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**Examining How Continuous Professional Development Shapes
Teaching Practice and Student Learning Outcomes**



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Examining How Continuous Professional Development Shapes Teaching Practice and Student Learning Outcomes

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ABSTRACT

Purpose: This study examines how Teacher Continuous Professional Development (TCPD) initiatives implemented through the Strengthening Education Systems in East Africa (SESEA) and Foundation for Learning (F4L) projects influence teaching practices and foundational learning outcomes in Tanzania, Kenya, and Uganda.

Methodology: The study employed a mixed-methods research design using longitudinal data from classroom observations, teacher questionnaires, student assessments, and key informant interviews. Data were collected from trained teachers, teacher educators, school leaders, and learners across selected project regions to evaluate changes in instructional practices and learning outcomes.

Findings: The findings indicate that TCPD significantly improved teachers' adoption of child-centered, play-based, inclusive, and gender-responsive pedagogies. These pedagogical shifts increased learner engagement and contributed to measurable improvements in foundational literacy and numeracy. However, systemic challenges such as overcrowded classrooms, shortages of learning materials, and limited instructional leadership constrained full implementation.

Unique Contribution to Theory, Practice and Policy: The study contributes empirical evidence on how sustained, school-embedded TCPD combined with mentorship and Professional Learning Communities can strengthen teaching quality in resource-constrained education systems. It recommends institutionalizing CPD structures, strengthening instructional leadership, and addressing structural resource gaps to sustain and scale improvements in foundational learning across East Africa.

Keywords: *Continuous Professional Development, Educational Quality, Student Engagement, Professional Development Strategies.*



1 INTRODUCTION

Teacher Continuous Professional Development (TCPD) serves as a cornerstone for the ongoing enhancement of educational systems for equipping educators with the current knowledge, innovative teaching methodologies, and effective assessment techniques; all aimed at bolstering their effectiveness within the classroom (Shayo & Sonola, 2025). This commitment to lifelong learning for teachers is particularly vital in resource-constrained settings, where teacher capacity is the single most important factor for improving educational quality (Islam et al., 2025). The literature consistently demonstrates a significant correlation between high-quality, sustained TCPD and improved teaching quality, which in turn yields tangible gains in student learning outcomes, particularly in foundational literacy and numeracy (Ambon et al., 2024). Different literature provides clear evidence of the systemic barriers that continue to limit the full implementation of Teacher Continuous Professional Development (TCPD) across low-resource education systems. Westbrook et al. (2013) demonstrate that overcrowded classrooms, inadequate instructional materials, and limited space for group activities significantly constrain teachers' ability to apply learner-centred and interactive pedagogies. Mitchell et al. (2024) further highlight institutional and structural weaknesses, such as insufficient instructional leadership, fragmented CPD policies, and poor alignment between training and school systems, which undermine the sustainability of pedagogical reforms. In addition, Shayo and Sonola (2025) show that cultural norms, gender biases, and resistance to new teaching practices often hinder teachers' efforts to implement inclusive and gender-responsive pedagogy. These concerns are echoed in the SESEA and F4L findings, where teachers reported challenges related to high pupil-teacher ratios, shortages of age-appropriate learning materials, and inconsistent access to mentorship and professional support, all of which constrained their ability to translate training into improved daily practice. Together, this body of literature affirms that meaningful gains in teaching quality require addressing both pedagogical and systemic conditions.

Despite major investments in TCPD through the SESEA¹ and F4L projects, many classrooms in East Africa still struggle to demonstrate consistent, high-quality teaching practices that effectively support foundational literacy and numeracy (Rarieya et al., 2024). While the projects have successfully introduced child-centered, inclusive, gender-responsive, and play-based pedagogies, their full adoption and sustained use remain uneven across schools.

Teachers continue to face persistent systemic barriers, such as overcrowded classrooms, shortages of age-appropriate teaching and learning materials, high learner-teacher ratios, and limited access to structured mentorship or ongoing professional support. These conditions weaken teachers' ability to translate training into everyday classroom practices. In addition, cultural norms, limited

¹ The Foundation for Learning (F4L) and the Strengthening Education Systems East Africa (SESEA) project were implemented across Tanzania, Kenya, and Uganda. The focus of the projects were on early childhood (ECE) and primary education, a critical stage where foundational skills in literacy and numeracy are established.

school leadership support, and gaps in institutionalizing TCPD structures further constrain the implementation and long-term sustainability of improved teaching approaches (George et al., 2024).

As a result, the potential of SESEA and F4L to transform teaching quality and strengthen foundational learning is not yet fully realized. There is a critical need to examine how these interventions influence teaching behavior, what contextual factors enable or hinder change, and what mechanisms are necessary to sustain and scale effective pedagogical practices within resource-constrained East African education systems.

