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A four-year mixed methods cohort study of professional learning interventions in teacher education colleges in Kenya, Tanzania, and Uganda

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Abstract

In teacher professional learning reforms, maintaining pedagogical transformation is still a major problem, especially in settings with limited resources and policy transitions. During the four years that the Foundation for Learning (F4L) initiative was implemented in teacher education institutions in Kenya, Tanzania, and Uganda (2022–2025), this study looks at longitudinal patterns of improvement. The study employs a retrospective mixed-methods approach to examine two structured cycles of cohort-level data, which include interview datasets, lesson plan documents, mentoring records, questionnaire summaries, and classroom observation reports. Cycle comparisons show enhanced consistency in structured practicum feedback systems over time, better alignment between lesson objectives and classroom activities, and a persistent learner-centered instructional perspective. While differentiated instruction's depth advanced more slowly, gender-responsive awareness and inclusive planning techniques were preserved or somewhat improved. Mentoring and documentation procedures were more stable in organizations that consistently engaged their leaders. Nevertheless, structural limitations, specifically large class numbers and inadequate ICT infrastructure, hindered more profound instructional development. The study provides unique multi-year data on the sustainability of professional learning improvements in East African teacher education institutions, even if the results show patterns of longitudinal correlation rather than causal attribution.

Keywords: Teacher Professional Learning; Gender-Responsive Pedagogy; Educational Leadership

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1. Introduction

In sub-Saharan Africa, teacher professional learning (TPL) has emerged as a key component of education reform initiatives, especially in areas going through curricular changes, teacher professionalization reforms, and increased dedication to inclusive and equitable education. Recent policy changes in East Africa, such as Kenya's switch to a competency-based curriculum, Uganda's reorganization under the National Teacher Policy, and Tanzania's renewed focus on practicum alignment and foundational learning, have raised the bar for teacher educators to demonstrate learner-centered, gender-responsive, and reflective pedagogical practices (Rarieya et al., 2024).

Even with large investments in professional development programs, concerns about the long-term viability of pedagogical change persist. A large portion of the evidence that is currently available in the area comes from post-training assessments or short-term evaluations, which record changes in attitudes and reported practices right away but offer little information about whether these changes are sustained or lessened across cohorts and institutional contexts. The amount of longitudinal data from East African teacher education schools is still quite little.

In order to close this gap, the Foundation for Learning (F4L) project (2022–2025) strengthened teacher professional learning through practicum-based feedback mechanisms, gender-responsive pedagogy workshops, leadership reflection seminars, inclusive education modules, and structured mentorship cycles. F4L, which was implemented in teacher education institutions in Tanzania, Uganda, and Kenya, used two organized cycles of data collecting to track institutional and pedagogical development across time.

This study examines cohort-level changes over two cycles (2022–2023 and 2024–2025) using a supplementary mixed-methods analysis of the F4L longitudinal datasets. By combining information from questionnaires, classroom observation reports, document analysis outputs, and interview datasets, the study examines whether professional learning initiatives are linked to changes in teaching methods and whether those changes show signs of stability or consolidation over a four-year span.

The following research questions are addressed in the study:

- In what ways do inclusive and gender-responsive teacher education approaches impact teaching over time?
- How can institutional leadership engagement contribute to the maintenance of gains in professional learning?
- How stable are the observed pedagogical changes in teacher education institutions across longitudinal cycles?

This study provides unique regionally grounded evidence on the sustainability of teacher professional learning reform in East Africa by concentrating on longitudinal cohort-level patterns within F4L.

1.1. Literature review

The focus of TPL has been moving away from short-term, workshop-based training and toward longer-term, collaborative, practice-embedded models. Effective professional development is content-focused, continuous, and supported by professional learning communities, coaching, and mentorship, according to recent research (Darling-Hammond et al., 2017; OECD, 2025). High-quality TPL encourages recurrent cycles of evaluation and feedback to develop instructional practice gradually rather than causing instantaneous change (OECD, 2025; Mousavi et al., 2015). However, there is limited longitudinal research on whether the benefits of professional learning are maintained over time, and the majority of the data base is still short-term.

