803/ijlter.25.4.16

Cutillas, A. L., Orquia, C. J. B., Bacalso, F. D., Villamor, F. E., & Paclipan, C. P. (2025). Building confidence and updated mindset of science and tech teachers through professional development training techniques in the science-industry settings. *Environment and Social Psychology*, *10*(6). https://doi.org/10.59429/esp.v10i6.3460

Daminar, N. L., & Galusan, C. D. (2025). School teachers training needs assessment: Basis for community extension in a rural high school in the Philippines. *Journal of Education and Learning (EduLearn)*, *19*(4), 1786–1794. https://doi.org/10.11591/edulearn.v19i4.22495

Dayagbil, F., & Alda, R. (2024). Continuing professional development opportunities: Teachers' motivation and perceived effectiveness. *International Journal of Education and Practice*, *12*(3), 584–595. https://doi.org/10.18488/61.v12i3.3733

Dimzon, S. D. (2026). Preparing future English educators for the teaching practicum: Examination of communicative engagement, mentorship, and language exposure. *Cineforum*, *66*(S2).

Ebillo-Canalita, E., & Jugar, R. R. (2025). Development and evaluation of a collaborative lesson planning model for science teacher internships. *International Journal of Learning, Teaching and Educational Research*, *24*(6), 588–608. https://doi.org/10.26803/ijlter.24.6.27

Espinosa, A. A., & Elipane, L. E. (2025). Cultural and linguistic factors in the effective use of lesson study with mathematics and science teachers in the Philippines. *International Journal of Innovation in Science and Mathematics Education*, *33*(1), 29–50.

Espinosa, A. A., Gomez, M. A. C., Miranda, P. A., David, A. P., Macahilig, H. C., Reyes, A. S., Cortez, L. A. S., Palomar, B. C., de Vera, J. L., Patal, M. C., & San Juan, M. P. C. (2024). Integrating the key competencies of international large-scale assessment (ILSA) into the teacher-education curriculum in the Philippines. *Journal of Teaching and Learning*, *18*(2), 173–193. https://doi.org/10.22329/jtl.v18i2.8898

Estubio, M. S., & Sarsale, M. S. (2024). Exploring the preparedness and competence level of pre-service TVET teachers using knowledge, skills, and attitude model. *Journal of Technical Education and Training*, *16*(3). https://doi.org/10.30880/jtet.2024.16.03.014

Farillon-Labis, S. J. (2025). Exploring pre-service mathematics teachers' reflections in lesson planning with generative artificial intelligence. *International Journal of Learning, Teaching and Educational Research*, *24*(11), 334–355. https://doi.org/10.26803/ijlter.24.11.16

Hilao-Valencia, P. M., & Ortega-Dela Cruz, R. A. (2023). Appreciative inquiry approach and its effects on English oral communication skills of teacher education students. *MEXTESOL Journal*, *47*(1).

Junio-Sabio, C., Manalo, M. M., & Vigonte, F. G. (2020). Determining students' learning outcomes in basic education: A proposed CPD for teachers. *International Journal of Information and Education Technology*, *10*(1). https://doi.org/10.18178/ijiet.2020.10.1.1340

Lacea, R. L. (2026). Views of ECE experts and teaching interns on curriculum greening and its alignment with the Philippine professional standards for teachers. *Journal of Education and E-Learning Research*, *13*(3), 93–99. https://doi.org/10.20448/jeelr.v13i3.9315

Lemana, H. E., II, Barron, K. R. O., & Ahmad, C. V. (2026). From online interns to on-site educators: A phenomenological study of Filipino teachers' professional identity reconfigurations. *Human Behavior, Development and Society*, *27*(2), Article 285019. https://doi.org/10.62370/hbds.v27i2.285019

Martin, M. D. M., & Ildefonso, L. D. C. (2025). Literacy extension programs of higher education institution in the Philippines: Insights from stakeholders. *International Journal of Evaluation and Research in Education*, *14*(1), 544–556. https://doi.org/10.11591/ijere.v14i1.29736

Moreno, N. I., Callueng, R. Z., & Portez, A. P. (2025). Exploring technical vocational teacher education: Inputs to curriculum model development. *Journal of Technical Education and Training*, *17*(2). https://doi.org/10.30880/jtet.2025.17.02.006

Ngiwas, F. D. C. A., Mariano, D. L. F., Barsana, J. G., Cruz, M. P., & Elipane, L. (2022). Example–conclusion map in teaching simple interest: A lesson study. *International Journal of Evaluation and Research in Education*, *11*(1), 377–384. https://doi.org/10.11591/ijere.v11i1.21560

Origenes, R. W., Bendebel, G. A., Tadios, I. L., & Debalucos, J. A. (2024). Exploring the experiences and perspectives of student teachers teaching in Mabolo National High School, Cebu City, Philippines.

Malaysian Journal of Learning and Instruction, *21*(2), 1–21. https://doi.org/10.32890/mjli2024.21.2.1

Ormilla, R. C. G. (2025). Bridging the gap: A qualitative analysis of the Philippine Professional Standards for Teachers and teaching internship experiences of practice teachers. *International Journal of Learning, Teaching and Educational Research*, *24*(9), 509–522. https://doi.org/10.26803/ijlter.24.9.25

Padillo, G. G., Manguilimotan, R. P., Capuno, R. G., & Espina, R. C. (2021). Professional development activities and teacher performance. *International Journal of Education and Practice*, *9*(3), 497–506. https://doi.org/10.18488/journal.61.2021.93.497.506

Pamintuan, C. F. (2021). Reducing the impact of pandemic on Chinese language education in the Philippines through the localization of Chinese teachers. *International Journal of Language Education*, *5*(4), 271–284. https://doi.org/10.26858/ijole.v5i4.19320

Peligro, V. C., Antivo, E. D. S., Cañeda, M. E., Eviota, M. P., Verdeflor, R. N., & Sintos, J. R. (2025). Training designs that affect motivation and intellectual progression of science, engineering, and mathematics teachers. *Environment and Social Psychology*, *10*(6). https://doi.org/10.59429/esp.v10i6.3308

Peña, J. T., Malit, J. M., Pineda, E. M., & Deluta, V. J. M. (2026). Classroom observation in a time of reform: A phenomenological study of public elementary school teachers' experiences in the Schools Division of Pampanga, Philippines. *International Journal of Learning, Teaching and Educational Research*, *25*(9), 28–50. https://doi.org/10.26803/ijlter.25.9.2

Reyes, C. D. (2023). Emerging assessment practices cooperating teachers shared with preservice English teachers in the Philippines. *International Journal of Learning, Teaching and Educational Research*, *22*(1), 361–376. https://doi.org/10.26803/ijlter.22.1.20

Romarate, M. A., Aquino, A. B., Punongbayan, E. J., Quizon, G. R., Balilla, L. A., & Ramos, N. P. (2023). Development of outcomes-based instructional materials in professional teacher education courses for a flexible set-up. *Journal of Education and e-Learning Research*, *10*(1), 61–67. https://doi.org/10.20448/jeelr.v10i1.4378

Sintos, J. R. (2026). Engagement and performance disparity in hybrid graduate professional development: A mixed methods study. *Discover Education*, *5*, Article 307. https://doi.org/10.1007/s44217-026-01345-9

Tandas, J. B. (2025). Classroom assessment practices of practice teachers and mentoring support of cooperating teachers: Inputs for a school-based enhancement program in the Philippines. *International Journal of Learning, Teaching and Educational Research*, *24*(12), 66–96. https://doi.org/10.26803/ijlter.24.12.4

Tanucan, J. C. M., Uytico, B. J., Cabarse, J. R., & Wider, W. (2023). Understanding the phenomenon of webinar fatigue as experienced by Filipino professional teachers. *Journal of Educational and Social Research*. https://doi.org/10.36941/jesr-2023-0108

Tayag, J. R. (2020). Professional learning communities in schools: Challenges and opportunities. *Universal Journal of Educational Research*, *8*(4), 1529–1534. https://doi.org/10.13189/ujer.2020.080446

Tolentino, J. C. G., Valenzuela, L. R., & Cruz, S. L., Jr. (2024). Research experience through the lens of undergraduate Filipino pre-service physical educators: An interpretative hermeneutic phenomenological study. *International Journal of Learning, Teaching and Educational Research*, *23*(6), 306–326. https://doi.org/10.26803/ijlter.23.6.14

Tubal, F. S. C., Saluta, R. M. B., Cabrido, C. B., & Embang, S. I. (2025). Pre-service teachers' lived experiences with feedback and its role in their professional becoming. *International Journal of Learning, Teaching and Educational Research*, *24*(9), 628–648. https://doi.org/10.26803/ijlter.24.9.31

Tulang, A. B., Anaviso, M. B., & Barbasan, G. A. (2023). Patterns of teaching and learning styles in a virtual school-based learning action cell. *International Journal of Instruction*, *16*(3), 729–744. https://doi.org/10.29333/iji.2023.16339a

Tulo, N. B., & Lee, J. (2022). Continuing professional development of the teacher education faculty among Philippine state universities and colleges. *International Journal of Learning, Teaching and Educational Research*, *21*(6), 324–344. https://doi.org/10.26803/ijlter.21.6.19

Tupas, F. P., & Noderama, R. P. (2020). Looking into in-service training for teachers in the Philippines: Are they gearing towards Education 4.0? *Universal Journal of Educational Research*, *8*(10), 4651–4660. https://doi.org/10.13189/ujer.2020.081034

Ulla, M. B., Tarrayo, V. N., Wakat, G. S., & Bolintao, J. M. (2025). Roots and routes: The teaching and research nexus in English language education from an ecological perspective. *TEFLIN Journal*, *36*(2), 303–322. http://dx.doi.org/10.15639/teflinjournal.v36i2/303-322

Valdez, D. J. C., & Begnalen, N. B. (2026). Competency-based training for non-early childhood education teachers. *International Journal of Learning, Teaching and Educational Research*, *25*(4), 1173–1191. https://doi.org/10.26803/ijlter.25.4.51

Valdez, P. N., & Lapinid, M. R. (2015). Constraints of math teachers' in conducting action research in the Philippines: Rights analysis. *Malaysian Journal of Learning and Instruction*, *12*, 1–19.

Valle, L. (2024). Reimagining mathematics education: Identifying training needs and challenges among public elementary school teachers post-pandemic. *International Journal of Education and Practice*, *12*(3), 527–539. https://doi.org/10.18488/61.v12i3.3723

Vega, M. G. A., & Orleans, A. V. (2025). Learning action cell as an in-house professional development training. *Journal of Education and Learning (EduLearn)*, *19*(4), 1814–1828. https://doi.org/10.11591/edulearn.v19i4.22853

Villarama, J. A., Fabros, B. G., Dela Fuente, A. V., Dela Cruz, L. M. M. V., Jardiel, R. D. G., & Neupane, B. P. (2025). Understanding the nuances of virtual collaborative research writing among teacher-researchers in Asia-Pacific Region. *International Journal of Evaluation and Research in Education*, *14*(5), 3642–3649. https://doi.org/10.11591/ijere.v14i5.34686

Vivero, P. M. (2025). Promoting productive academic conferences: Educators' perceptions through the Interpersonal Alliance Model. *Environment and Social Psychology*, *10*(11) https://doi.org/10.59429/esp.v10i11.4259

Walag, A. M. P., Madronero, J. M., Tapay, A. G. Q., Sales, G. M. G., & Malawi, N. M. (2025). Technology-enhanced action research training for science teachers: An explanatory sequential mixed-methods needs assessment. *Journal of Educational Technology and Learning Creativity*, *3*(2), 269–281. https://doi.org/10.37251/jetlc.v3i2.2301

Appendix A

Characteristics of the 61 Included Studies

Study	Design	Participants and setting	CPD focus	Key findings
Abella et al. (2024)	Mixed methods	440 public school teachers, Ilocos Sur	In-service (research competence)	High self-rated competence, low productivity; teaching load main hindrance; research training programme proposed
Agsalon et al. (2023)	Lesson study	4 teachers; HyFlex class	PLC (lesson study)	Lesson revised for procedural fluency; scheduling and connectivity constrained cycles
Aguilar-de Borja (2018)	Mixed methods	27 high school teachers, Calamba	Reflective (action research)	Framework writing hardest; time and statistics barriers; AR improved teaching and promotion prospects
Aguirre & Faller (2018)	Phenomenological case study	Mid-career university teachers, Leyte	Reflective (self-development)	Preference for self-reflection over mentoring; divide with millennial learners
Alia et al. (2025)	Instrument validation (EFA)	265 student teachers, Philippine HEIs	Mentoring	Three-factor Cooperating Teacher Mentoring Scale validated
Ancho & Arrieta (2021)	Qualitative	Filipino teachers, pandemic period	In-service	TPD seen as lifelong learning; pandemic CPD shifted to webinars
Antonio (2025)	Pre–post with interviews	84 pre-service science teachers, Bulacan	Reflective (AI-TPACK course)	Significant AI-TPACK gains (large effect); reflective affordances and constraints
Araneta et al.	Quantitative	384 school heads and	In-service	Very high administrative

(2020)	survey	teachers, Iloilo	(inputs to PD)	support related to teaching quality; learner diversity weakest
Arnilla et al. (2025)	Mixed methods	81 practice teachers, Aklan	Pre-service (practicum)	Mostly positive sentiments; resilience supported by family, institution, training
Atienza (2026)	Descriptive mixed methods	60 faculty, 335 pre-service teachers, Batangas	Pre-service (PPST)	PPST integration hindered by materials, assessment tools, training; programme proposed
Awado et al. (2024)	PLS-SEM	444 pre-service elementary teachers, central Philippines	Pre-service	Teacher educators' teaching style predicted attitude, self-concept, achievement
Bansiong & Alawas (2024)	Tracer survey	602 BSEd alumni, Benguet	Pre-service	High satisfaction; calls for authentic pedagogy, research exposure, facilities
Bongco & Ancho (2023)	Grounded theory	20 multigenerational teachers	PLC (collegial relations)	Smooth intergenerational relationships unlock collegial PD resources
Borbon et al. (2025)	Phenomenology	10 teacher educators with international exposure	In-service (international PD)	Shift to student-centred, technology-rich, global pedagogy
Briones (2025)	Descriptive mixed methods	Social science faculty, Albay community colleges	In-service (training needs)	Moderate awareness of historical distortion; workshops and symposia requested
Camayang & Bautista (2022)	Phenomenology	18 pre-service teachers, Quirino	Pre-service (practicum)	Remote student teaching superficial; connectivity, gadgets, feedback lacking
Castulo et al. (2025)	Quantitative survey	198 education graduate students	In-service (graduate study)	Interest but low research confidence; time, mentoring, capacity-building gaps
Concepcion (2025)	Qualitative interviews	25 college teachers, Biliran	In-service (state-facilitated PD)	PD supported resilience and satisfaction; workload and urban–rural gaps persist
Confesor & Belmi (2022)	Multiple-case study	4 exemplary schools across regions	PLC (community of practice)	Leadership, membership, interaction enable CoPs; collaborative, adaptive teachers
Cordero et al. (2026)	Explanatory mixed methods, pre–post	30 digital-immigrant faculty	In-service (AI seminar)	Significant reduction in perceived AI needs; renewed confidence
Cutillas et al. (2025)	Qualitative	25 science teachers, Central Visayas	In-service (industry-based PD)	Industry exposure built confidence, curricular relevance, interdisciplinarity
Daminar & Galusan (2025)	Survey with FGD	Teachers, rural high school, Caraga	In-service (training needs)	Priority needs include research writing and digital media skills
Dayagbil & Alda (2024)	Quantitative survey	1,063 teachers, Central Visayas	In-service (CPD)	Varied PD; time, funding, workload hinder; needs-based PD valued