Therefore, the study evaluates the impact of SESEA and F4L TCPD initiatives on improving teaching quality and foundational literacy and numeracy outcomes in early childhood and primary education across East Africa.

1.1 Research Gap and Research Questions

Despite the growing body of literature highlighting the importance of Teacher Continuous Professional Development (TCPD) for improving educational quality, several critical gaps remain in the existing research. Most studies on professional development in Sub-Saharan Africa focus primarily on short-term training interventions or single-country case studies, with limited evidence on how sustained and large-scale TCPD initiatives influence long-term changes in classroom practices and learner outcomes. Furthermore, while previous research has documented the benefits of child-centered and inclusive pedagogies, there is insufficient empirical evidence on how such pedagogical approaches are institutionalized and sustained within resource-constrained education systems.

In addition, existing studies rarely examine the interaction between teacher training, mentorship structures, professional learning communities (PLCs), and broader systemic factors such as school leadership, resource availability, and cultural norms. These contextual factors play a critical role in determining whether professional development initiatives translate into meaningful improvements in teaching practice and student learning outcomes.

To address these gaps, this study evaluates how the SESEA and Foundation for Learning (F4L) initiatives influence instructional practices and foundational literacy and numeracy outcomes across Tanzania, Kenya, and Uganda. Specifically, the study seeks to answer the following research questions:

1. How do SESEA and F4L TCPD initiatives influence teachers' instructional practices in early childhood and primary education?
2. To what extent do changes in teaching practices contribute to improvements in foundational literacy and numeracy outcomes among learners?
3. What contextual and systemic factors facilitate or constrain the implementation of TCPD in East African classrooms?

4. What mechanisms are necessary to sustain and institutionalize TCPD practices within resource-constrained education systems?

1.2 Theoretical Foundations of Teacher Continuous Professional Development (TCPD)

TCPD is grounded in several theoretical and empirical models that explain how teachers acquire, internalize, and sustain new professional skills. Desimone's (2009) influential framework outlines five essential features of effective professional development: content focus, active learning, coherence, sustained duration, and collective participation. These elements enhance teachers' capacity to translate training into improved instructional practice. In East Africa, where teachers often face challenging classroom environments, these features become even more critical because they determine whether training will remain theoretical or result in meaningful pedagogical change.

Adult Learning Theory (Knowles, 1980) further emphasizes that adult learners are self-directed, experience-based, and motivated by immediate relevance. Effective TCPD, therefore, must be practical, problem-solving oriented, and closely aligned with the realities teachers face in their classrooms. The SESEA and F4L projects integrate these principles by focusing on contextually relevant pedagogy such as play-based learning, scientific reasoning in early years, and formative assessment. These programs also adopt the HEAD–HEART–HANDS model, which ensures that teachers not only gain conceptual understanding (head) but also develop positive attitudes (heart) and practical classroom skills (hands).

Additionally, the Mentor-Reflective Theory and the Coaching Model highlight the role of personalized support, reflection, and feedback in shaping sustainable instructional change. These theories argue that continuous professional growth is most effective when teachers receive ongoing mentorship and opportunities for reflective practice, an approach that SESEA and F4L attempted to institutionalize through school-based mentorship and PLCs.

1.3 Child-Centered Pedagogy and Foundational Learning

Child-centered pedagogy is widely recognized in global literature as an essential component of effective early-grade instruction. Traditional teacher-centered methods, dominated by lecturing, repetition, and passive learning, have been found inadequate for building foundational literacy and numeracy skills. Scholars such as Darling-Hammond et al. (2017) and Hattie (2009) argue that interactive, hands-on, inquiry-based teaching allows children to make sense of concepts more effectively and fosters critical thinking.

In East African classrooms, the shift to child-centered pedagogy is especially crucial due to the introduction of Competency-Based Curricula (CBC). These curricula require teachers to engage learners through problem-solving, small-group learning, and practical activities. The SESEA and F4L evaluations reveal that teachers trained under these projects increasingly adopted methods such as group work, storytelling, peer discussions, and the use of locally available materials. Teachers also implemented play-based learning in Early Childhood Education (ECE), helping

children build foundational skills such as phonemic awareness, number sense, and vocabulary through experiential activities.

Research shows that such child-centered strategies not only enhance academic outcomes but also increase student engagement, motivation, and confidence. For example, Hattie (2009) demonstrates that active, hands-on and inquiry-based learning yields significantly higher achievement gains than traditional lecture-based instruction. Similarly, Darling-Hammond et al. (2017) highlight that interactive, learner-centered pedagogies strengthen conceptual understanding and promote deeper learning, particularly in early grades. Evidence from Sub-Saharan Africa further reinforces these findings: Westbrook et al. (2013) report that child-centered approaches improve student participation and learning quality in low-resource classrooms, while Mitchell et al. (2024) emphasize that learner-centred, play-based strategies are strongly associated with improved foundational literacy and numeracy outcomes. This connection is evident in project findings where improvements in teaching practices corresponded with notable gains in literacy and numeracy scores across Tanzania, Kenya, and Uganda.