Recent research highlights that institutional coherence and support continuity are essential for the sustainability of educational transformation. According to Cordingley et al. (2015), when instructors are given opportunity for peer discussion and systematic follow-up, professional development has the greatest impact on classroom practice. According to Timperley et al. (2020), professional learning needs to be integrated into

continuous inquiry processes in order to go beyond the superficial acceptance of new methods. Workload pressures, material shortages, and regulatory changes are some examples of contextual restrictions that further impact sustainability in low-resource contexts (Mwinyi, 2024).

Learner-centered pedagogy improvements have been difficult to execute in sub-Saharan Africa. Observational research indicates that deeper changes in facilitation techniques and differentiated instruction happen gradually and unevenly, even though teachers frequently report feeling more confident after training (Bold et al., 2022; Bergstrom and Özler, 2022). These results emphasize how crucial it is to look at longterm trajectories as opposed to depending only on assessments made right after an intervention. Determining whether professional learning efforts result in temporary compliance or long-term instructional transformation is challenging without multi-year tracking.

Globally, teacher education reform has made gender-responsive and inclusive teaching a key component. Both the (United Republic of Tanzania [URT] and Nombo, 2025) and UNESCO (2020) stress that deliberate approaches to participation patterns, language use, assessment design, and representation are necessary for fair classroom practice. According to recent research, sustainability is strengthened when gender-responsive methods are incorporated into regular lesson planning and mentoring procedures (Kwauk et al., 2016). Nevertheless, consistent behavioral change is not always the result of attitudinal changes. According to studies conducted in East African contexts, instructors may show a greater understanding of inclusive concepts but still encounter real-world obstacles to their full implementation, such as big class numbers and a lack of teaching resources (Bold et al., 2022).

In order to affect teaching quality, principals and teacher education leaders keep an eye on, model, and uphold professional norms, according to instructional leadership research by Ahmad and Rizvi (2026). According to more recent studies, structured mentoring and distributed leadership are effective strategies for keeping the momentum of transformation going (Nadeem, 2024). While policy instability or leadership churn may decrease implementation consistency, persistent leadership engagement increases the likelihood that professional learning gains will consolidate over time. It is often accepted that one of the most important moderators of professional learning outcomes is institutional leadership.

Even though these patterns are becoming more widely acknowledged, there is still a dearth of longitudinal data from East African teacher education institutes. The majority of research use short-term program evaluations or cross-sectional surveys (Jeptepkeny and Keter, 2025; Ssebanakitta et al., 2026). Few studies monitor institutional and pedagogical development across several years within a single reform project (Gouëdard et al., 2020; Savolainen et al., 2020). Furthermore, it is uncommon for studies to combine leadership, gender responsiveness, and pedagogy study into a single longitudinal framework (Sungura et al., 2026).

In order to fill these gaps, this study examines four-year longitudinal data from the F4L project across Kenyan, Tanzanian, and Ugandan teacher education institutions. In order to provide empirical evidence about the sustainability of professional learning gains in reform-intensive contexts, the study looks at cohort-level patterns over two cycles of structured data. It does this by emphasizing resilience, leadership involvement, and inclusive pedagogy in a cohesive longitudinal design, thereby expanding on previous research.

2. Methodology

2.1. Study design

This study employed a longitudinal mixed methods design to examine patterns of change in teacher professional learning practices across teacher education institutions participating in the Foundations for Learning (F4L) initiative in East Africa. The design combined quantitative and qualitative approaches in order to capture both measurable trends and the lived experiences of educators engaged in professional learning reforms. The longitudinal component of the study enabled the research team to examine whether pedagogical changes associated with the intervention were sustained over time, while the mixed-methods approach allowed the study to triangulate evidence from multiple data sources.