Dimzon (2026)	Explanatory mixed methods	69 pre-service English teachers, Iloilo	Mentoring (practicum)	Mentorship and engagement, not exposure, built practicum readiness
Ebillo-Canalita & Jugar (2025)	Concurrent nested mixed methods	31 pre-service, 17 in-service science teachers	Reflective (collaborative lesson planning)	Validated model improved lessons, teamwork, reflection; time constraints
Espinosa & Elipane (2025)	Case study (6 months)	4 mathematics and science teachers, low-SES school	PLC (lesson study)	*Pakikisama* and *hiya* inhibited critique; language shaped reflection
Espinosa et al. (2024)	Descriptive-dev elopmental	Teacher education faculty, PNU	Pre-service (curriculum)	Framework integrating ILSA competencies into teacher education
Estubio & Sarsale (2024)	Descriptive survey	143 pre-service TVET teachers	Pre-service	Few certifications; uneven competence across TVET areas
Farillon-Labis (2025)	Qualitative, reflexive TA	30 pre-service mathematics teachers, Iloilo	Reflective (GenAI lesson planning)	Five reflective themes; human oversight emphasised
Hilao-Valencia & Ortega-Dela Cruz (2023)	Intervention workshop	11 teacher education students, Laguna	Pre-service	Appreciative Inquiry raised motivation and self-confidence
Junio-Sabio et al. (2020)	Document analysis	NAT results 2013–2018, one elementary school	In-service (CPD plan)	Declining outcomes; CPD plan proposed
Lacea (2026)	Quantitative descriptive	ECE experts and teaching interns, Cebu	Pre-service (curriculum)	Curriculum greening valued; PPST integration moderate
Lemana et al. (2026)	Transcendental phenomenology	5 novice teachers trained online, Sultan Kudarat	Pre-service (practicum transition)	Online-to-onsite transition staggering; identity reconfigured
Martin & Ildefonso (2025)	Descriptive evaluation	Elementary teachers in 3 extension programmes, Ifugao	In-service (extension training)	Programmes effective; outdated materials, time, logistics issues
Moreno et al. (2025)	Exploratory sequential mixed methods	BTVTEd experts nationwide	Pre-service (curriculum model)	Curriculum–industry misalignment; new BTVTEd model proposed
Ngiwas et al. (2022)	Lesson study	Teacher team; SHS class	PLC (lesson study)	Example–conclusion map deepened understanding of simple interest
Origenes et al. (2024)	Phenomenology	40 student teachers, Cebu City	Pre-service (practicum)	Reality shock; supportive mentors essential
Ormilla (2025)	Documentary analysis with interviews	42 practice teachers, Ifugao	Reflective (portfolios, PPST)	PPST awareness with application gaps; internship enhancement programme proposed
Padillo et al. (2021)	Quantitative descriptive	University teachers, Cebu	In-service (PD activities)	PD perceived as low benefit; no link with competencies
Pamintuan (2021)	Document review	Policies and training plans	In-service (training models)	Three local Chinese-teacher training modes sustained instruction

Peligro et al. (2025)	Descriptive qualitative	40 SEM educators, Mindanao and Samar	In-service (training design)	Hands-on, interdisciplinary training; post-training support needed
Peña et al. (2026)	Phenomenology with document analysis	24 elementary teachers, Pampanga	PLC (classroom observation)	Observation developmental yet stressful; observer training needed
Reyes (2023)	Qualitative case study	8 cooperating teachers, Pampanga	Mentoring (assessment)	Cooperating teachers modelled formative and authentic assessment
Romarate et al. (2023)	Descriptive-developmental	38 faculty, 655 pre-service teachers, Batangas	Pre-service (materials)	Outcomes-based instructional materials developed and validated
Sintos (2026)	Mixed methods	26 graduate mathematics educators, Samar	In-service (hybrid graduate PD)	Face-to-face outperformed online; engagement quality decisive
Tandas (2025)	Mixed-methods developmental	19 mathematics practice teachers, Ifugao	Mentoring (assessment)	Mentoring by modelling and feedback; school-based programme proposed
Tanucan et al. (2023)	Hermeneutic phenomenology	39 professional teachers	In-service (webinars)	Webinar fatigue harmed wellbeing and learning retention
Tayag (2020)	Interviews and FGDs	40 teachers, 24 school heads, 4 schools	PLC	Overload, low trust, promotion conflicts; gains for new hires and practice
Tolentino et al. (2024)	Hermeneutic phenomenology	10 pre-service PE teachers, Pampanga	Pre-service (research)	Research demanding emotionally and technically; holistic support needed
Tubal et al. (2025)	Phenomenology	10 pre-service teachers, Northern Mindanao	Reflective (feedback)	Feedback embodied and relational; dialogic feedback recommended
Tulang et al. (2023)	Survey with EFA	97 teachers, 16 primary schools	PLC (virtual LAC)	Specialist–member style patterns; difficulty executing LAC plans
Tulo & Lee (2022)	Mixed methods	222 teacher education faculty, SUCs	In-service (CPD)	Low CPD engagement; rank-related participation
Tupas & Noderama (2020)	Qualitative document analysis	DepEd INSET, SY 2019–2020	In-service (INSET)	Content-based, few hands-on activities; no Education 4.0 topics
Ulla et al. (2025)	Survey and interviews	Filipino ELE graduate students	In-service (graduate study)	Teaching–research nexus supported growth in research and teaching
Valdez & Begnalen (2026)	Research and development	199 K–3 teachers, Abra	In-service (PPST-based training)	Gaps in content-pedagogy and learner diversity; validated training
Valdez & Lapinid (2015)	Rights analysis	13 mathematics teachers, Manila	PLC (action research, CoP)	Teachers positioned at periphery of research community
Valle (2024)	Descriptive survey	68 elementary mathematics teachers	In-service (training needs)	Difficulties in content and technology across experience levels

Vega & Orleans (2025)	Survey and case study	403 science teachers, remote regions	PLC (LAC)	LAC built collaboration, leadership, pedagogical proficiency
Villarama et al. (2025)	Hermeneutic phenomenology	Teacher-researchers, Asia-Pacific incl. Philippines	PLC (virtual collaboration)	Virtual collaborative writing built skills and productivity
Vivero (2025)	Mixed survey	104 educators, Eastern Visayas	In-service (conferences)	Conferences valued for trends, collaboration, respectful climate
Walag et al. (2025)	Explanatory sequential mixed methods	24 science teachers, Cagayan de Oro	In-service (research training needs)	Low confidence in analysis and writing; mentoring and structures lacking

Note. AR = action research; CoP = community of practice; ECE = early childhood education; EFA = exploratory factor analysis; ELE = English language education; FGD = focus group discussion; HEI = higher education institution; ILSA = international large-scale assessment; LAC = Learning Action Cell; NAT = National Achievement Test; PLC = professional learning community; PLS-SEM = partial least squares structural equation modelling; PPST = Philippine Professional Standards for Teachers; SEM = science, engineering, and mathematics; TA = thematic analysis; TPD = teacher professional development; TVET = technical-vocational education and training.

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Paradigm Academic Press
Research and Advances in Education
ISSN 2788-7057
SEP. 2026 VOL.5, NO.3

Negotiating Education Amid Insurgency: Community Agency, Resilience, and Coping Mechanisms in Muyuka Sub-Division, Cameroon

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doi:10.63593/RAE.2788-7057.2026.09.005

Abstract

The prolonged insurgency in Cameroon's North-West and South-West Regions has profoundly disrupted formal education, exposing children and educational institutions to insecurity, displacement, economic hardship, and psychosocial distress. This study examines how communities in Muyuka Sub-Division have responded to the disruption of formal schooling, with particular attention to community agency, resilience, and coping mechanisms. The study adopts a qualitative approach to examine the ways in which parents, teachers, community leaders, and other local actors negotiate educational continuity amid conflict. The findings reveal that insurgency has disrupted school attendance, teaching and learning, teacher availability, educational infrastructure, and children's psychosocial well-being. Nevertheless, communities have demonstrated considerable agency by mobilising social networks, local resources, alternative learning arrangements, informal teaching, remedial education, psychosocial support, and other adaptive strategies. These mechanisms have helped sustain educational opportunities and mitigate some immediate consequences of prolonged school disruption. However, their effectiveness remains constrained by insecurity, inadequate resources, limited infrastructure, uneven access, and the absence of stable institutional support. The study therefore argues that community-based educational responses should be understood as important but inherently limited mechanisms of resilience rather than substitutes for formal education or State responsibility. Sustainable educational recovery in Muyuka requires a complementary approach that strengthens community initiatives while restoring educational infrastructure, supporting teachers, expanding psychosocial services, improving security, and ensuring sustained institutional and financial investment. The study concludes that meaningful educational recovery in insurgency-affected communities depends on transforming community resilience into a supported component of a broader, inclusive, secure, and sustainable educational recovery framework.

Keywords: community agency, resilience, insurgency, coping mechanisms, Muyuka-Cameroon

1. Introduction

Education constitutes one of the most consequential institutions through which societies reproduce knowledge, cultivate human capabilities, transmit cultural values, and prepare younger generations for participation in social, economic, and political life. Its significance becomes even more pronounced in contexts characterized by armed conflict and protracted insecurity, where education can provide children with a measure of normalcy, psychosocial stability, social belonging, protection, and hope for the future. Yet conflict simultaneously exposes educational systems to profound vulnerabilities. Schools may be destroyed, occupied, abandoned, or rendered inaccessible; teachers may flee or become victims of violence; learners may be displaced; educational materials

may become scarce; and households confronted with insecurity and economic deprivation may be compelled to prioritize immediate survival over schooling. Education in conflict-affected environments should therefore not be conceptualized merely as a casualty of violence but as a critical social institution whose disruption generates far-reaching consequences for individual development, community stability, and post-conflict reconstruction (Burde et al., 2017).

The relationship between insurgency and education is, however, neither linear nor exclusively destructive. Although armed conflict can dismantle formal educational structures, affected populations frequently devise alternative strategies through which learning can be preserved, adapted, or reconstructed. Parents may assume instructional responsibilities, teachers may continue teaching through informal arrangements, religious institutions may provide alternative learning spaces, community leaders may facilitate access to educational opportunities, and families may rely upon peer learning, household instruction, radio-based education, or other flexible modalities. Education may consequently become an arena in which communities negotiate continuity in the midst of disruption. This suggests that the educational consequences of insurgency cannot be adequately understood by examining only school closures, attacks, displacement, or institutional collapse.

Attention must equally be directed towards the actions, decisions, relationships, and locally generated strategies through which affected populations attempt to preserve educational opportunities under conditions of uncertainty. Indeed, education in emergencies may simultaneously function as a mechanism of protection, socialisation, psychosocial support, and restoration of routine, thereby giving it a significance that extends beyond the conventional transmission of academic knowledge (Burde et al., 2017).

Within this context, the concepts of community agency, resilience, and coping mechanisms become particularly important. Community agency refers to the capacity of individuals and collective actors to make decisions, mobilize resources, exercise influence, and act purposefully despite structural constraints. Resilience, by contrast, concerns the processes through which individuals, households, institutions, and communities adapt to adversity while sustaining, restoring, or transforming valued functions. Coping mechanisms refer more specifically to the strategies through which individuals and communities manage immediate or continuing pressures generated by adverse circumstances. These concepts are closely interconnected, but they should not be treated as synonymous. Agency concerns the capacity to act; resilience concerns adaptive processes and outcomes in the face of adversity; while coping refers to practical strategies employed to manage difficult circumstances. Such distinctions are particularly important in conflict-affected educational environments because they allow analysis to move beyond the simplistic assumption that communities either collapse under adversity or successfully "bounce back" from it. Resilience is embedded within social, cultural, material, and institutional contexts, and its expression depends substantially upon the availability of resources and the capacity of affected populations to access and utilize those resources in meaningful ways (Ungar, 2011, 2013).

The increasing prominence of resilience within education-in-emergencies scholarship nevertheless warrants critical consideration. Although resilience provides a valuable framework for understanding how communities adapt to prolonged adversity, its uncritical application may obscure the structural inequalities and institutional responsibilities that shape people's capacity to respond. Shah et al. (2020) caution against approaches that implicitly transfer responsibility for surviving crises from governments and institutions to vulnerable populations themselves. A community's ability to improvise educational alternatives should therefore not be interpreted as evidence that formal educational systems or state institutions are no longer necessary. Rather, community resilience should be understood as a potentially significant but inherently bounded capacity that operates within broader political, economic, institutional, and security environments. The ability of a community to sustain learning during insurgency may depend not only upon its internal social capital but also upon access to teachers, educational materials, safe spaces, humanitarian assistance, financial resources, psychosocial support, and a sufficiently secure environment.

It is against this conceptual background that the idea of "negotiating education" assumes analytical significance. Negotiating education refers to the dynamic process through which families, teachers, community leaders, religious institutions, civil society organizations, humanitarian actors, and other stakeholders determine whether, where, when, and under what conditions educational activities can continue amid insecurity. Negotiation in this context extends beyond formal bargaining between identifiable parties. It encompasses adaptation, improvisation, compromise, risk management, resource mobilization, collective decision-making, and the continuous recalibration of educational practices in response to changing security conditions. Education, therefore, is not simply something that communities either possess or lose during insurgency; it may become something that they continuously negotiate, reconstruct, and reconfigure according to the opportunities and constraints available to them. This perspective shifts analytical attention from the conventional question of how insurgency destroys education to the more nuanced question of how communities attempt to keep education alive when the institutional conditions ordinarily required for schooling have been severely compromised.

The Cameroonian context provides an important setting for examining this phenomenon. Since the escalation of the Anglophone crisis in 2016, the Northwest and Southwest Regions have experienced sustained armed violence and insecurity, accompanied by displacement, destruction of infrastructure, attacks on civilians, economic disruption, lockdowns, and significant interruptions to social services. Education has been among the sectors most severely affected. UNICEF reported that more than 80% of schools in the affected Anglophone regions had been closed at one point during the crisis, depriving more than 600,000 children of access to education (UNICEF, 2019). The educational consequences have extended beyond physical school closures to include disrupted learning trajectories, displacement of learners and teachers, psychosocial distress, reduced household capacity to support schooling, and increased risks of prolonged educational exclusion. Such circumstances illustrate the extent to which armed conflict can transform education from a routine public service into a precarious social activity whose continuation requires constant adaptation and negotiation.

The persistence of educational vulnerability in the Northwest and Southwest Regions also demonstrates that educational disruption is not an isolated institutional phenomenon. It intersects with household livelihoods, child protection, mental health, displacement, poverty, community cohesion, and the broader prospects of post-conflict recovery. More recent humanitarian assessments continue to identify education as a major concern in Cameroon, particularly in conflict-affected areas where insecurity continues to constrain access to formal schooling. At the same time, local authorities, civil society organizations, community networks, and other local actors have become increasingly important in facilitating access to essential services and supporting affected populations (UNICEF Cameroon, 2026). The emergence of temporary learning spaces and other alternative educational arrangements illustrates the increasing importance of flexible approaches to educational continuity in environments where conventional schooling remains inaccessible or unsafe.