1.4 Inclusive and Gender-Responsive Pedagogy in Early Grade Education

SESEA and F4L integrated inclusive and gender-responsive pedagogy into their TCPD frameworks to address these disparities. Teachers were trained to recognize gender biases, encourage balanced participation, create safe learning environments, and adapt teaching strategies for children with Special Educational Needs (SEN). The introduction of Universal Design for Learning (UDL) approaches, such as differentiated instruction, flexible groupings, and multisensory teaching, enabled teachers to cater to diverse learners.

Inclusion and gender responsiveness are central to equitable learning, particularly in contexts where cultural norms, stereotypes, and resource disparities can influence children's classroom experiences (Rarieya et al., 2024). International literature highlights that learners with disabilities, girls, and children from marginalized communities often face barriers that limit their participation and achievement. For example, UNESCO (2020) reports that gender norms, disability-related stigma, and socioeconomic inequalities significantly restrict equitable learning opportunities in many low-income contexts. Similarly, Ainscow (2020) emphasizes that structural and classroom-level constraints often prevent schools from fully implementing inclusive education principles. The theoretical lens of Intersectionality, as articulated by Collins and Bilge (2020), further explains how overlapping factors such as gender, disability, ethnicity, and poverty can amplify educational inequalities, making some learners more vulnerable to exclusion than others.

Despite documented improvements, the literature underscores that inclusive and gender-sensitive pedagogy often encounters resistance due to entrenched cultural norms and limited administrative support. Unterhalter et al. (2014) show that gender-responsive education reforms frequently struggle to translate into consistent classroom practice without strong school leadership and ongoing reinforcement. Likewise, Singal (2019) finds that teachers may revert to traditional, teacher-centered methods when mentorship, resources, and institutional backing for inclusive

education are weak. This aligns with evidence from the SESEA project, where some teachers demonstrated challenges in consistently applying GRP and SEN strategies, despite initial training. Thus, inclusive pedagogy must be continuously reinforced through mentorship, school leadership engagement, and community sensitization to ensure long-term practice change.

1.5 Sustaining Pedagogical Change: Mentorship, Coaching, and Professional Learning Communities (PLCs)

Research consistently demonstrates that sustainable pedagogical change requires more than short-term workshops. Studies such as Darling-Hammond et al. (2017) show that ongoing, job-embedded professional development, particularly coaching and collaborative learning, results in far stronger instructional improvement than one-off training sessions. Similarly, Kraft, Blazar, and Hogan (2018) provide robust evidence that individualized instructional coaching significantly improves teaching practices and student achievement across diverse contexts. In low-resource settings, Piper et al. (2018) found that structured teacher coaching and continuous support led to substantial gains in early literacy outcomes compared to traditional training alone. Additionally, Schwartz and Jenkins (2020) highlight the effectiveness of Professional Learning Communities (PLCs) in promoting collaborative problem-solving, reflective practice, and sustained pedagogical change. Together, this body of research affirms that mentorship, coaching, and PLCs are among the most effective models for reinforcing teacher learning, providing ongoing feedback, and building collaborative cultures within schools.

Within the SESEA and F4L projects, mentorship played a central role. Teachers were paired with trained mentors or “Champion Teachers” who supported them in lesson planning, implementing new strategies, and using Monitoring and Evaluation (M&E) data for improvement. PLCs enabled teachers to meet regularly, discuss challenges, share best practices, and collectively develop solutions. Literature shows that such collaborative structures increase teacher confidence and mastery while reducing professional isolation. For example, Vescio, Ross, and Adams (2008) found that Professional Learning Communities (PLCs) significantly enhance teachers’ instructional confidence and collective efficacy. Similarly, Stoll et al. (2006) emphasize that collaboration within PLCs fosters shared problem-solving, continuous reflection, and reduced isolation among teachers. In low-resource settings, Piper et al. (2018) also report that structured collaboration among teachers strengthens pedagogical consistency and supports sustained improvements in learner outcomes.

However, sustaining these systems requires institutional commitment. Studies note that effective mentorship models depend on adequate time allocation, leadership backing, incentives, and resource availability. Where these conditions are weak, teachers often struggle to maintain new practices, an issue reported in several SESEA project schools where mentor engagement declined after initial project funding ended.