Data were collected in two structured cycles. The first cycle, conducted between 2022 and 2023, functioned as a baseline phase during which the initial pedagogical practices, leadership engagement structures, and professional learning arrangements were documented. The second cycle, conducted between 2024 and 2025, gathered follow-up data using the same instruments and procedures to assess patterns of stability, consolidation, or variation in instructional practices and professional learning structures across participating institutions. Because teacher education institutions experience continuous cohort turnover due to graduation cycles and staff mobility, individual-level tracking across the entire four-year period was not feasible. Consequently, the longitudinal analysis was conducted at the cohort and institutional levels rather than at the level of individual participants. This approach allowed the study to examine institutional trajectories of professional learning while acknowledging the dynamic nature of teacher education environments.

The mixed-methods component of the study followed a convergent design in which qualitative and quantitative data were collected during the same phases of the research and analysed in parallel. Quantitative data provided broad patterns of pedagogical practice and leadership engagement across institutions, while qualitative data offered contextual explanations of how and why these changes occurred. Integration of the two strands occurred during the interpretation stage through systematic comparison of patterns emerging from survey data, classroom observations, interviews, and document analysis.

2.2. Study sites and participants

The study was conducted across teacher education institutions participating in the Foundations for Learning (F4L) initiative in Kenya, Tanzania, and Uganda. The initiative sought to strengthen teacher education systems through professional learning interventions that focused on mentorship, leadership development, inclusive pedagogy, and reflective teaching practices.

In Kenya, the project was implemented through collaboration with Shanzu Teachers College and the Kenya Education Management Institute (KEMI). In Uganda, implementation took place in Arua and Lodonga Primary Teachers' Colleges in partnership with Muni University. In Tanzania, the initiative involved Nachingwea Teachers College and collaboration with the Agency for the Development of Educational Management (ADEM) in Bagamoyo.

Participants in the study included teacher educators, pre-service student teachers, school headteachers from practicum schools, teacher education administrators, and district-level education officers who were engaged in teacher preparation and practicum supervision processes. Across the three participating countries, the study involved approximately 360 participants across the two cycles of data collection. The Tanzanian sample consisted of 174 participants, including teacher educators, student teachers, headteachers, and ward education officers. In Kenya, 102 participants were involved, comprising teacher educators, student teachers, college administrators, and education officers. In Uganda, the study included 84 participants drawn primarily from student teacher cohorts in Arua and Lodonga Primary Teachers' Colleges.

Participants were selected using purposive and proportionate sampling strategies designed to ensure representation of key stakeholders across the teacher education ecosystem. The sampling strategy prioritised participants who were directly involved in teacher preparation, practicum supervision, or leadership roles within the teacher education institutions. This approach allowed the study to capture perspectives from multiple levels of the teacher education system, thereby strengthening the depth and contextual richness of the findings.

2.3. Intervention description

The Foundations for Learning (F4L) initiative was designed as a multi country teacher professional learning programme aimed at strengthening the quality of teacher education across East Africa. Implemented between 2022 and 2025 through the Aga Khan University Institute for Educational Development, East Africa (AKU-IED EA), the project sought to transform pedagogical practices in teacher education institutions by embedding reflective, inclusive, and practice-based professional learning structures within existing institutional systems.

The initiative was implemented in collaboration with teacher education colleges and educational leadership institutions in Kenya, Uganda, and Tanzania. In Kenya, implementation involved Shanzu Teachers' College and the Kenya Education Management Institute (KEMI); in Uganda, the project worked with Arua and Lodonga Primary Teachers' Colleges in collaboration with Muni University; and in Tanzania, implementation involved Nachingwea Teachers' College and the Agency for the Development of Educational Management (ADEM) in Bagamoyo.

Rather than functioning as a standalone training programme, the F4L intervention was designed to operate through existing teacher education structures. This strategy aimed to ensure institutional ownership and sustainability of pedagogical reforms. The intervention, therefore, focused on strengthening teacher professional learning systems within teacher education colleges, practicum schools, and leadership structures that support teacher preparation. At its core, the programme sought to cultivate "champion teachers" and "champion leaders", who are educators capable of promoting inclusive, learner-centred, and contextually responsive teaching practices within their institutions.