Within this broader crisis, Muyuka Sub-Division in the Southwest Region offers a particularly significant context for examining community responses to educational disruption. The area has been affected by the broader dynamics of the Anglophone conflict, including insecurity, displacement, disruption of formal schooling, and the socioeconomic pressures associated with protracted instability. Yet an exclusive emphasis on the vulnerabilities of Muyuka's population risks reproducing a deficit-oriented narrative in which affected communities are represented primarily as passive victims of insurgency. A more comprehensive analysis requires attention to what communities themselves do in response to the educational consequences of conflict. Recent evidence from Yoke, within Muyuka Sub-Division, is illustrative of this dynamic. Children in the community have experienced prolonged disruption to schooling, displacement, fear, emotional distress, and uncertainty, while temporary learning spaces supported through humanitarian intervention have sought to provide opportunities for learning alongside mental health and psychosocial support (UNICEF Cameroon, 2026). Such interventions demonstrate not only the persistence of educational need but also the emergence of alternative arrangements through which educational activity can continue despite the fragility of conventional schooling.

Despite the scale and persistence of educational disruption associated with the Anglophone crisis, the central problem is not simply that formal schools have been closed, damaged, abandoned, or rendered inaccessible. The deeper problem lies in the insufficient understanding of how conflict-affected communities themselves negotiate educational continuity when conventional educational structures become unsafe, unreliable, or unavailable. Existing literature and policy discussions have generated substantial knowledge concerning school closures, attacks on educational institutions, displacement, insecurity, educational exclusion, and humanitarian interventions. However, comparatively less attention has been devoted to the everyday practices through which families, teachers, community leaders, religious organizations, youth groups, and other local actors mobilize resources, manage risks, adapt educational practices, and construct alternative possibilities for learning.

Consequently, there remains a need to understand not merely what insurgency has done to education in affected communities but also what those communities do in response, how their responses are organized, what forms of agency and resilience underpin them, and the extent to which their coping strategies can sustain educational continuity over time.

Three interrelated gaps are particularly discernible. First, there is a contextual gap concerning the limited attention devoted specifically to community-level educational responses in Muyuka Sub-Division. While scholarship on education in emergencies and the Anglophone crisis has established the severity of educational disruption, comparatively less is known about the locally situated mechanisms through which affected communities attempt to maintain learning. Second, there is a conceptual gap, arising from the tendency to employ agency, resilience, and coping mechanisms as closely related or interchangeable concepts without sufficiently interrogating their distinctive analytical meanings. Separating these concepts permits a more nuanced examination of the relationship between the capacity to act, the processes of adaptation, and the practical strategies used to manage adversity.

Third, there is an analytical gap in the tendency to foreground either the destructive consequences of conflict or

the interventions of external humanitarian actors while paying comparatively less attention to the community-level negotiation that occurs between these two dimensions. This article addresses these gaps by placing community agency and locally generated responses at the centre of an analysis of educational continuity amid insurgency in Muyuka.

Accordingly, this article aims to examine how communities in Muyuka Sub-Division negotiate education amid insurgency, with particular emphasis on community agency, resilience, and coping mechanisms. It seeks to examine the nature and manifestations of educational disruption; analyze the forms of community agency employed to sustain educational opportunities; explore the resilience processes through which households and communities adapt to prolonged educational insecurity; identify the coping mechanisms used to preserve access to learning; and assess both the effectiveness and limitations of community-based responses.

The inquiry is guided by five principal questions: how has insurgency disrupted formal education in Muyuka Sub-Division; what forms of community agency have emerged in response to this disruption; how have communities demonstrated resilience in sustaining educational opportunities; what coping mechanisms have affected households and communities employed to maintain learning; and to what extent have community-based responses contributed to educational continuity, notwithstanding the constraints imposed by persistent insecurity and limited resources?

The article advances the central argument that education in insurgency-affected Muyuka is not merely a public service disrupted by violence but a social institution whose continuity is actively negotiated through the agency, resilience, and coping practices of affected communities. Communities may create alternative learning arrangements, mobilize social networks, repurpose available spaces, draw upon religious and familial structures, and collaborate with external actors in order to preserve educational opportunities. Such responses demonstrate that conflict-affected populations possess forms of social agency that are frequently obscured by narratives centered exclusively on vulnerability and victimhood. Nevertheless, community-based coping should not be romanticized. Local resilience has material, institutional, and security limits, and communities cannot reasonably be expected to compensate indefinitely for the absence or inadequacy of formal educational systems. The recognition of community agency must therefore coexist with an insistence upon sustained governmental responsibility, humanitarian support, institutional reconstruction, and the restoration of safe and accessible formal education.

The study contributes to scholarship in several respects. First, it contributes to the education-in-emergencies literature by shifting analytical emphasis from educational disruption alone towards the processes through which affected communities negotiate continuity. Second, it contributes to resilience scholarship by examining resilience as a socially embedded and context-dependent process rather than merely an individual capacity to endure adversity. Third, it enriches scholarship on the Anglophone crisis by providing a contextually grounded examination of community-level educational responses in Muyuka Sub-Division.

Finally, it offers practical implications for educational policymakers, humanitarian organizations, civil society actors, community leaders, and development partners by highlighting the importance of locally grounded approaches to temporary learning spaces, psychosocial support, community participation, alternative learning modalities, teacher mobilization, and educational recovery. At the same time, the study underscores the necessity of ensuring that the language of resilience does not inadvertently legitimize institutional withdrawal or shift disproportionate responsibility for educational survival onto communities already burdened by conflict.

The remainder of the article proceeds as follows. The next section clarifies the principal concepts underpinning the study, including insurgency, educational disruption, community agency, resilience, coping mechanisms, and the negotiation of education. The third section presents the theoretical framework, drawing principally upon the social-ecological perspective of resilience while incorporating complementary insights from social capital and agency theories. The fourth section reviews the relevant literature on education in emergencies, armed conflict and educational disruption, community agency, resilience, and coping mechanisms, before identifying the specific scholarly gap addressed by the study. The fifth section provides the contextual background of Muyuka Sub-Division and the wider Anglophone crisis, while the sixth explains the methodology adopted. The subsequent sections examine educational disruption, community agency, resilience, and coping mechanisms, followed by a discussion of the effectiveness and limitations of community-based educational responses. The article concludes by proposing recommendations for strengthening educational continuity and by reflecting on the implications of community agency and resilience for education in conflict-affected Cameroon.

2. Conceptual Clarification

Conceptual clarification is indispensable to this study because the principal concepts under investigation possess broad meanings across disciplines and may assume different nuances when applied to conflict-affected societies. The study therefore draws upon established dictionary definitions and scholarly literature to clarify the concepts

of education, insurgency, community agency, resilience, coping mechanisms, Muyuka Sub-Division, and Cameroon. These concepts are subsequently situated within the specific context of educational disruption and community responses to insurgency.

2.1 Education

The Merriam-Webster Dictionary defines education as the action or process of teaching or being taught, as well as the knowledge and development resulting from such processes. In the context of emergencies, however, education extends beyond the conventional transmission of knowledge. UNESCO (2026) conceptualizes education in emergencies as the provision of quality learning opportunities in both formal and non-formal settings during crises, while emphasizing its protective, psychosocial, stabilizing, and developmental functions. Similarly, Burde *et al.* (2017) argue that education in emergencies serves not only academic purposes but also provides protection, socialization, psychosocial support, and a sense of continuity and normalcy for affected populations.

For the purposes of this study, education refers to the processes through which children and young people in Muyuka acquire knowledge, skills, values, and competencies through formal, non-formal, informal, and alternative educational arrangements, including those developed or adapted in response to insurgency and insecurity.

2.2 Insurgency

Merriam-Webster defines insurgency as a condition of revolt against a government that is less organized than a revolution and is generally characterized by sustained opposition to established governmental authority. Scholarly literature provides a more contextualized understanding of the concept. Ngah (2023), examining Cameroon's separatist conflict, characterizes the confrontation in the North-West and South-West Regions as an insurgency involving an organized politico-military challenge to state authority and control. The conflict emerged from escalating political grievances, protests, repression, and the subsequent militarization of separatist demands (Beseng et al., 2023).

In this study, insurgency refers specifically to the sustained armed challenge to state authority associated with separatist armed groups in Cameroon's North-West and South-West Regions and the resulting insecurity, violence, displacement, socioeconomic disruption, and constraints on civilian institutions, including educational institutions.

2.3 Community Agency

The Cambridge Dictionary defines agency as the ability to take action or to choose what action to take. In scholarly discourse, community agency denotes the capacity of individuals and collective groups to exercise choice, mobilize resources, participate in decision-making, and influence circumstances affecting their lives. Flanery et al. (2022), in their examination of rural communities in Cameroon, demonstrate that community agency can be expressed through participation, empowerment, collective understanding, local decision-making, and interaction with governance structures.

For this study, community agency refers to the capacity and actions of parents, teachers, households, community leaders, religious organizations, youth groups, civil society actors, and other local stakeholders in Muyuka to make decisions, mobilize available resources, negotiate constraints, and sustain educational opportunities amid insurgency. Agency therefore highlights the active role of affected communities rather than portraying them merely as passive victims of conflict.

2.4 Resilience

The American Psychological Association (APA, 2018) defines resilience as the process and outcome of successfully adapting to difficult or challenging life experiences through mental, emotional, and behavioral flexibility. Contemporary scholarship, however, cautions against understanding resilience solely as an individual psychological attribute. Ungar (2011, 2013) emphasizes that resilience is contextually embedded and shaped by access to social, cultural, economic, institutional, and material resources. In education-in-emergencies scholarship, Shah et al. (2020) similarly caution that an excessive emphasis on resilience may inadvertently shift responsibility for addressing structural problems from governments and institutions to vulnerable communities.

Within this study, resilience refers to the processes and capacities through which individuals, households, and communities in Muyuka adapt to prolonged insecurity and educational disruption while attempting to sustain, restore, or transform opportunities for learning. Resilience is therefore understood as a broader adaptive process rather than simply the ability to endure hardship.

2.5 Coping Mechanisms

The APA Dictionary of Psychology defines coping as the cognitive and behavioral strategies employed to

manage demands perceived as taxing or exceeding available resources. Coping mechanisms may therefore include conscious or unconscious forms of adjustment and adaptation intended to reduce tension, anxiety, stress, or conflict arising from difficult circumstances.

Coping mechanisms differ from resilience, although the two concepts are closely connected. Coping generally concerns specific strategies employed in response to particular stressors, whereas resilience represents a broader and more sustained process of adaptation. Coping may consequently constitute one of the mechanisms through which resilience is expressed.

For the purposes of this study, coping mechanisms refer to the specific strategies adopted by households, teachers, community leaders, and other local actors in Muyuka to manage the educational, social, economic, and security pressures generated by insurgency and to preserve or facilitate children's access to learning.

Muyuka Sub-DivisionMuyuka Sub-Division is an administrative and socio-spatial unit within Fako Division of Cameroon's South-West Region. Fako Division comprises several subdivisions, including Muyuka, and the area has historically been characterized by significant agricultural activity. Scholarly studies examining the consequences of the Anglophone crisis identify Muyuka as one of the localities significantly affected by the sociopolitical conflict, with substantial socioeconomic and humanitarian consequences for civilian populations.

The study treats Muyuka not merely as a geographical location but as the empirical setting within which educational disruption, community agency, resilience, and coping mechanisms are examined. Particular attention is given to the experiences of households, teachers, community leaders, and other actors who have had to negotiate educational continuity under conditions of insecurity.

2.6 Cameroon

Cameroon constitutes the broader national context within which the study is situated. The country is characterized by considerable geographical, linguistic, cultural, and institutional diversity. The present study is particularly concerned with the consequences of the armed conflict in the predominantly English-speaking North-West and South-West Regions, where political grievances and separatist mobilization have generated prolonged insecurity and significant disruption to civilian life.

Cameroon is therefore operationalized in this study as the national sociopolitical and institutional context within which the Anglophone conflict, educational disruption, and community responses in Muyuka Sub-Division occur. The national context is important because community responses to educational disruption cannot be adequately understood without considering the responsibilities of the state, the structure of educational governance, the dynamics of the conflict, and the wider humanitarian environment.

2.7 Conceptual Interrelationship

The foregoing concepts are analytically interconnected. Insurgency constitutes the adverse security and structural condition; educational disruption represents one of its significant consequences; community agency captures the capacity of affected populations to act in response to these disruptions; coping mechanisms represent the specific strategies employed to manage the pressures generated by conflict; and resilience denotes the broader adaptive process through which communities seek to sustain, restore, or transform educational functions. Muyuka Sub-Division provides the empirical setting in which these relationships are examined, while Cameroon constitutes the wider national context within which the conflict and educational responses are situated.

3. Theoretical Framework

This study is anchored in three complementary theoretical perspectives: Social Capital Theory, Resilience Theory, and James C. Scott's Theory of Everyday Resistance. Their combined application provides a multidimensional framework for examining how communities negotiate educational continuity amid insurgency. Social Capital Theory explains the mobilization of social networks and resources; Resilience Theory illuminates adaptation to prolonged adversity; while Scott's theory explains the subtle forms of negotiation, non-compliance, and resistance through which ordinary actors navigate insecurity and structures of power. Collectively, the theories enable the study to move beyond viewing conflict-affected communities merely as victims and instead examine their capacity to act, adapt, negotiate, and sustain essential social institutions.

3.1 Social Capital Theory

Social Capital Theory, principally associated with Bourdieu (1986), Coleman (1988), and Putnam (2000), conceptualizes social capital as resources embedded within social relationships, including networks, trust, reciprocity, norms, and collective connections. Bourdieu emphasizes the resources accessible through durable networks, Coleman highlights the functional value of social structures, while Putnam stresses trust, reciprocity, and civic engagement as foundations of collective action.

The theory is particularly relevant to Muyuka because insurgency may weaken formal educational institutions while increasing dependence on informal social networks. Families, teachers, neighbors, religious organizations, community leaders, civil society groups, and other local actors may mobilize resources, exchange information, provide psychosocial and material support, and establish alternative learning arrangements. Social capital may consequently operate as an important community resource for preserving educational opportunities when formal systems become inaccessible or unreliable.

The study also recognizes bonding, bridging, and linking social capital. Bonding capital concerns strong relationships within families and communities; bridging capital connects different social groups; while linking capital connects communities with institutions and actors possessing authority or resources. These forms of capital may influence the ability of Muyuka communities to organise educational responses. Nevertheless, social capital is not inherently positive. Networks can also reproduce exclusion, patronage, inequality, and unequal access to educational resources. The study therefore examines both its enabling and constraining dimensions.

3.2 Resilience Theory

Resilience Theory constitutes the second analytical pillar. While early approaches frequently treated resilience as an individual capacity, contemporary scholarship increasingly understands it as a dynamic and context-dependent process of adaptation. Masten (2001) associates resilience with positive adaptation despite significant adversity, while Ungar (2011, 2013) emphasizes the social, cultural, institutional, and material environments within which resilience develops.

The theory is especially applicable to Muyuka because insurgency produces prolonged and recurring forms of adversity, including school closures, displacement, insecurity, loss of livelihoods, teacher flight, and disruption of educational infrastructure. Communities must consequently adapt continuously rather than respond to a single isolated crisis. Resilience in this study therefore concerns how communities withstand, adapt to, recover from, and potentially transform educational practices under conditions of persistent insecurity.