1.6 Systemic and Contextual Barriers Affecting TCPD Implementation

Literature on CPD implementation in Sub-Saharan Africa highlights persistent structural barriers that undermine even well-designed TCPD programs. For instance, Hardman et al. (2015) found that large class sizes, inadequate learning materials, and limited instructional leadership significantly restrict teachers' ability to implement learner-centred pedagogy after training. Similarly, Ottevanger, Akker, and Feiter (2007) report that weak institutional support systems, insufficient funding, and fragmented CPD policies hinder sustainable professional development across several African countries. More recent evidence from Mitchell et al. (2024) also reveals that overcrowded classrooms, resource shortages, and inconsistent school-level implementation structures continue to impede the effectiveness of CPD initiatives on the continent.

Cultural norms, resistance to change, and limited school leadership support further compound these barriers. In many contexts, school administrators are not fully trained in instructional leadership, which reduces their ability to guide and support teachers' professional development journeys. Evidence on SESEA project revealed that some teachers faced negative attitudes from colleagues, misalignment between school priorities and TCPD principles, and limited administrative engagement in CPD follow-up activities.

Another recurring barrier highlighted in the literature is the limited institutionalization of TCPD within national education systems. Programs often remain project-based, lacking integration into routine school structures or government policies. Without policy alignment, financial support, and systematic monitoring, teachers struggle to maintain new classroom practices once external funding concludes.

These systemic factors collectively influence teacher agency, the capacity to make informed decisions and sustain improved teaching practices. In highly constrained environments, teacher motivation may decline despite initial training, leading to inconsistent application of new pedagogies.

1.7 Low-Resource Contexts on TCPD Impact

Empirical studies across low-resource regions consistently demonstrate that well-structured TCPD positively influences student learning outcomes. For example, Yoon et al. (2007) found that sustained professional development can improve student achievement by up to 21 percentile points. In East Africa, similar evidence has been recorded across various literacy and numeracy strengthening programs.

The SESEA and F4L project evaluations provide context-specific empirical confirmation of these findings. In Tanzania, Kenya, and Uganda, TCPD interventions resulted in marked improvements in classroom practices and student results. Notably, the proportion of learners unable to read a single word significantly declined, while numeracy indicators such as counting ability and phonemic awareness improved. Teachers also reported increased learner engagement, confidence, and active participation, qualities strongly linked to improved academic performance.

These empirical outcomes reinforce the global literature's assertion that teacher expertise is one of the strongest predictors of student learning. They also highlight the importance of continuous, context-sensitive, and collaborative CPD programs, particularly in low-resource environments where teachers need additional support to overcome systemic challenges.

2 METHODOLOGY

This study employs a Mixed-Methods Research Design, integrating both quantitative and qualitative data gathered from the F4L and SESEA initiatives. This approach is necessary to ensure a comprehensive analysis that not only measures the statistical impact of the Continuous Professional Development (CPD) interventions (quantitative) but also captures the nuanced challenges, experiences, and contextual factors influencing implementation (qualitative). The methodology is designed to leverage the existing research architecture of the longitudinal studies conducted across Tanzania, Kenya, and Uganda.

2.1 Study Design and Context

Research Design: The core research design is Longitudinal and Evaluative, building upon the existing baseline, midline, and endline data collection cycles of the F4L and SESEA projects. This design allows for the measurement of changes in teacher knowledge, pedagogical practices, and student outcomes over time in the target regions (e.g., Lindi Region in Tanzania, West Nile sub-region in Uganda, and Mombasa County in Kenya).

Study Sites and Population: The study population is composed of:

1. **Trained Teachers:** Primary and Early Childhood Education (ECE) teachers who participated in the short courses and long-term professional development programs.
2. **Teacher Educators/Mentors:** Staff from the partner Teachers' Colleges (e.g., Nachingwea TC, Arua Core PTC, Shanzu TC) responsible for delivering and monitoring the CPD.
3. **School Leaders and Administrators:** Headteachers and education officials whose support and leadership are crucial for institutionalizing the practices.
4. **Students:** Learners in the target classrooms whose performance and engagement are the ultimate measures of impact.

Table 1: Data Collection Instruments Used in the Study

Instrument	Purpose	Focus Area	Data Type
Teacher and Teacher Educator Questionnaires	To quantitatively measure changes in self-reported knowledge, attitudes, and competence following CPD.	Assessing teacher motivation for CPD and perceived barriers to implementing new teaching methods such as resource availability, time constraints, and ICT competency.	Quantitative (Self-reported scores/ratings)
Classroom Observation Protocol	To provide objective qualitative and quantitative data on teaching practices and the classroom learning environment.	Direct observation of interactive teaching methods, gender-sensitive practices, inclusivity measures (including attention to learners with Special Educational Needs), and the use of instructional materials and play-based learning.	Mixed methods (checklists and observation notes)
Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs)	To collect in-depth qualitative information on experiences, challenges, and contextual factors affecting implementation.	Exploring issues such as administrative support, cultural barriers, sustainability of mentorship programs, and the effectiveness of Action Plan implementation.	Qualitative (narrative and thematic data)
Student Assessment and Evaluation Tools	To quantitatively measure the impact of CPD on student learning outcomes.	Measuring student performance in foundational literacy and numeracy, including reading, writing, and basic arithmetic skills using standardized or project-specific assessment tools.	Quantitative (performance scores)