Conceptually, the intervention was grounded in a holistic model of professional development often described as the Head–Heart–Hands framework. This model emphasises three interconnected dimensions of teacher development. The "head" dimension refers to pedagogical knowledge and conceptual understanding of teaching and learning processes. The "hands" dimension refers to practical teaching competencies, including classroom facilitation skills, material design, and learner engagement strategies. The "heart" dimension emphasises professional values, including empathy, ethical responsibility, and commitment to inclusive education. Together, these dimensions aim to produce educators who possess not only technical competence but also a strong sense of professional identity and moral purpose in their work as teachers.

Within this conceptual framework, the F4L intervention consisted of several integrated components that collectively sought to strengthen teacher professional learning practices across participating institutions.

One major component of the intervention focused on gender responsive and inclusive pedagogy. Prior to the implementation of F4L, many teacher educators and student teachers understood gender equity primarily as the equal participation of boys and girls in classroom activities. However, deeper aspects of inclusion, such as addressing gender stereotypes, recognising socio-economic disparities, and accommodating learners with disabilities were not consistently integrated into teaching practices.

Through a series of professional learning workshops and practicum-based training activities, F4L introduced gender-responsive pedagogy (GRP) as a structured component of teacher education. Teacher educators and student teachers were trained to incorporate inclusive language, balanced participation strategies, and gender-sensitive examples within lesson plans and classroom interactions. In addition, practicum tools such as lesson plan templates and observation forms were revised to encourage reflection on inclusion and diversity. Following the intervention, classroom observations indicated that student teachers increasingly adopted strategies such as deliberate gender-balanced group formation, avoidance of gender stereotypes in teaching examples, and greater attention to learners' socio-cultural backgrounds.

A second key component of the intervention involved the development of structured mentorship and practicum feedback systems linking teacher education colleges with practicum schools. In many participating institutions, supervision of student teachers during practicum had previously been irregular and largely administrative in nature. F4L therefore introduced structured mentorship cycles that emphasised classroom observation, professional dialogue, and reflective feedback between mentors, teacher educators, and student teachers. Through these mentorship processes, student teachers received systematic feedback on their classroom practices and were encouraged to engage in reflective inquiry regarding their instructional decisions. Evidence from mentoring records and interview data indicates that these practicum feedback systems became increasingly institutionalised over the course of the project, with follow-up conversations and structured observation tools being used more consistently during later implementation cycles.

The intervention also placed significant emphasis on leadership development within teacher education institutions and practicum schools. Prior to the project, leadership roles within many participating institutions

were primarily administrative and did not systematically support pedagogical improvement. In response, F4L incorporated leadership training programmes designed to strengthen instructional leadership and promote collaborative professional learning cultures within schools and colleges. In Kenya, for example, headteachers participating in the project were enrolled in the Diploma in Educational Leadership and Management (DELM) programme offered by the Kenya Education Management Institute. This programme emphasised instructional leadership, mentoring skills, and school improvement planning. As a result, headteachers became more actively involved in mentoring student teachers, observing classroom instruction, and supporting reflective professional learning within their schools.

Another important dimension of the intervention involved promoting reflective practice and action-oriented inquiry among educators. Student teachers were encouraged to engage in structured reflection through lesson planning exercises, peer learning activities, and practicum discussions with mentors. Teacher educators also adopted reflective facilitation approaches within training sessions, encouraging participants to analyse their teaching experiences critically and explore alternative instructional strategies. These reflective practices were supported through tools such as observation checklists, reflective journals, and professional portfolios designed to document pedagogical development over time.

In addition to pedagogical and leadership development, the F4L programme also promoted contextually responsive teaching practices through innovation and resourcefulness. In many participating schools, teachers faced severe resource constraints that limited access to instructional materials and digital technologies. To address this challenge, the programme encouraged the use of locally available materials for instructional purposes. Student teachers were trained to design teaching aids using inexpensive or recycled materials such as bottle tops, maize cobs, paper waste, and soil. These improvised materials were used to support hands-on learning and enhance learner engagement in classrooms with limited resources.

Finally, the intervention emphasised the importance of institutional embedding and sustainability. Rather than introducing temporary project structures, F4L sought to strengthen existing institutional systems such as practicum supervision processes, teacher education curricula, and leadership development programmes. By aligning professional learning activities with national education reforms, such as Kenya's transition to the Competency-Based Curriculum and Uganda's National Teacher Policy, the programme aimed to ensure that innovations introduced through the project could continue beyond the lifespan of external funding.