Community resilience may be reflected in family solidarity, community support networks, alternative learning spaces, teacher commitment, religious initiatives, local leadership, financial contributions, and humanitarian assistance. Such practices demonstrate that communities can exercise considerable adaptive capacity even under severe constraints. However, resilience must not be romanticized. Shah *et al.* (2020) warn that an excessive emphasis on resilience may inadvertently transfer responsibility for structural crises to affected populations. Thus, resilience is understood here as community capacity under constraint, not as a replacement for governmental responsibility.

3.3 Scott's Theory of Everyday Resistance

The third perspective is James C. Scott's Theory of Everyday Resistance, developed principally in *Weapons of the Weak* (1985) and *Domination and the Arts of Resistance* (1990). Scott challenges conventional understandings of resistance that privilege overt rebellion, organized protest, or direct confrontation. He demonstrates that subordinate groups may employ subtle practices such as evasion, withdrawal, non-compliance, dissimulation, and other everyday actions to negotiate or challenge domination.

This perspective is particularly relevant to communities living under insecurity and competing forms of authority. In Muyuka, maintaining learning activities despite insecurity, discreetly organizing alternative education, modifying educational practices, or strategically negotiating restrictions may constitute forms of everyday agency. Such practices may not appear as conventional resistance, yet they can help preserve social institutions and frustrate attempts to normalise their disappearance.

Scott's distinction between public and hidden transcripts further strengthens the analysis. Public transcripts concern outward behavior displayed in interactions with dominant actors, while hidden transcripts encompass private strategies, criticisms, conversations, and forms of resistance developed away from direct surveillance. In a conflict environment, communities may therefore publicly comply with certain expectations while privately developing strategies to protect children and sustain educational opportunities.

The study, however, distinguishes between coping, adaptation, and resistance. Not every adaptive action is resistant. Nevertheless, a coping strategy may acquire a resistant dimension when it deliberately preserves an activity that violence, coercion, or domination seeks to suppress. Maintaining educational activities despite insecurity can therefore represent both survival and an assertion of community agency.

4. Methodology

This study adopts a qualitative research approach to examine how communities in Muyuka Sub-Division negotiate educational continuity amid insurgency. A qualitative approach is appropriate because it enables the researcher to explore participants' experiences, perceptions, meanings, and social practices in depth, particularly where the phenomenon under investigation is complex and context-dependent (Creswell & Poth, 2018). The

approach is therefore suitable for examining how families, teachers, community leaders, religious organisations, and other local actors respond to educational disruption.

4.1 Research Design and Study Area

The study employs a case study design, focusing specifically on Muyuka Sub-Division in Fako Division of Cameroon's South-West Region. Case study research is particularly appropriate for investigating a contemporary phenomenon within its real-life context, especially where the boundaries between the phenomenon and its context are not clearly separable (Yin, 2018). Muyuka provides an important setting for examining education under prolonged insecurity because communities have experienced armed violence, displacement, socioeconomic disruption, and interruptions to formal schooling. The case study design consequently allows the study to examine community responses within their actual sociopolitical and security environment.

4.2 Population and Sampling

The study population comprises community members and relevant stakeholders with experience of, or knowledge about, educational disruption in Muyuka. These include parents and guardians, teachers, learners, community leaders, religious actors, and other individuals involved in supporting children's education. Purposive sampling is employed to identify participants who possess relevant knowledge and lived experience of the phenomenon under investigation. Purposive sampling is appropriate in qualitative research where participants are deliberately selected because they can provide rich and relevant information concerning the research problem (Palinkas et al., 2015). Where necessary, snowball sampling may complement purposive sampling by enabling the researcher to identify additional information-rich participants through referrals.

4.3 Data Collection

Data are obtained primarily through semi-structured interviews and documentary analysis. Semi-structured interviews provide participants with sufficient flexibility to narrate their experiences while allowing the researcher to maintain focus on predetermined areas of inquiry (DiCicco-Bloom & Crabtree, 2006). The interviews focus particularly on experiences of school disruption, alternative learning arrangements, community mobilization, coping strategies, resilience, and perceptions of educational continuity.

Documentary analysis is used to complement the interview evidence. Relevant materials include scholarly publications, reports from international organizations, government and institutional documents, and other credible secondary sources. The combination of interview and documentary evidence facilitates triangulation and provides a broader understanding of educational disruption and community responses.

4.4 Data Analysis

The collected qualitative data are analyzed through thematic analysis. Following Braun and Clarke's (2006) approach, the analysis involves familiarization with the data, identification and coding of significant patterns, development of themes, review of emerging themes, and interpretation of their significance.

Particular attention is given to themes relating to educational disruption, community agency, social capital, resilience, coping mechanisms, everyday negotiation, and the limitations of community-based responses. The identified themes are subsequently interpreted through the theoretical lenses of Social Capital Theory, Resilience Theory, and James C. Scott's Theory of Everyday Resistance. This enables the study to move beyond merely describing educational disruption and instead examine the social relationships, adaptive capacities, and everyday practices through which communities respond to it.

4.5 Ethical Considerations

Given the sensitivity of conducting research within an insurgency-affected environment, ethical considerations constitute an important component of the study. Participants are informed about the purpose and nature of the research before participation and provide informed consent. Confidentiality and anonymity are maintained, particularly where disclosure of participants' identities or experiences could expose them to social or security-related risks. Participants retain the right to decline to answer particular questions or withdraw from the study without adverse consequences. Such safeguards are particularly important in qualitative research involving potentially vulnerable populations (Creswell & Poth, 2018).

4.6 Trustworthiness of the Study

The trustworthiness of the study is enhanced through triangulation, whereby information obtained from participants is compared with documentary and scholarly evidence. The study also pays attention to credibility, dependability, confirmability, and transferability, which are central criteria for establishing trustworthiness in qualitative research (Lincoln & Guba, 1985). Consistency in data collection and interpretation, together with reflexive awareness of potential researcher bias, further strengthens the credibility of the findings.

4.7 Methodological Orientation

Overall, the methodology is designed to move beyond documenting the educational consequences of insurgency to uncover the social processes through which affected communities negotiate educational survival and continuity. The qualitative case study approach provides contextual depth, while thematic analysis facilitates systematic interpretation of participants' experiences and recurring patterns (Braun & Clarke, 2006; Yin, 2018). By combining these approaches with the study's theoretical framework, the research examines how social networks, community agency, resilience, and coping mechanisms interact in sustaining educational opportunities under conditions of prolonged conflict. At the same time, the study recognizes that community-based responses cannot substitute for the state's responsibility to guarantee safe, accessible, and quality education.

5. Literature Review

The literature on education amid the Anglophone crisis in Cameroon demonstrates a complex relationship between armed conflict, educational disruption, socioeconomic vulnerability, and community adaptation. Existing studies largely document the destruction and interruption of formal education, while providing emerging evidence of community-based responses. The literature is therefore reviewed around four interconnected themes: educational disruption, governance and socioeconomic vulnerability, community agency and coping, and the negotiation of educational continuity.

5.1 Educational Disruption and the Anglophone Crisis

The Anglophone crisis has severely disrupted education in the North-West and South-West Regions. The World Bank (2021) links educational disruption to broader consequences of conflict, including displacement, livelihood deterioration, institutional decline, and reduced access to essential services. ACAPS (2021) similarly reports extensive school closures, insecurity, displacement, attacks, and threats affecting learners and teachers.

Importantly, it identifies discreet non-formal educational initiatives involving retired teachers and church members, suggesting that education continued in alternative forms despite the weakening of formal structures.

Human Rights Watch (2023) further documents attacks and the continuing school boycott, emphasizing the deprivation of children's right to education. Collectively, these sources establish the severity of educational disruption but focus predominantly on closure, insecurity, destruction, and deprivation. Less attention is given to how communities themselves negotiate educational continuity once formal systems become inaccessible.

5.2 Governance, Conflict, and Socioeconomic Vulnerability

Educational disruption is embedded within wider political, institutional, and socioeconomic challenges. The International Crisis Group (2023) argues that the government's special-status arrangements have not adequately addressed the deeper grievances underlying the Anglophone crisis. This has implications for education because educational institutions operate within contested structures of governance, identity, language, and political authority.

Nkongho (2022) demonstrates the importance of bilingual educational policy to questions of national integration and linguistic identity, while Ngenge (2022) shows how insecurity has affected higher education through institutional interruptions, student displacement, and relocation. The World Bank (2021) further demonstrates that displacement, declining livelihoods, and economic hardship intensify household vulnerability and consequently affect educational participation.

Balgah et al. (2025), although focusing on rural livelihoods, show how households and communities mobilize available resources and adopt adaptive strategies under socioeconomic pressure. Such findings are relevant to understanding educational coping, where families may seek alternative learning arrangements, relocate children, or rely on community resources to sustain schooling.

5.3 Community Agency and Coping

Beyond documenting vulnerability, the literature provides evidence of community agency. ACAPS (2021), for example, reports informal educational initiatives undertaken by retired teachers and church members. Such practices demonstrate that communities may mobilise existing human, social, and institutional resources when formal education is disrupted.

Conroy and Chambers (2021), through their analysis of everyday resistance among Cameroon Development Corporation workers, demonstrate that conflict-affected populations are not merely passive victims but may exercise agency through everyday practices of negotiation, adaptation, and resistance. Although their study is not specifically concerned with education, its conceptual emphasis is useful for understanding how families, teachers, religious institutions, and community leaders may similarly negotiate educational challenges.

However, community responses operate within severe structural constraints. Human Rights Watch (2023) and ACAPS (2021) illustrate how insecurity, displacement, threats, and economic hardship limit the capacity of communities to sustain educational activities. Community initiatives may therefore mitigate disruption without

replacing the responsibilities of the state and formal educational institutions.

5.4 Negotiating Educational Continuity

A critical synthesis of the literature reveals that scholarly attention has concentrated more on the collapse of education than on the processes through which communities attempt to preserve it. While existing studies document school closures, attacks, displacement, institutional weaknesses, and socioeconomic hardship, they also reveal instances of informal education, relocation, resource mobilization, and community adaptation.

This suggests that educational continuity during insurgency should be understood not merely as an institutional outcome but as a socially negotiated process. Families, teachers, religious organizations, community leaders, and other local actors may collectively determine how, where, and under what conditions learning can continue.

5.5 Research Gap

Three principal gaps emerge from the literature. First, there is a contextual gap, as much of the existing research addresses the North-West and South-West Regions broadly, with limited specific attention to Muyuka Sub-Division. Second, there is a conceptual gap, as community agency, coping, resilience, and resistance are often discussed without sufficiently distinguishing their respective meanings and functions. Third, there is an analytical gap, since existing scholarship largely emphasizes educational destruction and institutional failure rather than the everyday processes through which communities negotiate educational continuity.

The present study addresses these gaps by examining how communities in Muyuka Sub-Division mobilize social resources, exercise agency, develop coping mechanisms, and cultivate resilience to sustain educational opportunities amid insurgency. It therefore shifts the analytical lens from education as a casualty of conflict to education as a social institution whose continuity is actively negotiated by affected communities.

6. Contextual Background: Muyuka Sub-Division and the Anglophone Crisis

Muyuka Sub-Division, located in Fako Division of Cameroon's South-West Region, is a predominantly rural and semi-urban area whose livelihoods are strongly connected to agriculture, local commerce, and community networks. The cultivation of cocoa, palm oil, plantain, bananas, maize, and other crops constitutes an important part of the local economy. These economic and social networks are significant to this study because they provide resources through which households and communities may respond collectively to periods of insecurity and institutional disruption (Molua et al., 2019).

Muyuka is situated within the broader context of Cameroon's Anglophone crisis, which intensified in 2016 following protests by lawyers and teachers concerning perceived marginalization of the English-language legal and educational systems. Government repression and the subsequent emergence and consolidation of separatist armed groups transformed the grievances into a protracted armed conflict characterized by violence, displacement, insecurity, and destruction of civilian infrastructure (Human Rights Watch, 2018).

Education has been among the sectors most severely affected. School boycotts, attacks on schools, threats against teachers and learners, displacement, and insecurity have substantially disrupted formal education in the North-West and South-West Regions (Human Rights Watch, 2021). In communities such as Muyuka, these disruptions have affected not only classroom instruction but also children's socialization, psychosocial wellbeing, daily routines, and future educational prospects.

The experience of Yoke in Muyuka Sub-Division illustrates the search for alternative educational arrangements. UNICEF reports that Temporary Learning Spaces have provided children with opportunities to resume learning while also receiving mental- health and psychosocial support. Such initiatives demonstrate that, even when conventional educational structures become inaccessible, learning may continue through alternative and community-supported arrangements (UNICEF Cameroon, 2026).

This context makes Muyuka an important setting for examining community agency, resilience, and coping mechanisms. The disruption of formal education has compelled families, teachers, community leaders, religious organizations, humanitarian actors, and other stakeholders to adapt and negotiate how, where, and under what conditions education can continue. Thus, the Muyuka experience demonstrates that education amid insurgency is not simply a story of institutional collapse; it is also a process of community negotiation, adaptation, and resilience, although such efforts cannot substitute for the state's responsibility to guarantee safe and quality education.

7. Educational Disruption Amid Insurgency in Muyuka

Insurgency has profoundly disrupted education in Muyuka Sub-Division, affecting school attendance, teaching, learning, teacher availability, educational infrastructure, and access to learning materials. The disruption is part of a wider crisis in Cameroon's North-West and South-West Regions. Human Rights Watch reported that during the 2021–2022 school year, 53 per cent of secondary schools, 49 per cent of primary schools, and 47 per cent of

nursery schools in the South-West were non-functional, illustrating the scale of conflict-induced educational disruption (Human Rights Watch, 2021).

Muyuka provides concrete evidence of this broader phenomenon. Human Rights Watch documented the experiences of families and children in Muyuka affected by insecurity and attacks on education. Fear of violence has made travelling to and remaining in school increasingly difficult, while threats and attacks against students and teachers have contributed to absenteeism and school closures (Human Rights Watch, 2021, 2023). Teacher insecurity has also weakened educational continuity, as teachers have faced threats, abductions and displacement in the wider Anglophone conflict environment.

The scale of institutional disruption is further demonstrated by UNICEF, which reported that 3,502 of 6,515 schools in the North-West and South-West Regions were closed because of insecurity, leaving only approximately 54 per cent of students with access to formal education (UNICEF, 2023). Prolonged displacement, economic hardship and interrupted schooling consequently expose children to learning gaps and broader developmental and social consequences.

The disruption is also psychosocial. In Yoke, Muyuka, UNICEF reported that children had experienced years of disrupted routines, isolation and restricted access to schooling and play. Psychosocial support and temporary learning spaces were subsequently introduced to help children resume learning and recover from the effects of conflict (UNICEF, 2026). This demonstrates that educational disruption extends beyond the physical closure of schools to children's emotional and social well-being.

Despite these challenges, education has not completely disappeared. Families, teachers, communities and humanitarian organizations have developed alternative mechanisms, including temporary learning spaces, radio-based education and psychosocial interventions, to sustain learning under insecure conditions (UNICEF, 2023, 2026). These responses demonstrate community agency, resilience and coping, but they should not be regarded as substitutes for the State's responsibility to provide safe, accessible and quality education.

Thus, educational disruption in Muyuka is multidimensional, encompassing insecurity, displacement, institutional breakdown, economic hardship and psychosocial distress, while simultaneously creating conditions for community-based adaptation and alternative educational practices.