2.2 Data Collection Methods and Instruments

The study utilized a comprehensive Mixed-Methods Research Design that leveraged the existing project architecture of the F4L and SESEA initiatives. The data collection strategy was built around four core instruments designed to capture both the quantitative changes in practice and outcomes and the qualitative contextual factors influencing those changes.

2.3 Data Analysis

2.3.1 Quantitative Data Analysis

Quantitative data from questionnaires, observation checklists (where coded numerically), and student assessments will be analyzed using statistical software (e.g., SPSS or R).

- Descriptive Statistics: To summarize the data (frequencies, means, standard deviations) on teacher competencies, resource availability, and student scores.
- Inferential Statistics (e.g., Paired t-tests, ANOVA, Regression Analysis): To measure the statistical significance of the change in student and teacher data between the baseline and follow-up cycles (the impact of the intervention) and to determine the correlation between specific CPD features (e.g., mentorship, use of M&E) and improved outcomes.

2.3.2 Qualitative Data Analysis

Qualitative data from KIIs and FGDs will be analyzed using Thematic Analysis.

- Process: Data will be transcribed, coded, and categorized to identify recurring themes related to implementation challenges, successes, cultural resistance, and the perceived value of specific training components (e.g., gender-sensitive pedagogy, use of play). This will provide the necessary context to interpret the quantitative findings.
- Focus: Specific attention will be paid to themes that explain the gaps identified in the problem statement, such as the mechanisms of peer support, the role of school leadership, and strategies for mitigating the impact of overcrowded classrooms.

3 THE STUDY FINDINGS

The findings in the study draw on an integrated analysis of longitudinal datasets, follow-up evaluation studies, and systematic classroom observations conducted across Tanzania, Kenya, and Uganda. This study utilizes a mixed-methods approach to examine the substantial impact of two key TCPD initiatives whose primary objective is to transform conventional educators into “Champion Teachers and Leaders.” The interventions were deliberately designed to go beyond theoretical exposure by strengthening teachers’ practical capacity to apply child-centered, interactive, and differentiated teaching methodologies in real classroom settings. As demonstrated in the project curriculum and evaluation reports, the CPD approach placed strong emphasis on developing gender-sensitive pedagogy and inclusive practices that accommodate diverse learners, including those with Special Educational Needs (SEN). It also introduced modern pedagogical components such as Scientific Reasoning in Early Years to deepen learners’ conceptual understanding. Additionally, the initiatives aimed to build teacher autonomy and reflective practice through structured Action Planning (AP) and the use of Monitoring and Evaluation (M&E) data to inform instructional refinement. Collectively, these components shaped the foundation for assessing how teachers’ professional growth translated into improved pedagogical practices and enhanced foundational learning outcomes across the three countries in Kenya, Uganda and Tanzania. This section presents results of the influence of the interventions on instructional practices, student performance, the effectiveness of ongoing support structures, and the contextual barriers that continue to affect implementation.

3.1 Influence on Instructional Practices and Pedagogical Shift

The study confirms a substantial and measurable shift in instructional practices among teachers who participated in the SESEA and F4L professional development programs. Data drawn from classroom observations, teacher interviews, and follow-up evaluations show that teachers increasingly adopted learner-centered, interactive, and reflective pedagogies aligned with contemporary educational standards.

3.1.1 Adoption of Child-Centered, Interactive, and Play-Based Pedagogies

One of the most significant achievements of the TPL interventions was the widespread adoption of child-centered pedagogy. Across the three countries, classroom observation data indicated an average 45% increase in the use of interactive teaching methods during the follow-up cycle. Teachers consistently employed group discussions, hands-on activities, open-ended questioning, and real-life examples, methods previously used minimally or inconsistently.

In ECE settings, teachers demonstrated notable improvements in the purposeful use of play. The Follow-Up Classroom Observation Report highlighted substantial increases in the use of activity corners, guided exploration, and learner-led tasks. Teachers expressed that the transition to play-based learning not only enhanced student engagement but also reduced instructional stress. One Tanzanian teacher explained:

“Before the training, I just told them what to do. Now, I use the activity corners. I see the children learning on their own, finding the answers. It is much less stress for me, and they learn more deeply.” (Tanzanian Primary Teacher, KII, June 2015)

Additionally, the Post-Training Evaluation Report documented an average 38% rise in teachers’ confidence to implement inquiry-based learning approaches aimed at strengthening Scientific Reasoning in Early Years. This suggests that the TCPD interventions successfully introduced subject-focused pedagogies that encourage exploration, prediction, and experimentation.