Taken together, these interconnected intervention components namely gender responsive pedagogy training, mentorship structures, leadership development programmes, reflective practice mechanisms, locally grounded instructional innovation, and institutional system strengthening, formed the core "active ingredients" of the F4L professional learning model. The longitudinal study presented in this article investigates how these professional learning interventions were associated with changes in teaching practices and professional identities across participating teacher education institutions.

2.4. Data collection methods

Multiple sources of data were collected to capture different dimensions of teacher professional learning and institutional change. Quantitative data were obtained through structured questionnaires administered to teacher educators, student teachers, and school leaders participating in the project. The questionnaires measured perceptions of pedagogical confidence, leadership practices, inclusive teaching strategies, and engagement in reflective professional learning. Responses were recorded using Likert-scale items and analysed using descriptive statistical techniques to identify patterns across institutions and time periods.

Qualitative data were collected through semi-structured interviews conducted with teacher educators, student teachers, and educational leaders. These interviews explored participants' experiences of the professional learning interventions, their perceptions of changes in instructional practice, and the challenges encountered during implementation. Interviews were conducted at both cycles of the study, enabling the research team to examine how participants' experiences evolved over time.

Classroom observations were also conducted using structured observation checklists designed to document pedagogical practices, learner participation patterns, and the use of instructional materials. Observers focused on indicators associated with learner centred teaching, including the use of group work, questioning strategies, participatory learning activities, and equitable classroom engagement.

In addition to interviews and observations, the study analysed a range of institutional documents, including lesson plans, teaching schemes, practicum reports, mentorship records, and institutional action plans. Document analysis provided additional insight into how inclusive and learner-centred pedagogical practices were embedded within formal teaching documentation and institutional monitoring processes.

2.5. Data analysis and integration

Quantitative and qualitative data were analysed using complementary analytical strategies. Quantitative data were analysed using descriptive statistical techniques, including frequency distributions and percentage comparisons across the two cycles of data collection. These analyses allowed the research team to identify broad trends in teacher confidence, pedagogical practices, and leadership engagement across participating institutions.

Qualitative data from interviews, observations, and document analysis were coded using thematic analysis procedures. Initial coding focused on identifying recurring themes related to learner-centred pedagogy, mentorship practices, leadership engagement, and inclusive teaching strategies. These themes were then compared across the two cycles of data collection in order to identify patterns of continuity, consolidation, or variation over time.

Integration of qualitative and quantitative findings occurred during the interpretation phase of the study. Patterns identified through questionnaire data were compared with qualitative themes emerging from interviews and classroom observations. When both data strands converged, the interpretation of findings was strengthened. Where divergence occurred, qualitative evidence was used to provide contextual explanations for quantitative trends. This triangulation process allowed the study to generate a more comprehensive understanding of the sustainability of professional learning practices within participating institutions.

2.6. Ethical considerations

Ethical approval for the original data collection activities associated with the Foundations for Learning project was obtained through institutional research ethics review procedures within the Aga Khan University IRB, but also research permits were obtained from NACOSTE, Kenya and UNCST in Uganda. Participation in the study was voluntary, and all participants provided informed consent prior to data collection. The current analysis utilised anonymised secondary datasets derived from the project's research component. No new participants were recruited for the purposes of this study, and all identifying information was removed prior to analysis in order to ensure confidentiality.

2.7. Study limitations

Several limitations should be acknowledged when interpreting the findings of this study. First, the research design does not include a comparison group, which limits the ability to attribute observed changes directly to the professional learning interventions. The findings therefore indicate associations between participation in the programme and pedagogical changes rather than causal impact. Second, the longitudinal analysis was conducted at the cohort and institutional levels rather than tracking individual participants across the entire four-year period due to graduation cycles and staff mobility within teacher education institutions. Third, the study took place within complex policy environments in which broader educational reforms were occurring simultaneously. These contextual factors may have influenced teaching practices independently of the intervention. Despite these limitations, the use of multiple data sources and triangulation across methods strengthens the credibility of the findings and provides valuable insights into the sustainability of professional learning reforms within teacher education institutions.