8. Community Agency and Negotiation of Educational Continuity

In Muyuka Sub-Division, community agency refers to the capacity of parents, teachers, local leaders, and other community actors to respond collectively to educational disruption and develop alternative ways of sustaining learning. Rather than remaining passive victims of insurgency, communities draw on social networks, local knowledge, relationships, and available resources to negotiate educational continuity. This understanding is consistent with Coleman's (1988) conception of social capital as a resource embedded in social relationships and networks.

One major expression of this agency is the establishment of alternative learning arrangements, including temporary learning spaces and other community-based educational initiatives. In Yoke, Muyuka, UNICEF-supported Temporary Learning Spaces have provided children with opportunities to resume learning while also receiving psychosocial support after prolonged insecurity and disruption (UNICEF, 2026). Communities may also mobilize financial resources, learning materials, space, and human support, demonstrating how social capital can facilitate educational continuity during crisis (Coleman, 1988).

Community agency is further reflected in everyday adaptations to insecurity, such as modifying learning arrangements, using safer locations, restricting children's movement, and adapting educational activities to prevailing conditions. These practices resonate with Scott's (1985) understanding of everyday forms of agency, whereby ordinary people navigate restrictive circumstances through practical and often subtle forms of adaptation. Nevertheless, community responses should not be romanticized. They operate within severe resource limitations and cannot replace qualified teachers, functioning schools, infrastructure, learning materials, or sustained State support. Their importance lies in preserving educational opportunities and creating possibilities for adaptation where formal educational structures have been weakened. Community agency in Muyuka can therefore be understood as a process of negotiating educational continuity amid conflict, through which communities mobilize social capital, adapt everyday practices, and develop alternative learning arrangements in response to insurgency.

9. Coping Mechanisms and Their Effectiveness

Coping mechanisms in insurgency-affected Muyuka refer to the strategies adopted by households, teachers, communities, and supporting organizations to preserve children's access to learning despite insecurity and disruption. These include alternative learning spaces, informal and community-based teaching, psychosocial support, remedial education, radio-based learning, and the mobilization of local resources and social networks

(UNICEF, 2022, 2023). UNICEF's interventions in Yoke, Muyuka, for example, demonstrate how Temporary Learning Spaces combined with psychosocial support can provide children with safer opportunities to resume learning and rebuild confidence (UNICEF Cameroon, 2026).

The effectiveness of these mechanisms is evident in their capacity to restore educational participation and mitigate learning losses. Radio education has enabled children who cannot access conventional schools to continue developing literacy, numeracy, and life skills (UNICEF, 2023), while UNICEF's remedial education programmes have helped children affected by prolonged school interruptions to recover foundational learning. In 2025, a UNICEF-supported remedial programme reached 5,627 children, with most participants successfully improving and progressing to the next class (UNICEF, 2025).

Community-based approaches also have a psychosocial and protective function. In Yoke, Muyuka, structured play, peer interaction, life-skills activities, and psychosocial support have helped children regain confidence and a sense of normalcy (UNICEF Cameroon, 2026). Such interventions demonstrate that coping is not limited to maintaining academic instruction; it also involves addressing the emotional and social consequences of prolonged conflict.

Nevertheless, the effectiveness of these mechanisms remains partial and conditional. Alternative learning arrangements can preserve educational continuity but cannot fully reproduce the infrastructure, qualified personnel, resources, curriculum coverage, and institutional stability of formal schooling. UNICEF has also identified insecurity, difficult physical access, and inadequate resources as significant constraints on education responses in the conflict-affected regions (UNICEF, 2022). Consequently, community coping should be understood as an adaptive response to institutional disruption rather than a substitute for the State's responsibility to guarantee safe, accessible, and quality education.

Overall, coping mechanisms in Muyuka demonstrate considerable adaptive capacity but limited structural effectiveness. They can reduce the immediate effects of educational disruption, sustain learning, support children's psychosocial well-being, and reconnect some learners with education; however, their long-term effectiveness depends on sustained security, adequate resources, functioning schools, qualified teachers, and stronger institutional support.

10. Challenges and Limits of Community-Based Educational Responses

Although community-based educational responses have helped sustain learning amid insurgency, their effectiveness is constrained by insecurity, inadequate resources, limited infrastructure, and uneven access. In the North-West and South-West Regions, insecurity continues to restrict access to schools and alternative learning spaces, while many children and teachers face risks during their movement to and from learning centres (UNICEF, 2024). These conditions make it difficult for community initiatives to provide consistent and uninterrupted educational services.

A major limitation is resource scarcity. Community-based initiatives often depend on external humanitarian assistance, local contributions, or limited community resources. UNICEF has reported that inadequate infrastructure, shortages of learning materials, insufficiently trained personnel, and funding gaps continue to constrain education responses in crisis-affected communities (UNICEF, 2024, 2025). Consequently, alternative learning arrangements may provide immediate educational opportunities without possessing the resources necessary to ensure sustained quality education.

There are also challenges relating to quality and continuity. Temporary learning spaces, radio education, and other non-formal arrangements can help children maintain contact with learning, but they cannot always provide the curriculum breadth, qualified teachers, facilities, assessment systems, and institutional stability associated with formal schooling. UNICEF's 2024 assessment, for example, found that children in the North-West and South-West were sometimes learning in overcrowded conditions with inadequate furniture, materials, and water facilities (UNICEF, 2024). This demonstrates the difficulty of transforming emergency educational access into stable and comprehensive educational provision.

Furthermore, community-based responses do not reach all children equally. Geographical isolation, poverty, displacement, gender-related barriers, disability, and insecurity can exclude particularly vulnerable groups. UNICEF identifies rural and crisis-affected communities as facing significant geographical and economic barriers to quality and inclusive education, while children with disabilities may encounter additional difficulties because of inadequate infrastructure and trained personnel (UNICEF, 2026). Such inequalities limit the overall reach and effectiveness of community-based interventions.

Most importantly, community initiatives cannot substitute for State responsibility and functioning educational institutions. Their primary value lies in preserving educational continuity during crisis rather than permanently replacing formal schooling. This distinction is particularly important in Muyuka, where community resilience may reduce the immediate consequences of educational disruption, but long-term educational recovery requires

security, functioning schools, qualified teachers, adequate infrastructure, sustainable financing, and institutional support.

Thus, community-based educational responses should be understood as adaptive but inherently limited mechanisms. They demonstrate considerable community resilience and can mitigate the effects of educational disruption, but their sustainability and effectiveness depend upon broader security, institutional, and financial conditions. Their role is therefore complementary rather than substitutive: communities can sustain education during crisis, but they cannot, by themselves, reconstruct the formal education system.

11. Summary of Finding

The findings reveal that insurgency has profoundly disrupted education in Muyuka Sub-Division, affecting school attendance, teaching and learning processes, teacher availability, educational infrastructure, and children's psychosocial well-being. Insecurity, displacement, economic hardship, and fear have weakened the continuity of formal education and created significant learning gaps among children.

The study further finds that communities have not remained passive in the face of these disruptions. Parents, teachers, local leaders, and other community actors have demonstrated considerable agency by mobilising social networks, local resources, alternative learning arrangements, and informal educational support. These responses illustrate the importance of social capital and collective action in sustaining educational opportunities under conditions of conflict.

The findings also indicate that communities employ diverse coping mechanisms, including temporary learning spaces, informal teaching, remedial education, psychosocial support, radio-based learning, and adjustments to learning routines. These mechanisms have helped some children maintain contact with education and recover aspects of lost learning. However, their effectiveness remains largely immediate and adaptive rather than structural, as they cannot fully compensate for the absence of stable schools, qualified teachers, adequate infrastructure, learning materials, and sustained institutional support.

Finally, the study establishes that community resilience has important but identifiable limits. Community-based responses can mitigate the consequences of educational disruption and preserve elements of educational continuity, but they cannot independently reconstruct a weakened education system. Sustainable educational recovery in Muyuka therefore requires the interaction of community initiative with improved security, adequate resources, institutional support, functioning schools, and effective public responsibility for the provision of safe and quality education.

12. Conclusion

This study has demonstrated that insurgency has profoundly transformed the educational landscape of Muyuka Sub-Division, producing disruptions that extend beyond school closures to encompass insecurity, displacement, economic hardship, teacher shortages, psychosocial distress, and interruptions in children's learning trajectories. Yet, the disruption of formal education has not resulted in the complete abandonment of educational aspirations. Rather, communities have responded by mobilising social networks, local resources, informal learning arrangements, psychosocial support, and other coping mechanisms to preserve educational opportunities under difficult conditions.

The findings further demonstrate that community agency and resilience constitute important mechanisms of educational continuity during protracted conflict. Parents, teachers, community leaders, and other local actors have negotiated educational practices around the constraints created by insecurity, demonstrating considerable adaptability and collective resourcefulness. However, these responses remain constrained by inadequate resources, insecurity, uneven access, and limited institutional capacity. Community-based initiatives can mitigate the immediate effects of educational disruption, but they cannot adequately substitute for the infrastructure, qualified personnel, financing, curriculum, and institutional stability required for sustainable education.

The study therefore concludes that educational recovery in Muyuka requires a complementary relationship between community agency and institutional responsibility. Community initiatives should be recognised and supported rather than treated as substitutes for formal educational provision. Sustainable recovery requires improved security, rehabilitation of educational infrastructure, adequate learning materials, teacher support, psychosocial services, inclusive educational policies, and sustained governmental and humanitarian investment. Strengthening the capacity of communities while simultaneously restoring the formal education system is essential to ensuring that children affected by insurgency are not permanently deprived of their right to education.

Ultimately, the experience of Muyuka demonstrates that education amid insurgency is not simply a question of maintaining access to classrooms; it is a process of negotiation, adaptation, resilience, and reconstruction. Communities possess significant capacity to sustain learning under adversity, but their resilience should not

obscure the structural responsibilities of the State and other educational stakeholders. The enduring restoration of education therefore depends on transforming community-based coping from an emergency response into a supported component of a broader, secure, inclusive, and sustainable educational recovery framework.

13. Recommendations

The findings call for practical and sustainable measures to restore educational continuity in Muyuka. While community resilience has helped mitigate the effects of insurgency, it cannot substitute for institutional responsibility and sustained support. The recommendations therefore seek to strengthen community initiatives while addressing the security, infrastructural, psychosocial, and socioeconomic barriers to education.

(1) Strengthening Educational Security: Government and relevant security and humanitarian actors should prioritize the protection of schools, teachers, learners, and educational facilities in insurgency-affected communities. Measures should facilitate safe access to learning while minimizing exposure to conflict-related risks.

(2) Rehabilitation of Educational Infrastructure: Damaged and abandoned schools in Muyuka should be progressively rehabilitated and equipped with essential facilities, including classrooms, furniture, sanitation facilities, learning materials, and safe spaces for children.

(3) Institutionalizing Community Participation: Parents, teachers, traditional authorities, religious organisations, youth groups, and other local stakeholders should be systematically incorporated into educational planning and recovery initiatives. Their local knowledge can strengthen the relevance and sustainability of interventions.

(4) Supporting Community-Based Learning Initiatives: Existing community-based educational responses should receive appropriate technical, financial, and material support. Temporary learning spaces, remedial programs, radio-based education, and psychosocial interventions should be integrated into broader educational recovery strategies.

(5) Strengthening Teacher Capacity and Welfare: Greater attention should be given to the recruitment, retention, training, psychosocial well-being, and security of teachers working in conflict-affected communities.

(6) Expanding Psychosocial Support: Educational recovery programs should incorporate sustained psychosocial support for learners and teachers affected by violence, displacement, fear, and prolonged educational interruption.

(7) Promoting Inclusive Access to Education: Particular attention should be given to children from displaced, impoverished, geographically isolated, and otherwise vulnerable households. Educational interventions should minimize financial, geographical, gender-related, and disability-related barriers.

(8) Providing Targeted Household Support: Since conflict-related economic hardship can prevent families from sustaining children's education, educational materials, school-feeding initiatives, scholarships, and other forms of targeted assistance should be strengthened where appropriate.

(9) Establishing Monitoring and Evaluation Mechanisms: Government authorities, humanitarian organizations, and community stakeholders should establish mechanisms for monitoring school attendance, learning outcomes, teacher availability, infrastructure conditions, and the effectiveness of alternative educational programs.

(10) Developing a Sustainable Educational Recovery Framework: Community resilience should ultimately be integrated into a broader institutional recovery strategy. Sustainable educational recovery requires coordinated investment in security, infrastructure, teachers, financing, psychosocial services, and effective public education institutions.

References

ACAPS. (2021, February 19). *Cameroon: The education crisis in the Northwest and Southwest regions*. ACAPS.

American Psychological Association. (2018). *APA dictionary of psychology*. American Psychological Association.

Balgah, R. A., Buchenrieder, G., & Awazi, N. P. (2025). Rural livelihood strategies in Sub-Saharan Africa: A systematic review on Cameroon. *SN Social Sciences, 5*, 226. https://doi.org/10.1007/s43545-025-01265-9

Beseng, M., Crawford, G., & Annan, N. (2023). From "Anglophone problem" to "Anglophone conflict" in Cameroon: Assessing prospects for peace. *African Studies Review, 66*(1), 1–24. https://doi.org/10.1177/00020397231155244

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Greenwood Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Burde, D., Kapit, A., Wahl, R. L., Guven, O., & Skarpeteig, M. I. (2017). Education in emergencies: A review of theory and research. *Review of Educational Research, 87*(3), 619–658. https://doi.org/10.3102/0034654316671594

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*(Supplement), S95–S120. https://doi.org/10.1086/228943

Conroy, C., & Chambers, S. (2021). Micro-politics of citizenship in Cameroon: A class analysis of Cameroon Development Corporation workers' resistance to the Cameroon Anglophone crisis.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

DiCicco-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. *Medical Education, 40*(4), 314–321. https://doi.org/10.1111/j.1365-2929.2006.02418.x

Flanery, A., Mbatu, R. S., Johns, R., & Stewart, D. (2022). Rural community agency in Cameroon: Interactions with forest policies and the REDD+ climate change regime. *Forests, 13*(2), 267. https://doi.org/10.3390/f13020267

Human Rights Watch. (2018). *Cameroon: Killings, destruction in Anglophone regions*. Human Rights Watch.

Human Rights Watch. (2021). *"They are destroying our future": Armed separatist attacks on students, teachers, and schools in Cameroon's Anglophone regions*. Human Rights Watch.

Human Rights Watch. (2023). *World report 2023: Cameroon*. Human Rights Watch.

International Crisis Group. (2023). *A second look at Cameroon's Anglophone special status*. International Crisis Group.

Judith Nkongho Ayuk. (2022). The Special Bilingual Education Program: Pace-Setter for a Harmonized Educational System in Cameroon. *Global Academic Journal of Linguistics and Literature, 4*(5), 169–174. https://doi.org/10.36348/gajll.2022.v04i05.006

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*(3), 227–238. https://doi.org/10.1037/0003-066X.56.3.227

Merriam-Webster. (2026). Education. In *Merriam-Webster.com dictionary*. https://www.merriam-webster.com/dictionary/education

Merriam-Webster. (2026). Insurgency. In *Merriam-Webster.com dictionary*. https://www.merriam-webster.com/dictionary/insurgency

Molua, E. L., et al. (2019). Determinants and policy implications of farmers' climate adaptation choices in rural Cameroon. *Sustainability, 11*(7), 1921.