3.1.2 Integration of Gender-Sensitive and Inclusive Practices

The findings also indicate strong progress in teachers’ awareness and implementation of gender-sensitive and inclusive practices. Quantitative data from observation checklists showed an 82% compliance rate in ensuring balanced participation between boys and girls, a notable improvement from the baseline, where girls were often overlooked or overshadowed by boys during questioning and group work.

Teachers also incorporated differentiated instruction and multisensory teaching strategies to accommodate learners with varying needs, including those with learning difficulties. However, qualitative findings suggest that implementation depth remains inconsistent. Entrenched cultural norms continue to influence classroom dynamics, particularly regarding confidence and participation.

As one teacher educator in Kenya noted:

“Teachers are calling on girls more, but the cultural beliefs are still strong. When I ask a challenging question, the boys shout out the answer, and the girls often look down. It takes more than training; it takes community action to change this mindset.” (Kenyan Teacher Educator, FGD, June, 2025)

The data therefore highlights both progress and the need for broader community engagement.

3.2 Impact on Student Learning Outcomes (Foundational Literacy and Numeracy)

The longitudinal data across the intervention schools confirms that the improved instructional practices contributed directly to enhanced student academic performance in foundational literacy and numeracy. The project documented a significant decline in the proportion of learners unable to read a single word, from approximately 40% at baseline to 25% at endline. Similar gains were noted in numeracy: the percentage of learners who could correctly solve simple addition problems increased by 17%, reflecting stronger early arithmetic abilities.

Qualitative evidence strongly supports the quantitative results. Teachers reported noticeable changes in student engagement, confidence, and willingness to participate in learning activities. One Ugandan ECE teacher described the transformation:

“My learners are no longer afraid to come to school. They are active, they concentrate, and they are excited to touch and count the things we find in the market. The change in their confidence is visible; they are not just memorizing, they are understanding.” (Ugandan ECE Teacher, KII, June 2025)

These improvements affirm the central hypothesis of the program: that effective, child-centered pedagogy stimulates learner engagement, which in turn leads to better learning outcomes.

3.3 Effectiveness of Ongoing Support Structures

The study found that ongoing support structures, mentorship, PLCs, AP, and instructional coaching, are central to sustaining pedagogical gains. However, their implementation was found to be uneven, and often dependent on local leadership or teacher motivation rather than institutionalized systems.

AP proved to be one of the strongest components of the TPL approach. A remarkable 95% of trained teachers developed and submitted their APs, demonstrating a strong commitment to planning and reflective practice. Teachers frequently mentioned APs as a tool that helped them stay focused and apply the training in their classrooms.

However, the sustainability of the reforms was strongly tied to the availability of mentoring and peer collaboration. As one Tanzanian primary teacher explained:

“The training was powerful, but after three weeks, you go back to your school and you are alone. If the mentor doesn't visit, or if we can't meet for our PLC because

of time, the old habits come back quickly. The support must be constant.”
(Tanzanian Primary Teacher, FGD, June 2025)

A key area requiring improvement was the use of Monitoring and Evaluation (M&E) data. Only 28% of school leaders reported regular use of M&E data to guide instructional decisions, indicating that data-informed teaching remains underdeveloped. Building capacity for data-driven decision-making among teachers and administrators would significantly enhance the effectiveness of CPD.

3.4 Systemic, Cultural, and School-Level Barriers

The findings reveal that despite pedagogical gains, systemic and contextual barriers significantly hinder the full realization of the CPD reforms.

Overcrowding and lack of learning materials emerged as the greatest obstacles. In some Kenyan and Tanzanian intervention schools, class sizes exceeded 90 learners, with one school reporting 105 learners in one classroom. Such conditions make small-group instruction, individual feedback, and differentiated learning extremely difficult.

A Kenyan teacher shared:

“I have 105 students and no tables, no storage, and five books. The training taught us to do small-group work, but how can I manage 10 groups in one small room? The training is good, but the reality of the classroom is stronger.” (Kenyan Primary Teacher, KII, June, 2025)

Institutional challenges were also significant. Some school leaders did not prioritize CPD or allocate protected time for PLCs, undermining the sustainability of training outcomes. In several schools, colleagues resistant to change dismissed new pedagogies as “extra work,” thereby discouraging innovation.

Cultural barriers remained deeply embedded, especially those related to gender roles and participation. These cultural norms influenced student confidence and limited the full implementation of gender-sensitive pedagogy.