3. Findings

The findings of this study provide insight into how participation in the Foundations for Learning professional learning initiative was associated with changes in teaching practices, professional identities, and institutional leadership engagement within teacher education institutions across Kenya, Tanzania, and Uganda. Drawing on evidence from questionnaires, interviews, classroom observations, and document analysis, the results suggest a gradual shift toward more inclusive, participatory, and reflective teaching practices over the course of the study period. These patterns were observed across the two cycles of data collection and were reflected both in quantitative indicators and qualitative accounts provided by participants.

3.1. Changes in inclusive and gender-responsive pedagogical practices

One of the most notable patterns emerging from the data relates to increased attention to gender-responsive and inclusive teaching practices. At the beginning of the project period, many teacher educators and student teachers described their understanding of gender equity primarily in terms of equal participation of boys and girls during classroom activities. However, deeper aspects of inclusion, including attention to socio-cultural differences, disability inclusion, and equitable classroom participation, were less consistently integrated into teaching practices. For instance, the initial findings in Kenya indicated that only 5.9% of teacher educators used a gender and inclusion in lesson planning. In addition, all the sampled teacher educators (100%) posited that they did not use a gender and inclusive pedagogy in lesson delivery.

Across the two cycles of data collection, survey responses indicated significant improvements in teachers' self-reported confidence in applying inclusive pedagogical strategies. For example, the proportion of participants reporting confidence in integrating gender-responsive approaches within their teaching increased substantially between the first and second cycles of data collection. Similarly, confidence in designing lessons that accommodate diverse learners increased across institutions participating in the project.

These trends were also evident in qualitative data. Interviews with teacher educators and student teachers revealed increasing awareness of how classroom practices could unintentionally reproduce inequalities. Participants described making deliberate adjustments to teaching strategies in order to promote equitable participation. One student teacher from Kenya explained that, following the training, she became more attentive to how classroom activities could unintentionally marginalise certain learners:

> *"Now I make sure that when I organise group work, both boys and girls have the opportunity to lead discussions. Before, I did not think about it much, but now I realise how important it is for all learners to participate equally."*

Classroom observation data provided additional evidence of these changes. Observers noted that teachers were increasingly adopting strategies such as balanced questioning patterns, mixed-gender group activities, and inclusive language use during lessons. Although the extent of these changes varied across institutions, the overall pattern suggested a gradual shift toward more deliberate attention to equity and inclusion in classroom practice.

3.2. Adoption of learner-centred teaching approaches

Another major pattern identified in the data was the increased use of learner-centred pedagogical approaches. Prior to the implementation of the professional learning activities, classroom instruction in many participating institutions was largely characterised by teacher-led explanations and limited opportunities for student participation. Classroom observations conducted during the first cycle frequently recorded extended lecture-style instruction with minimal interaction between teachers and learners.

By the second cycle of data collection, however, classroom observations indicated a broader range of participatory instructional practices. Teachers were more likely to incorporate group discussions, peer learning activities, and problem-solving exercises within lessons. These strategies were often accompanied by the use of improvised teaching materials designed to support hands-on learning experiences.

Interview data suggested that these changes were closely linked to the reflective professional learning activities introduced through the intervention. Several participants described how mentorship discussions and peer observation sessions encouraged them to experiment with alternative teaching approaches. A teacher educator in Uganda explained that the professional learning workshops had encouraged instructors to reconsider traditional teaching methods:

> *"The workshops made us reflect on how we teach. Many of us realised that we were doing most of the talking in class. Now we try to involve students more actively so that they construct knowledge rather than simply listening."*

Document analysis of lesson plans also reflected these pedagogical shifts. In many institutions, lesson planning formats introduced during the project encouraged teachers to include interactive learning activities, formative assessment strategies, and opportunities for student reflection. These changes suggest that learner-centred pedagogy was increasingly being integrated not only into classroom practice but also into institutional planning processes.