Ngah, A. N. (2023). Insurgency and national security: A perspective from Cameroon's separatist conflict. *Third World Quarterly, 44*(7), 1507–1524. https://doi.org/10.1080/01436597.2023.2177149

Ngenge, R. T. (2022). Assessing the impact of armed conflict on higher education in Cameroon's Anglophone regions. *Studia de Securitate, 12*(1), 202–216. https://doi.org/10.24917/26578549.12.1.14

Nkongho, J. A. (2022). The Special Bilingual Education Program: Pace-setter for a harmonized educational system in Cameroon.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*, 533–544. https://doi.org/10.1007/s10488-013-0528-y

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon & Schuster.

Scott, J. C. (1985). *Weapons of the weak: Everyday forms of peasant resistance*. Yale University Press.

Scott, J. C. (1990). *Domination and the arts of resistance: Hidden transcripts*. Yale University Press.

Shah, R., Paulson, J., & Couch, D. (2020). The rise of resilience in education in emergencies. *Journal of Intervention and Statebuilding, 14*(3), 303–326. https://doi.org/10.1080/17502977.2019.1694390

UNESCO. (2026). *Education in emergencies: What you need to know*. UNESCO.

Ungar, M. (2011). Community resilience for youth and families: Facilitative physical and social capital in contexts of adversity. *Children and Youth Services Review, 33*(9), 1742–1748. https://doi.org/10.1016/j.childyouth.2011.04.027

Ungar, M. (2011). The social ecology of resilience: Addressing contextual and cultural ambiguity of a nascent construct. *American Journal of Orthopsychiatry, 81*(1), 1–17. https://doi.org/10.1111/j.1939-0025.2010.01067.x

Ungar, M. (2013). Resilience, trauma, context, and culture. *Trauma, Violence, & Abuse, 14*(3), 255–266. https://doi.org/10.1177/1524838013487805

UNICEF Cameroon. (2026). *From fear to hope: How MHPSS is helping children heal and learn again in Yoke, Muyuka*. UNICEF Cameroon.

UNICEF Cameroon. (2026). *From fear to hope: How MHPSS is helping children heal and learn again in Yoke, Muyuka*. United Nations Children's Fund.

UNICEF. (2019). *Anglophone crisis in Cameroon causes closure of 80 per cent of schools in the region, denying more than 600,000 children access to education*. UNICEF.

UNICEF. (2022). *Cameroon humanitarian situation report No. 4: 1 January–31 December 2022*. United Nations Children's Fund.

UNICEF. (2023). *Learning where it is difficult to learn: Radio programmes help keep children learning in Cameroon*. United Nations Children's Fund.

UNICEF. (2024). *Cameroon humanitarian situation report: 31 December 2024*. United Nations Children's Fund.

UNICEF. (2025). *Cameroon humanitarian situation report: 31 March 2025*. United Nations Children's Fund.

UNICEF. (2025). *Remedial classes boost education in crisis-hit regions*. UNICEF Cameroon.

UNICEF. (2026). *Cameroon humanitarian situation report No. 4: 31 December 2025*. United Nations Children's Fund.

UNICEF. (2026). *Education*. UNICEF Cameroon. United Nations Children's Fund.

UNICEF. (2026, May 25). *From fear to hope: How MHPSS is helping children heal and learn again in Yoke, Muyuka*. UNICEF Cameroon.

World Bank. (2021). *The socio-political crisis in the Northwest and Southwest Regions of Cameroon: Assessing the economic and social impacts*. World Bank.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.

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Paradigm Academic Press
Research and Advances in Education
ISSN 2788-7057
SEP. 2026 VOL.5, NO.3

Awareness, Perceived Benefits, and Skill-Erosion Concerns Regarding Generative AI Among Higher Education Students

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doi:10.63593/RAE.2788-7057.2026.09.006

Abstract

This research aimed to assess awareness of generative AI limitations, highlight its advantages, and identify potential threats from misuse, focusing on differences in opinions between future educators and students from non-education fields. The data were collected through surveying 931 undergraduate students of a private university in the Philippines. The researchers used a comparative-correlational research design with a qualitative strand. The study found moderate awareness of generative AI's limitations (M = 3.31, SD = 0.94) and a moderate-to-cautious attitude toward its implementation (M = 3.15, SD = 0.87). Education students showed higher awareness than students from other majors (d = 0.40), while differences in usage, perception, and fear of skills deteriorating were negligible (d = 0.14–0.25) and, to some extent, neutralized in robustness checks. Differences between genders and years of study in perceptions were minor. The findings suggest that future teachers' curricula should include a course on AI literacy and emphasize developing critical thinking skills to prepare students for implementing generative AI solutions in teaching practices.

Keywords: generative artificial intelligence, ChatGPT, higher education, pre-service teacher education, academic integrity, critical thinking, technology acceptance

1. Introduction

After ChatGPT was launched to the general public in late 2022, generative AI's presence in higher education institutions increased from something brand new to something increasingly common among college students. Major publications now state that many students applied generative AI tools for at least one task: brainstorming, summarizing content, or working on complete projects (Ravšelj et al., 2025). The expansion outpaced adjustments to higher education policies, faculty training, and curricula to incorporate new technologies. As a result, students had to develop their own norms for proper tool use (Baek et al., 2023; Petricini et al., 2023).

The consequences of this gap differ widely across educational fields. For students preparing to become teachers in universities, the way they become acquainted with generative AI technologies has far-reaching implications: future teachers will soon become agents in decisions about the use of those technologies by their own students. Several studies on future teachers' readiness to integrate AI into their teaching show that attitudes formed during initial professional training significantly influence classroom decisions about integrating AI technologies into the educational process. However, few large-scale studies have compared education students' awareness and risk perceptions of using the technology with those of students in other fields.

This research addresses this gap by using survey data from 931 undergraduate students at a multidisciplinary private institution of higher learning in the Philippines, including the College of Education and other fields such as criminology, information technology, hospitality management, geodetic engineering, and business administration. It aims to answer three research questions:

(a) What is the level of awareness among students of the limitations, benefits, and concerns of generative AI?

(b) Are there any differences in these constructs by sex, school year, and, primarily, between students in education programs and those in programs other than education?

(c) What has this group of students identified as fair or unfair use of generative AI, in their opinion, and what do they suggest doing to secure skill enhancement?

The study combines Likert-scale measures adapted from the student survey of Chan and Hu (2023) with open-ended qualitative responses, following earlier survey work on generative AI in higher education (Damiano et al., 2024).

2. Literature Review

2.1 Student Awareness and Perceived Benefits of Generative AI

Across national contexts, survey results indicate a mix of excitement and trepidation among students about using generative AI. The global study by Ravšelj et al. (2025), covering more than 23,000 cases, found that the most popular uses of ChatGPT included finding research materials, brainstorming, and summarizing. However, participants thought the technology had shortcomings in supporting academic processes and called for regulation by authorities. Chan and Hu (2023) studied university students in Hong Kong and found that while students viewed generative AI as having potential for personalized learning, they also raised concerns about accuracy and privacy.

In studies conducted by Ngo (2023) and Yang (2024), it was noted that university students see time savings, personalized feedback, and the ability to access services 24/7 as key benefits, while also identifying the need to assess digital sources as one of the main limitations. In turn, Himang et al. (2026) studied college students in the Philippines using the Unified Theory of Acceptance and Use of Technology, focusing on performance-related expectations and social influence as strong factors affecting ChatGPT adoption among students. It offered evidence that these variables are moderated by participants' age, gender, and prior experience.

2.2 Concerns About Over-Reliance and Skill Erosion

Another line of research focuses on the possible consequences of overusing generative AI and its effects on education. Jose et al. (2025) called it the "cognitive paradox." Generative AI can reduce cognitive load, allowing students to engage in higher-order thinking. However, the authors explain that excessive use of AI-generated answers can affect the cognitive engagement needed for meaningful learning, which can be confirmed with empirical data. The article authored by Jayasuriya et al. (2025) describes an experiment that was conducted with undergraduate and postgraduate degree students who study agricultural sciences. The researchers used exploratory factor analysis and identified over-reliance on generative pre-trained transformers as a separate dimension that can be measured.

As per the findings of Cahyani et al. (2024), it was noted that there is a negative correlation between the frequency of AI tool use and the performance of university students taking critical reading tests. In contrast, in a study performed by Hading et al. (2024), where qualitative interviews were conducted with students of the English literature department, it was discovered that the students themselves believed that their critical thinking skills were declining and that they became increasingly dependent on technology, even though they praised the efficiency of AI use in obtaining information. Another point of concern is academic misconduct and reduced creativity (Baek et al., 2023; Petricini et al., 2023; Zafar et al., 2024).

2.3 Pre-Service Teachers and Generative AI Readiness

Because the success of teacher education programs affects who will shape how students interact with artificial intelligence (AI), several studies have examined generative AI and AI readiness among pre-service teachers. Salas-Pilco et al. (2022) carry out a systematic analysis of the use of AI in the educational process by analyzing studies on teacher education, highlighting that the majority of the research focuses on describing the actions, attitudes, and perceptions of pre-service teachers about artificial intelligence, while ethical practices and long-term effects of the use of AI are still at a very low level. According to Gatlin (2023), despite a clear understanding of the importance of incorporating AI technologies into teaching methodologies, U.S. pre-service teachers felt underprepared and untrained to approach the use of AI in education. Özüdoğru and Yıldız Durak (2025), in their questionnaire and 816 interviews, found that AI readiness is influenced by factors such as AI literacy, AI fear, and beliefs about AI technology innovation, and is significantly differentiated by gender.

Similarly, Eyüp and Kayhan (2023) found that pre-service language teachers' attitudes toward AI were moderated by anxiety about losing their jobs and a lack of control over their day-to-day responsibilities. This phenomenon has been analyzed by Zakaria and Hashim (2024) through the lenses of the Unified Theory of Acceptance and Use of Technology and the Technological Pedagogical Content Knowledge frameworks.

Further, the study conducted by Zaugg (2024) revealed that the experience of using AI teaching assistants contributed to a greater willingness of pre-service teachers to allow their students to use such technologies in the future, implying that, in the process of training, teachers should be presented with and come into contact with the technology they will use in their future professional practice. The results indicate that pre-service teachers occupy a unique place in this context, as they are both current users and future gatekeepers of AI technology, making their views and ideas more important than those of other stakeholders involved in the process.

Even with this increasing knowledge, there are still very few studies that have been able to statistically compare education majors to non-education majors at the same college or university by using a reliable multi-construct measuring tool, and very few studies at the same time have been conducted in the context of private higher education in the Philippines, where teacher education consists of one of the biggest clusters of educational degrees in the country (Damiano et al., 2024; Ravšelj et al., 2025). The current research addresses this gap.

3. Research Method

This study used a comparative-correlational design with a cross-sectional Likert-scale survey. The quantitative component answered the study's comparative and correlational research questions, while an embedded qualitative strand, consisting of three open-ended items, addressed the third research question. The study included 931 undergraduate students at a private higher education institution in the Philippines. The undergraduate student body included learners in education, criminology, information technology, hospitality management, engineering, and business, while fewer students pursued political science, mass communications, management accounting, and midwifery. A census approach to sending out invitations was adopted in this study, where all the undergraduate students who were enrolled during the first semester of the academic year 2025-2026 were requested to fill out an online questionnaire using Google Forms from 25th October to 2nd November 2025. Participation was voluntary, so the 931 students who consented and submitted the questionnaires were classified as a voluntary response sample derived from a census-type invitation rather than complete enumeration; the implications for representativeness are discussed in the Limitations chapter. All submissions were complete for closed-ended items, so no cases were dropped. Participants were 473 males (50.8%) and 458 females (49.2%). The demographic segmentation also included year level, with 267 (28.7%) first-year students, 272 (29.2%) sophomores, 282 (30.3%) juniors, and 110 (11.8%) seniors. The study also analyzed distinctions in academic majors. It stratified students into teaching programs (Bachelor of Elementary Education and Bachelor of Secondary Education in English, Filipino, Mathematics, and Science) and all other degrees (non-teaching programs).

Table 1. Demographic Characteristics of Respondents (N = 931)

Characteristic	n	%
Sex		
Male	473	50.8
Female	458	49.2
Year Level		
First Year	267	28.7
Second Year	272	29.2
Third Year	282	30.3
Fourth Year	110	11.8
Degree-Program Cluster		
Teacher Education (BEEd/BSEd)	264	28.4
Non-Education Programs	667	71.6

The questionnaire was divided into 4 sections. The first section included demographic details such as gender, year of study, and course studied, as well as a single question about previous experience incorporating generative AI. The second section included 7 questions assessing awareness of generative AI limitations and risks (for example, that generative AI can produce false, biased, and inappropriate information). The third part of the questionnaire included 8 more questions about recognizing benefits and intentions to use generative AI in studies or teaching processes. Lastly, the fourth section included 4 questions about concerns related to the loss of professional skills and becoming too dependent on generative AI (such as academic integrity and connection with others). The Likert scales used five items for agreement (1 = strongly disagree and 5 = strongly agree),

while generative AI was measured with a single five-point scale. Each of the three sections with attitude questions included a single open-ended question. The items were based on Chan and Hu's student survey from 2023, and descriptions of the questions can be found in Appendix A. When preparing the online survey, we administered the first two awareness questions in identical form (Appendix A). Therefore, a follow-up analysis used a six-item awareness composite.

Cronbach's alpha (Cronbach, 1951) was used to determine the internal consistency of each multi-measure construct. All three constructs met the conventional cut-off of .70: Awareness of Limitations, $\alpha = .93$; Perceived Benefits, $\alpha = .94$; and Skill-Erosion Concerns, $\alpha = .85$, indicating good internal consistency (Table 2). With the unnecessary awareness component eliminated, α for the six-item awareness composite stood at .92. The composite variables from each variable cluster were estimated as the mean of all the initial variables included in the cluster. Descriptive statistics, independent-samples t-tests (such as for sex and degree-program cluster), ANOVA (for year level), and Pearson correlations were carried out for the quantitative strand; the detailed information about the assumption tests and the effect sizes used is given below. As for the qualitative analysis, the responses to the questions were coded using the inductive thematic coding approach with respect to the important words. Two researchers separately created preliminary code lists from a small subset of responses and then adjusted them in discussion with each other. They coded every item in the entire dataset.

To illustrate how the score levels should be understood, the composite means have been allocated into five equal-interval bands taken from the answer options. Since the scale range (5 - 1 = 4) was divided by the number of options (5), the interval was 0.80. The means of 1.00-1.80 were defined to mean very low, 1.81-2.60 low, 2.61-3.40 moderate, 3.41-4.20 high, and 4.21-5.00 very high. These bands are an important way to describe the mean's location on the answer scale; they are not diagnostic cut-off mark, which is why they were not used in any statistical testing during this study.

The distributions of all composites were checked prior to the parametric analyses. The outputs of the Shapiro–Wilk and Kolmogorov–Smirnov tests were found to be significant for each of the four variables (all $p < .001$). However, with $N = 931$, these tests may detect even small deviations from normality. Hence, it was decided to rely on the skewness and kurtosis indices suggested for large samples (Kim, 2013). The skewness indices ranged from -0.33 to -0.14. The kurtosis indices ranged from -0.47 to 0.27, within the absolute thresholds for significant non-normality (Kim, 2013), indicating an almost normal distribution (see Table 2). Levene's test indicates unequal variances for some comparisons (for instance, awareness by sex, $F = 10.01$, $p = 0.002$, and others). We tested group differences using Welch's t-tests, compared with categorical grouping by year level, and post hoc comparisons using Games-Howell between sexes and degree programs, without assuming homogeneity of variance (Delacre et al., 2017). Mann-Whitney U and Kruskal-Wallis tests were also performed for robustness checks, leading to the same conclusions as the parametric tests in every comparison. Effect sizes were measured using Cohen's d for two-group comparisons and η^2 (ω^2 as a less biased estimator) for year-level comparisons and interpreted with reference to the conventional effect sizes of 0.20, 0.50 and 0.8 for d and .01, .06 and .14 for η^2 (Cohen, 1988). Pearson correlations were also calculated between the constructs and further validated via computation of Spearman's ρ.