3.5 Strategies for Institutionalization and Sustainability

The findings highlight several strategies essential for strengthening the long-term sustainability of CPD outcomes.

Leadership development is a priority. The Longitudinal Study Report of Uganda emphasized the need for training school leaders in instructional leadership, CPD management, and supportive supervision. Leadership buy-in was seen as a decisive factor in whether improved practices persist beyond the project period.

As one teacher educator noted during the interview:

“If the Head Teacher does not understand and support the new way of teaching, it will die when the project ends.” (Ugandan Teacher Educator, personal communication, June 2025)

Low-cost innovations were also shown to be effective in addressing resource shortages. On average, teachers created at least three new teaching aids from locally available materials after the training. Such innovations reduce dependency on external resources and allow teachers to sustain interactive learning even in constrained environments.

Finally, policy embedding was identified as a critical step for institutionalizing gains. Integrating gender-responsive pedagogy, ICT integration, mentorship structures, and competency-based teaching into national and school-level policies ensures continuity and system-wide consistency.

4 DISCUSSION OF FINDINGS

The evidence from SESEA and F4L confirms that context-sensitive, sustained TPL produces measurable improvements in classroom practice and foundational learning. The clear increase in interactive, child-centered and play-based strategies, together with gains in literacy and numeracy, is consistent with contemporary syntheses of African TPD evidence which show that well-designed professional development that is content-focused, sustained, and embedded in school practice yields stronger teacher performance and student outcomes. This alignment reinforces the plausibility that the pedagogical shifts we observed are a direct product of TPL design features (content focus, active learning, coherence and duration) rather than chance or unrelated reforms (Mitchell et al., 2024).

Findings on the central role of mentorship, AP and PLCs in sustaining change resonate strongly with recent empirical and review literature. The high uptake and perceived value of APs and the explicit teacher demand for regular mentoring mirror results from studies that identify school-based coaching and structured peer collaboration as the mechanisms most likely to convert workshop learning into classroom practice. Where mentoring and PLCs were active, teachers reported higher confidence and more consistent implementation, an outcome supported by recent systematic reviews showing that ongoing, job-embedded support produces larger and more durable effects than one-off workshops. This evidence suggests that scaling TPL will require not only initial training but also deliberate investment in mentor networks, protected time for PLCs, and managerial systems that embed these practices in school routines (Geletu, 2023).

The pattern of gains in literacy and numeracy documented in the longitudinal data, including the decline in learners unable to read a single word and the rise in basic arithmetic competence, reflects findings from other East African interventions that link teacher practice change to improved early grade outcomes. Comparable projects in the region that combined pedagogical coaching, locally-relevant teaching aids, and classroom coaching reported similar magnitude of gains, lending external validity to our results. Importantly, the qualitative testimony from teachers about increased learner confidence and engagement complements the quantitative gains and underscores

that shifts in instructional approach often mediate improvements in measurable learning outcomes (Rarieya et al., 2024).

Despite these positive effects, the discussion must foreground the structural constraints that limit the scale and depth of impact. Overcrowded classrooms, chronic shortages of age-appropriate materials, and inconsistent leadership support were recurrent barriers in our sample and are widely reported across Sub-Saharan Africa. Recent syntheses emphasize that these contextual factors moderate TPL effectiveness: even well-designed programs struggle to achieve consistent results where class sizes are extreme and school leadership does not prioritize instruction. The implication is clear: improving teacher practice at scale requires parallel investments in enabling conditions, classroom space, materials, and leadership capacity, alongside professional development. Strategy packages that combine TPL with low-cost material innovations and leadership strengthening tend to be more resilient when external funding ends (Shayo & Sonola, 2025).

The uneven depth of gender-sensitive and inclusive practice adoption observed in the study underscores the importance of community and systems engagement. While teachers showed increased awareness and targeted behaviors (for example, more balanced questioning), deep-seated cultural norms continued to shape student participation patterns. This finding echoes intersectional analyses that show training alone is often insufficient to shift community attitudes or entrenched classroom dynamics; sustained community sensitization, parental engagement and school leadership advocacy are required to convert awareness into sustained behavior change. Embedding gender and inclusion goals into school planning and monitoring routines, and coupling teacher training with community outreach, emerges from both our findings and the literature as a critical pathway to durable equity gains (Berezhna et al., 2025).

Finally, the study's evidence about teacher innovation with low-cost, locally-sourced teaching aids is both practically important and consistent with regional practice-based studies. Teachers' ability to improvise materials reduced dependence on externally supplied resources and supported the continued use of active pedagogies in resource-poor classrooms. This finding supports programmatic approaches that explicitly build teachers' improvisation skills and incorporate local resource development into TPL curricula; such pragmatic elements improve the feasibility and sustainability of interactive pedagogy in constrained settings. At system level, policies that recognize and encourage low-cost instructional innovation, while addressing core shortages (books, classroom furniture, space), will increase the probability that TPL gains persist after project closeout (F. Bakuza et al., 2025).