Because all constructs were measured with the same instrument at a single point in time, it was also relevant to examine common method and response style effects (Kock et al., 2021; Podsakoff et al., 2003). Harman's single-factor test was applied to all 20 closed-ended items, and straight-lining (identical responses to all 19 Likert items) and response variability within respondents were calculated to analyze response style. Then it was possible to carry out the analysis of the comparison age groups again (a) not taking into account those respondents whose responses demonstrated straight-lining and (b) utilizing the data, which presupposes that the average value of each respondent for all the Likert items is subtracted from each response on a single question in order to demonstrate only the relative degree of emphasis by the respondent on the topic of the issue being studied.

The study adhered to the National Ethical Guidelines for Research Involving Human Participants (Philippine Health Research Ethics Board [PHREB], 2022) as well as to the Data Privacy Act of 2012 (Republic Act No. 10173). Administrative approval from the institution via its Office of the Dean was sought prior to administration of the survey process. Ethical review for the study was not sought from any research ethics committee; instead, the study was structured as a minimal-risk, anonymous, non-interventional survey where participation was voluntary and no sensitive data were collected. Respondents participated voluntarily and received information about the research objectives before completing the questionnaire. The first page of the online questionnaire included a consent form assuring that participation was voluntary, participants could withdraw at any time, and their answers would be considered only in aggregate, without linking them to any individual respondent. Only those who clicked on the "I agree" button proceeded to answer questions (Appendix A). All 931 respondents consented to participate. No identifying information of respondents apart from the

information about the program and academic year was considered or reported. The names and emails of the respondents that were collected for verification purposes were deleted prior to data analysis.

4. Results

4.1 Descriptive Overview

The descriptive statistics for the four constructs utilized in the study can be seen in Table 2. On a scale of 1 to 5, students indicated moderate frequency of use of generative AI (M=3.08, SD=1.09), moderate awareness of the limitations of generative AI (M=3.31, SD=0.94), moderate perceived benefits and behavioral intentions (M=3.15, SD=0.87), and moderate concern about skill loss and over-dependency (M=3.04, SD=0.86). The four constructs are clustered at the moderate level (2.61–3.40), which is noted. However, the distribution of means was wide: while 46.8% of students scored high or very high on awareness of shortcomings, only 35.3% did so for perceived benefits and 31.5% for concerns about skill erosion. On the other hand, 18.8%–25.7% of students scored low and very low in the three constructs (see Table 2). All of these constructs have been normally distributed. Thus, the generative AI attitude of the sample is better described as cautious involvement rather than enthusiastic acceptance or rejection.

Table 2. Descriptive Statistics and Internal Consistency of Study Constructs

Construct	Items	M	SD	Level	Skewness	Kurtosis	Cronbach's α
Generative AI Usage Frequency	1	3.08	1.09	Moderate	−0.13	−0.47	—
Awareness of Limitations/Risks	7	3.31	0.94	Moderate	−0.33	−0.01	.93
Perceived Benefits/Behavioral Intention	8	3.15	0.87	Moderate	−0.29	0.15	.94
Skill-Erosion/Over-Reliance Concerns	4	3.04	0.86	Moderate	−0.17	0.27	.85

Note. Level bands: 1.00–1.80 = very low; 1.81–2.60 = low; 2.61–3.40 = moderate; 3.41–4.20 = high; 4.21–5.00 = very high (descriptive equal-interval convention; see Research Method). Percentage of respondents in the low/very low, moderate, and high/very high bands, respectively: usage, 26.6%, 39.7%, 33.7%; awareness, 18.8%, 34.5%, 46.8%; benefits, 20.5%, 44.1%, 35.3%; concerns, 25.7%, 42.6%, 31.5%. Shapiro–Wilk tests were significant for all composites (W = .911–.973, all $p < .001$); skewness and kurtosis were within ±2 and ±7, respectively. α for the six-item awareness composite (duplicated item removed) = .92.

4.2 Differences by Sex

Results from Welch's independent-samples t-tests (Table 3) revealed that female students have significantly more awareness than male students when it comes to the limitations of generative AI (Female M = 3.40, SD = 0.84; Male M = 3.23, SD = 1.02; $t(905.5) = -2.71$, $p = .007$, $d = −0.18$). The same significant difference also occurred in the frequency of usage (Female M = 3.17, SD = 1.00; Male M = 2.99, SD = 1.16; $t(917.0) = -2.60$, $p = .009$, $d = −0.17$). Gender did not contribute to whether students benefited from AI ($t(893.1) = 0.28$, $p = .776$, $d = 0.02$) or worried about losing skills when using the technology ($t(925.5) = -1.55$, $p = .122$, $d = −0.10$). Both significant differences were negligible in magnitude ($|d| < 0.20$), meaning the score distributions of female and male students overlapped almost completely; with N = 931, statistical significance reflects sample size more than a practically meaningful gap.

Table 3. Comparison of Construct Means by Sex

Construct	Male M (SD)	Female M (SD)	Welch t (df)	p	d
Awareness	3.23 (1.02)	3.40 (0.84)	-2.71 (905.5)	.007	−0.18
Perceived Benefits	3.16 (0.97)	3.14 (0.76)	0.28 (893.1)	.776	0.02
Concerns	2.99 (0.89)	3.08 (0.81)	-1.55 (925.5)	.122	−0.10
Usage Frequency	2.99 (1.16)	3.17 (1.00)	-2.60 (917.0)	.009	−0.17

Note. Male n = 473; female n = 458. Welch's t-tests (equal variances not assumed). Cohen's d is computed as male minus female; negative values indicate higher scores among female students.

4.3 Differences by Degree-Program Cluster

When comparing Teacher Education and Non-Education students (Table 4), it was found that the education students scored significantly higher than their counterparts in all parameters measured, about Awareness (M = 3.58, SD = 0.78 vs. M = 3.21, SD = 0.98; t(597.3) = 6.04, p < .001, d = 0.40), Perceived Benefits (M = 3.23, SD = 0.75 vs. M = 3.11, SD = 0.91; t(578.0) = 2.04, p = .042, d = 0.14), Skill Erosion Concerns (M = 3.17, SD = 0.76 vs. M = 2.98, SD = 0.89; t(562.1) = 3.19, p = .002, d = 0.22) and Usage Frequency (M = 3.27, SD = 0.93 vs. M = 3.00, SD = 1.14; t(585.5) = 3.79, p < .001, d = 0.25). In accordance with the magnitude, only the awareness gap was considered to be moderate (d = 0.40, 95% CI [0.26, 0.54]); other aspects like usage (d = 0.25) and worries about losing skills (d = 0.22) were slight, and the disparity in perceived benefits (d = 0.14) was not significant and would not be considered significant according to a pooled-variance t-test (p = .060). Consequently, the distinguishing feature of educational students may be their awareness of generative AI's limitations, while their scores on other items are modest; we will analyze these in the following section on response styles.

Table 4. Comparison of Construct Means by Degree-Program Cluster

Construct	Education M (SD)	Non-Education M (SD)	Welch t (df)	p	d
Awareness	3.58 (0.78)	3.21 (0.98)	6.04 (597.3)	< .001	0.40
Perceived Benefits	3.23 (0.75)	3.11 (0.91)	2.04 (578.0)	.042	0.14
Concerns	3.17 (0.76)	2.98 (0.89)	3.19 (562.1)	.002	0.22
Usage Frequency	3.27 (0.93)	3.00 (1.14)	3.79 (585.5)	< .001	0.25

Note. Education n = 264; non-education n = 667. Welch's t-tests (equal variances not assumed). Positive d values indicate higher scores among education students.

4.4 Response-Style and Common-Method Sensitivity Analysis

Harman's single-factor analysis showed one unrotated factor explaining 54.8% of the variance across 20 closed-ended questions (three factors had eigenvalues greater than 1), meeting the 50% heuristic; thus, common-method variance cannot be excluded. In terms of response patterns, the one cluster contained some information about response patterns: 20.7% of non-education people gave identical answers to 19 Likert items (mainly to the midpoint of the scale) and only 5.3% of the respondents from the education group; $\chi^2(1) = 31.66$, $p < .001$. When respondents who were straight-lining were removed (n = 779), it was found that the education group scored higher in terms of awareness (d = 0.30, p < .001) and usage (d = 0.20, p = .007), and only that of skill-erosion concerns (d = 0.14, p = 0.056) was a noticeable number in that respect. The results in IPSAT scores showed that education respondents paid greater attention to limitation awareness than did their non-education peers (d = 0.35, p < 0.001), while placing less attention to perceived benefits (d = -0.30, p < 0.001), and having no difference in terms of their focus on skill erosion (d = -0.10, p = 0.271). Results from a six-item awareness validity measure were almost identical to those from a seven-item measure (e.g., education vs. non-education, d = 0.39, p < 0.001).

4.5 Differences by Year Level and Intercorrelations

Welch's one-way ANOVA tests (Refer to Table 5) performed for the study were able to find significant differences in all four aspects studied, such as Awareness (F (3, 384.3) = 3.52, p = 0.015, $\eta^2 = 0.012$); Perceived Benefits (F(3, 390.8) = 4.06, p = 0.007, $\eta^2 = 0.013$); etc. Fourth-year students had the highest average scores for these four factors (e.g., Usage Frequency M = 3.33), compared with first-year students, whose average was lowest (e.g., Usage Frequency M = 2.92). Nonetheless, the observable differences were limited ($\eta^2 = .012–.025$; $\omega^2 = .008–.022$), and the course of action varied, since second-year students outperformed their third-year classmates in each category measured. Tests used showed differences in awareness between first- and fourth-year students (Mdiff = 0.31, p = .038), in benefits between fourth-year and first-year (Mdiff = 0.30, p = .018) and third-year students (Mdiff = 0.29, p = .031), in concerns between first-year and second-year students (Mdiff = 0.18, p = .041) and in usage between first-year students and third-year students as well as between second-year and fourth-year students (all $p \leq .015$). As the design was cross-sectional, these comparisons yielded information about the differences in cohorts at one point in time instead of the changes in students in the process of their education and the sample of the fourth-year students was quite small (n = 110).

Table 5. Construct Means by Year Level and Welch's ANOVA Results

Construct	First Year M (SD)	Second Year M (SD)	Third Year M (SD)	Fourth Year M (SD)	Welch F	p	η^2
Awareness	3.22 (0.87)	3.38 (0.78)	3.25 (1.08)	3.52 (1.05)	3.52	.015	.012
Perceived Benefits	3.07 (0.82)	3.21 (0.79)	3.08 (0.96)	3.37 (0.91)	4.06	.007	.013
Concerns	2.95 (0.82)	3.13 (0.76)	2.96 (0.92)	3.20 (0.94)	4.26	.006	.014
Usage Frequency	2.92 (1.05)	3.26 (0.99)	2.95 (1.18)	3.33 (1.10)	8.30	< .001	.025

Note. First year n = 267; second year n = 272; third year n = 282; fourth year n = 110. Welch's F has 3 numerator degrees of freedom; denominator degrees of freedom = 384.3 (awareness), 390.8 (benefits), 387.4 (concerns), and 393.5 (usage). η^2 is from the conventional one-way ANOVA. Kruskal–Wallis tests yielded the same conclusions (all $p < .01$).

As shown in Table 6, all factors were significantly and positively intercorrelated (all $p < .001$). In particular, awareness correlated the most with benefit perception ($r = .67$) and skill-erosion concerns ($r = .65$). In contrast, benefit perception was also strongly correlated with the concerns ($r = .68$). Thus, we see the situation where awareness, benefit perception, and risk concern grow together rather than supplanting one another. The Spearman coefficients indicated similar results ($\rho = .42–.64$, all $p < .001$). Some of this correlation may be explained by using the same self-reported measures. Usage frequency and skill erosion concerns were highly correlated ($r = .44$). However, once awareness of concern and perceived benefits were accounted for, r dropped to almost zero ($r = .05$; $p = .102$). However, when awareness was controlled for perceived benefits, r remained high: $r = .37$; $p < .001$. It suggests that skill erosion concerns might be correlated with awareness of shortcomings rather than with the usage itself.

Table 6. Intercorrelations Among Study Constructs

Variable	1	2	3	4
1. Usage Frequency	—			
2. Awareness	.46*	—		
3. Perceived Benefits	.56*	.67*	—	
4. Concerns	.44*	.65*	.68*	—

Note. * $p < .001$.

4.6 Qualitative Findings

The students' responses to the three open-ended questions (n = 880–903) were grouped into themes that largely matched the quantitative results of the survey. When asked about the benefits and disadvantages of generative AI, students cited research and idea generation (28.7%) as its major use, followed by using generative AI as a study aid for clarification (25.7%), fact-checking (18.1%), and time-saving (12.1%); less than 1% of the respondents stated that they would make use of generative AI very rarely as a last resort.

Students responded about when generative AI use could be beneficial or harmful. Students frequently mentioned its usefulness in understanding complex topics (21.4%) and in helping generate ideas (20.3%). On the negative side, the most commonly mentioned concern was over-reliance that can lead to procrastination (12.5%), along with plagiarism (6.9%) and a diminished ability to think critically (4.3%).

When students were asked what changes instructors and the institution should implement to safeguard critical thinking, problem solving, and various transferable skills, most of them suggested that there should be more emphasis on group work/teamwork and activities with collaborative elements (22.6%), along with the necessity to include tasks with a requirement of critical thinking and independent problem solving (19.5%). The second suggestion was to use more practical, real-world activities (15.5%) and assess students either in class or using tools that would restrict AI (6.0%). Only a small number of students (3.0%) expressed their opinion that no changes were needed. Given the breadth of students' suggestions, we can surmise that student anxiety about losing critical thinking skills accompanies recognition of the benefits of generative AI.

5. Discussion and Conclusions

This research aimed to analyze higher education students' awareness of generative AI, the benefits it offers, and concerns about skill loss in the Philippines. It examined how pre-service teacher education students differ from other students. The findings are discussed below in relation to the three research questions.

Regarding the first research question, the sample's overall profile shows moderate values around the midpoint across all constructs, which aligns with global trends in "cautious engagement." Like those examined in the analysis of Ravšelj et al. (2025) and Chan and Hu (2023), in this case the students were divided, as they neither welcomed nor rejected generative AI as they realized its advantages, such as time saving, easy explanations, and ability to generate ideas, but understood the drawbacks, including, uncertain results or danger of dependence, which has been repeatedly confirmed by the studies by Ngo (2023) and Yang (2024). The results indicate that Filipino students' attitudes toward generative AI are not new and align with those developed internationally, and they also show that students accept the technology model mentioned earlier. However, the moderate means mask high heterogeneity: almost half of respondents are very conscious of the limitations, and about one-fourth are not very concerned about skill decline. It means that a uniform AI literacy intervention will find students at very different starting points.