4.1 Implications for policy and practice

Taken together, the results suggest a multi-pronged approach for scaling and sustaining TPL impact. First, professional development must remain long-term, practically focused, and paired with coaching and PLCs to cement classroom practice. Second, capacity building should extend to school leaders and teacher-educators so that mentoring, time allocation for PLCs, and use of M&E data become routine. Third, addressing structural bottlenecks (class size, materials, and basic

infrastructure) should be treated as complementary investments rather than optional extras. Fourth, gender and inclusion objectives must be supported by community engagement and policy embedding to shift norms beyond the classroom. These recommendations are supported by recent regional syntheses and intervention studies and therefore offer a pragmatic, evidence-based pathway for decision-makers and funders.

4.2 Limitations and areas for future research

While the study draws on strong mixed-methods evidence, limitations remain. Our capacity to attribute long-term outcomes to specific components (for example, mentoring versus PLCs) is constrained by natural variation in implementation fidelity. Future research should consider experimental or quasi-experimental designs that isolate the contribution of discrete TPL components, alongside cost-effectiveness analyses. There is also a need for longitudinal follow-up beyond project closeout to document persistence of effects and to test models of institutionalization (policy embedding, budgeting, and leadership training). Recent calls in the literature for better documentation of implementation processes and adaptation strategies in low-resource settings underscore these points and should guide future evaluations.

5 CONCLUSION

The SESEA and Foundation for Learning (F4L) initiatives demonstrate that sustained, context-responsive Teacher Continuous Professional Development (TCPD) can significantly improve teaching practices and foundational learning outcomes in East Africa. Evidence from classroom observations, longitudinal assessments, and teacher feedback indicates that structured professional development enabled teachers to adopt interactive, child-centered, inclusive, and gender-responsive pedagogies, leading to improved learner engagement and measurable gains in literacy and numeracy. The findings also highlight that teacher professional capacity is a key determinant of student achievement in resource-constrained environments, particularly when training is supported by mentorship, coaching, and opportunities for reflective practice. However, systemic challenges such as overcrowded classrooms, shortages of teaching materials, limited ICT access, and inconsistent instructional leadership continue to hinder full implementation. Therefore, strengthening school leadership, institutionalizing CPD structures, and addressing resource constraints are essential for sustaining and scaling the improvements achieved through SESEA and F4L across education systems in East Africa.

6 RECOMMENDATIONS

Strengthening Teacher CPD requires embedding professional learning within routine school practice rather than relying on isolated workshops. Continuous, career-long learning cycles should be aligned with national curricula and teacher competency standards to ensure relevance and consistency. Schools should allocate dedicated time within their schedules for teachers to participate in collaborative learning, reflection, and peer engagement. Structured mentorship systems and PLCs should also be institutionalized so that experienced “Champion Teachers” can

provide ongoing guidance, coaching, and feedback to their peers, thereby strengthening the quality and consistency of instructional practices.

In addition, improving instructional leadership is essential for sustaining professional development efforts. Headteachers and school administrators should be equipped with the skills needed to supervise instruction, support teacher learning, and promote pedagogical innovation within their schools. School leaders should also be encouraged to use M&E data to guide instructional decisions and monitor the effectiveness of CPD initiatives. At the same time, systemic challenges such as overcrowded classrooms and shortages of teaching and learning materials must be addressed. Expanding access to instructional resources and encouraging the use of locally available teaching aids can support the effective implementation of learner-centered and play-based approaches, particularly in early-grade education.

Efforts to strengthen inclusive and gender-responsive pedagogy should also be prioritized to ensure that all learners, including those with SEN, have equitable opportunities to participate and succeed in the classroom. This requires practical training for teachers, ongoing support mechanisms, and community-based sensitization to address cultural norms that may limit gender equality in education. Furthermore, digital technologies can play an important role in expanding access to CPD by enabling teachers to engage in micro-learning, mentorship, and professional collaboration through mobile phones and online platforms. Adopting blended learning approaches that combine face-to-face training with digital resources can enhance the scalability and accessibility of professional development programs.

Finally, the sustainability of CPD initiatives depends on strong policy frameworks and adequate funding. Governments should establish clear national CPD policies that define training requirements and link professional development to career progression. Dedicated budgets should be allocated within education sector plans to support CPD implementation, while partnerships between governments, non-governmental organizations, and the private sector can help mobilize additional resources and expertise. Continued research is also necessary to assess the long-term sustainability of CPD interventions and to identify cost-effective models that combine mentorship, digital learning, and collaborative teacher networks to improve teaching quality and student learning outcomes.

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