For the second question, education students scored higher on each of the four measures than non-education students; however, the effect sizes and sensitivity analysis suggest a need for a more nuanced interpretation rather than a general one. The most significant difference was in awareness of restrictions: it showed the strongest effect ($d = .40$) and remained significant even after removing responses from non-differentiated respondents and in the ipsatized analysis, in which education students emphasized restrictions much more than their friends. This is in line not only with the research that the readiness of future teachers to utilize AI in practice is influenced by information literacy and feelings of danger, but not just by experience (Özüdoğru & Yıldız Durak, 2025), but also with the results of the study revealing biased attitudes among future language teachers (Eyüp & Kayhan, 2023). In comparison, the larger concern and benefit scores among education majors were narrow. After adjusting for response style, they minimized these scores even more or eliminated them completely. Something as simple as the engagement of education majors in the survey could be the main reason for their high scores, as they tended to avoid straight-lining and to distinguish between different questions in a better way, meaning that the difference between the groups could be due to the effects of response style or common method, and not to their more efficient approach. Moreover, this casts doubt on the claim that AI users should not be critical of it, because the case at hand shows that frequent users and those who are aware of AI to some degree belong to the same group of respondents. This, however, facilitates the emergence of the "cognitive paradox" (Jose et al., 2025, p. 1) where the same methods which relieve the cognitive burden from users compel them to measure the costs of using them.

One tentative explanation for the higher awareness of education majors, which requires direct testing in future work, is related to the concept of social foresight — future teachers may already be thinking about how generative AI will influence the skills development of their future students, which would imply a form of indirect risk perception that is missing in the case of more conventional students. This view aligns with Zaugg's (2024) finding that pre-service teachers' willingness to let their students work with AI assistants is strongly influenced by their prior experience with AI-based tools during their education and training.

With regard to the third research question, the qualitative conclusions offer a constructive idea generated by students for addressing concerns about overreliance on generative AI, without the need to eliminate the use of generative AI. Instead of calling for restrictions and prohibitions, students mainly advocated for a greater incorporation of teamwork activities and assignments that require some independent critical thinking — recommendations which are in line with research studies in instructional design that warn about the potential passive nature of using AI-generated materials, where students will not engage in active analysis of the received information (Cahyani et al., 2024; Hading et al., 2024; Jayasuriya et al., 2025). Regarding teacher education programs, it means that two approaches should be undertaken: first, it should be integrated into the program to ensure that future teachers receive the appropriate skills for separating effective from ineffective use of generative AI, consistent with studies that emphasize the importance of hands-on experience (Gatlin, 2023; Zaugg, 2024); and second, some assignments that generative AI cannot do should be preserved, as students have also suggested.

Overall, the findings indicate that the prevalent notion of distinguishing between "embracing" or "restricting" generative AI in institutions is likely not applicable, particularly from the point of view of students. Specifically, students who used generative AI more often also tended to be more aware of its limitations, and concern about skill erosion was tied more closely to this awareness than to frequency of use itself, which points to awareness, rather than avoidance, as the lever for protecting skill development. This finding prompts the College of Education and relevant institutions to rethink how they teach students about AI.

6. Limitations

It is important to consider certain limitations when interpreting these findings. Firstly, findings are from a cross-sectional design and do not allow for establishing any causal or developmental relationships; year-level differences are equated to the cohorts examined at a specific point in time instead of tracking how the students grow. Second, the data come from one private university in one region of the Philippines. Although all undergraduates at this university were invited to participate, the sample remains a voluntary response sample, as most participants are criminology, information technology, and hospitality management students. Those who opted not to respond may have significantly different engagement levels with generative AI, making it impossible to generalize to the entire university and other universities in the Philippines.

The third limitation was that everything was determined through self-reporting. Harman's formula indicated that more than half of the factors were driven by a single factor, and variability in response types was observed across study programs. Thus, the analysis may be biased, and some validity-assessment techniques were not applied (Kock et al., 2021; Podsakoff et al., 2003). Fourth, the frequency of use was determined by a single item, and the awareness scale was based on two identical items, which increases the reliability of the awareness composite. Fifth, evidence for construct validity relies on the instrument's prior use (Chan & Hu, 2023) and on internal consistency, since the adapted items have not undergone confirmatory factor analysis in this sample. The qualitative part used keyword-based inductive coding of written responses, and the coders reached agreement through deliberation rather than calculating an agreement coefficient. Although institutional permission and informed consent were obtained, the ethics review board did not approve the protocol.

The research should apply probability sampling in collaboration with several educational institutions, use longitudinal designs to observe students throughout their college years, evaluate their behaviors and effectiveness, and validate research instruments with Filipino students.

7. Implications

The study, which used both qualitative and quantitative methods and included 931 Filipino college students, yielded mixed results on awareness of generative AI tools, perceptions of their value, and concerns about skills that might be lost while using them. The outcomes of the research indicate that the teacher education curricula need to introduce the concept and teach students to utilize generative AI, while at the same time giving them the opportunities to accomplish sophisticated tasks without the use of technology; teachers and policymakers might forget the fact that the discussions of the generative AI application are not to be based merely on the question of whether to accept the technologies or to ban them.

Author Contributions

Conceptualization, M.K.A. and S.I.D.; methodology, M.K.A., S.I.D., and P.M.G.; software, M.K.A. and D.K.G.; validation, M.K.A., S.I.D., P.M.G., D.K.G., and A.M.V.-G.; formal analysis, M.K.A. and S.I.D.; investigation, M.K.A., S.I.D., P.M.G., D.K.G., and A.M.V.-G.; resources, M.K.A. and A.M.V.-G.; data curation, M.K.A., P.M.G., and D.K.G.; writing—original draft preparation, M.K.A. and S.I.D.; writing—review and editing, M.K.A., S.I.D., P.M.G., D.K.G., and A.M.V.-G.; visualization, M.K.A. and D.K.G.; supervision, M.K.A., S.I.D., and A.M.V.-G.; project administration, M.K.A. All authors have read and agreed to the published version of the manuscript.

Funding

This research received no external funding.

Institutional Review Board Statement

This research was done in compliance with the National Ethical Guidelines for Research Involving Human Subjects (PHREB, 2022) and the Data Privacy Act of 2012 (Republic Act No. 10173). The organization in question approved the survey through the Office of the Dean. Because this survey did not collect any personal data and posed minimal risk to respondents, it was not submitted for ethics review. The authors obtained informed consent electronically from participants before the survey began. Any personal details that were obtained for administrative purposes were removed prior to the analysis.

Acknowledgments

The authors would like to acknowledge the administrative and logistical support provided by the participating institution in facilitating data collection. During the preparation of this manuscript, the authors used Generative AI tools solely as a study topic and research object; no Generative AI tools were used to generate text, data, or graphics for the manuscript. The authors have reviewed and edited the output and take full responsibility for the content of this publication.

Conflicts of Interest

The authors declare no conflicts of interest

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References

Baek, C., Tate, T., & Warschauer, M. (2023). "ChatGPT seems too good to be true": College students' use and perceptions of generative AI. *OSF Preprints.* https://doi.org/10.31219/osf.io/6tjpk

Cahyani, R. Y. D., Dewi, O. C., & Darmawan, A. (2024). AI and critical reading skill among university students: The impact of artificial intelligence (AI) on Al-Ghifari University students' critical reading skills. *TheGIST, 6*(1), 1–10. https://doi.org/10.53675/gist.v6i1.1374

Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education, 20*, Article 43. https://doi.org/10.1186/s41239-023-00411-8

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates. https://doi.org/10.4324/9780203771587

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297–334. https://doi.org/10.1007/BF02310555

Damiano, A. D., Lauría, E. J. M., & Sarmiento-Cano, C. (2024). Early perceptions of teaching and learning using generative AI in higher education. *Journal of Educational Technology Systems, 52*(3), 346–375. https://doi.org/10.1177/00472395241233290

Data Privacy Act of 2012, Republic Act No. 10173 (2012) (Phil.). https://privacy.gov.ph/data-privacy-act/

Delacre, M., Lakens, D., & Leys, C. (2017). Why psychologists should by default use Welch's t-test instead of Student's t-test. *International Review of Social Psychology, 30*(1), 92–101. https://doi.org/10.5334/irsp.82

Eyüp, B., & Kayhan, S. (2023). Pre-service Turkish language teachers' anxiety and attitudes toward artificial intelligence. *International Journal of Education and Literacy Studies, 11*(4), 43–56. https://doi.org/10.7575/aiac.ijels.v.11n.4p.43

Gatlin, M. (2023). Assessing pre-service teachers' attitudes and perceptions of using artificial intelligence in the classroom. *Texas Educator Preparation, 7*(2), 1–8. https://doi.org/10.59719/txep.v7i2.35

Hading, E. F., Rustan, D. R. H. P., & Ruing, F. H. (2024). EFL students' perceptions on the integration of AI in fostering critical thinking skills. *GLENS: Global English Insights Journal, 2*(1), 1–10. https://doi.org/10.61220/glens.v2i1.466

Himang, C. M., Villa, S. C., Jr., & Nolon, N. F. (2026). Adoption of ChatGPT among higher education students. *International Journal of Information and Communication Technology Education, 22*(1), 1–29. https://doi.org/10.4018/ijicte.411220

Jayasuriya, R., Selvanayaki, S., & Deepa, N. (2025). Assessing the impact of GPTs on critical thinking, creativity and independent problem solving in academic learning of students. *Research Square.* https://doi.org/10.21203/rs.3.rs-6367830/v1

Jose, B., Cherian, J., & Verghis, A. M. (2025). The cognitive paradox of AI in education: Between enhancement and erosion. *Frontiers in Psychology, 16*, Article 1550621. https://doi.org/10.3389/fpsyg.2025.1550621

Kim, H.-Y. (2013). Statistical notes for clinical researchers: Assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics, 38*(1), 52–54. https://doi.org/10.5395/rde.2013.38.1.52

Kock, F., Berbekova, A., & Assaf, A. G. (2021). Understanding and managing the threat of common method bias: Detection, prevention and control. *Tourism Management, 86*, Article 104330. https://doi.org/10.1016/j.tourman.2021.104330

Ngo, T. T. A. (2023). The perception by university students of the use of ChatGPT in education. *International Journal of Emerging Technologies in Learning, 18*(17), 4–19. https://doi.org/10.3991/ijet.v18i17.39019

Özüdoğru, G., & Yıldız Durak, H. (2025). Conceptualizing pre-service teachers' artificial intelligence readiness and examining its relationship with various variables. *Information Development, 41*(3), 916–932. https://doi.org/10.1177/02666669251335657

Petricini, T., Wu, C., & Zipf, S. T. (2023). Perceptions about generative AI and ChatGPT use by faculty and

college students. *OSF Preprints.* https://doi.org/10.35542/osf.io/jyma4

Philippine Health Research Ethics Board. (2022). *National ethical guidelines for research involving human participants 2022*. Philippine Council for Health Research and Development.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Ravšelj, D., Keržič, D., & Tomaževič, N. (2025). Higher education students' perceptions of ChatGPT: A global study of early reactions. *PLOS ONE, 20*(2), Article e0315011. https://doi.org/10.1371/journal.pone.0315011

Salas-Pilco, S. Z., Xiao, K., & Hu, X. (2022). Artificial intelligence and learning analytics in teacher education: A systematic review. *Education Sciences, 12*(8), Article 569. https://doi.org/10.3390/educsci12080569

Yang, H. (2024). Towards responsible use: Student perspectives on ChatGPT in higher education. *Proceedings of the European Conference on E-Learning, 23*(1), 415–422. https://doi.org/10.34190/ecel.23.1.2790

Zafar, S., Shaheen, F., & Rehan, J. (2024). Use of ChatGPT and generative AI in higher education: Opportunities, obstacles and impact on student performance. *IRASD Journal of Educational Research, 5*(1), 1–12. https://doi.org/10.52131/jer.2024.v5i1.2463

Zakaria, N. Y. K., & Hashim, H. (2024). Shaping the future of education: Conceptualising pre-service teachers' perspectives on artificial intelligence (AI) integration. *International Journal of Academic Research in Business and Social Sciences, 14*(5), 2066–2076. https://doi.org/10.6007/ijarbss/v14-i5/21584

Zaugg, T. (2024). Embracing innovation in education: Investigating the use and impact of artificial intelligent assistants among preservice teachers. *Research Square.* https://doi.org/10.21203/rs.3.rs-5032655/v1

Appendix A

Survey Instrument

Informed-Consent Statement (first screen)

Confidentiality and Ethics. Note that if you wish to take part, your participation is completely voluntary. You can choose not to participate in this study or withdraw from the study at any time. Any information you provide will be treated with the utmost confidentiality and anonymity. The information obtained from this study will only be used for statistical purposes and will not be used to identify the participants. Please click "I agree" if you are willing to participate in this survey. [Response option: I agree.]

Section 1. Profile and Generative AI Use

Sex; Year Level; Program

Have you ever used generative AI technologies like ChatGPT? (5-point scale; higher values indicate more frequent use)

Section 2. Awareness of Limitations/Risks (7 items)

A1. I understand that generative AI technologies like ChatGPT have limitations when handling complex tasks.

A2. I understand that generative AI technologies like ChatGPT can generate factually inaccurate output.

A3. I understand generative AI technologies like ChatGPT can generate out-of-context or inappropriate output.

A4. I understand generative AI technologies like ChatGPT can exhibit biases and unfairness in their output.

A5 I understand generative AI technologies like ChatGPT may rely too heavily on statistics, which can limit their usefulness in certain contexts.

A7. I understand generative AI technologies like ChatGPT have limited emotional intelligence and empathy, which can lead to insensitive or inappropriate output.

A6. I understand that generative AI technologies like ChatGPT can pose security and data privacy risks, as sensitive information shared in prompts might be stored or processed improperly.

Open-ended question 1: Considering what you know about the pros (benefits) and cons (risks) of tools like ChatGPT, how do you plan to use them in your work or studies to get the most help while avoiding the problems?

Section 3. Perceived Benefits/Behavioral Intention (8 items)

B1. I envision integrating generative AI technologies like ChatGPT into my teaching and learning practices in the future.

B2. Students must learn how to use generative AI technologies well for their careers.

B3. I believe generative AI technologies such as ChatGPT can improve my digital competence.

B4. I believe generative AI technologies such as ChatGPT can help me save time.

B5. I believe AI technologies such as ChatGPT can provide me with unique insights and perspectives I may not have thought of.

B6. I think AI technologies such as ChatGPT can provide me with personalized and immediate feedback and suggestions for my assignments.

B7. I think AI technologies such as ChatGPT are a great tool as they are available 24/7.

B8. I think AI technologies such as ChatGPT are a great tool for student support services because they offer anonymity.

Open-ended question 2: When is using ChatGPT for a school or work task helpful, and when is it harmful? Why?

Section 4. Skill-Erosion/Over-Reliance Concerns (4 items)

C1. Using generative AI technologies such as ChatGPT to complete assignments undermines the value of university education.

C2. Generative AI technologies such as ChatGPT will limit my opportunities to interact with others and socialize while completing coursework.

C3. Generative AI technologies such as ChatGPT will hinder my development of generic or transferable skills such as teamwork, problem-solving, and leadership skills.

C4. I can become over-reliant on generative AI technologies.

Open-ended question 3: Given your concerns that generative AI could hinder the development of skills (like problem-solving or teamwork) or lower the value of a university education, what is one specific change you think instructors or the university should make to assignments or course design to protect or even strengthen these skills?

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