3.3. Leadership engagement in professional learning

The findings also indicate increased engagement of school leaders and teacher education administrators in supporting professional learning processes. In many participating institutions, leadership roles had previously focused primarily on administrative oversight rather than instructional support. Through leadership training programmes and collaborative workshops introduced during the project, however, headteachers and college administrators began to play a more active role in mentoring teachers and supporting pedagogical improvement.

Interviews with school leaders revealed that participation in leadership development programmes encouraged them to view instructional leadership as a central component of their professional responsibilities. Several headteachers described introducing structured observation and feedback practices within their schools in order to support teacher development. In Kenya, for example, some headteachers participating in the leadership programme reported conducting regular classroom observations followed by reflective discussions with teachers about instructional practices.

These leadership practices were also evident in mentorship structures linking teacher education colleges with practicum schools. Student teachers reported receiving more consistent feedback from mentors during practicum placements compared to earlier experiences described during the first cycle of the study. This feedback often focused not only on classroom management but also on pedagogical strategies for promoting learner participation and inclusion.

3.4. Persisting challenges in resource and infrastructure contexts

Despite the positive trends identified above, the findings also highlight several ongoing challenges affecting the sustainability of pedagogical change within participating institutions. One of the most frequently mentioned challenges relates to limited access to digital technologies and instructional resources. Teachers in several institutions reported difficulties integrating digital learning tools into classroom practice due to inadequate infrastructure, unreliable internet connectivity, and limited availability of computers or projectors.

In response to these constraints, many teachers developed strategies for improvising instructional materials using locally available resources. For example, teachers reported using bottle tops, maize cobs, stones, and other everyday materials as teaching aids for mathematics and science lessons. While these creative approaches demonstrated teachers' resourcefulness, they also underscore the broader structural challenges facing education systems in resource-constrained contexts.

Participants also noted that institutional change processes were uneven across different colleges and schools. In some institutions, leadership engagement and mentorship structures became firmly embedded

within institutional practices. In others, however, high staff turnover and competing institutional priorities limit the extent to which professional learning reforms could be sustained.

Table 1. Reported Information on Pedagogical Practices

Quantitative Finding	Supporting Qualitative Evidence	Interpretation
Increased confidence in gender-responsive pedagogy	Participants described deliberate gender-balanced participation strategies	Professional learning strengthened inclusive classroom practices
Increased use of participatory teaching methods	Observation notes documented group work and inquiry activities	Learner-centred pedagogy became more established
Increased leadership engagement	Headteachers reported mentoring and classroom observation activities	Leadership supported sustainability of pedagogical reforms

3.5. Summary of longitudinal trends

Taken together, the findings suggest that participation in the F4L professional learning initiative was associated with gradual shifts in pedagogical practices and leadership engagement across participating institutions. The convergence of quantitative indicators and qualitative evidence suggests increased adoption of learner-centred teaching approaches, stronger attention to inclusive and gender responsive pedagogy, and greater involvement of institutional leaders in supporting professional learning. Table 2 explains the pedagogical practices position as reported for the period before and after the F4L intervention.

Table 2. Pedagogical practices before and after the F4L intervention

Indicator	Before Intervention	After Intervention
GRP awareness	49%	78%
Curriculum integration confidence	45%	72%
Participatory pedagogy	50%	75%
Respect for diversity	60%	84%

Table 2 presents the proportion of participants reporting positive responses on key professional learning indicators across the two data collection cycles. At the same time, these findings highlight the importance of contextual factors such as resource availability and institutional stability in shaping the sustainability of pedagogical reforms.

4. Discussion

The four-year professional learning program in teacher education institutes in Kenya, Tanzania, and Uganda was the subject of this study, which looked at longitudinal patterns of pedagogical and institutional change. The analysis, which synthesizes the Foundation for Learning (F4L) program's cycle 1 (2022–2023) and cycle 2 (2024–2025) datasets, shows that learner-centered orientation is sustained, inclusive planning practices are gradually consolidated, and leadership participation has a stabilizing effect.

The results indicate that pedagogical transformation is gradual rather than instantaneous, which is in line with recent studies on persistent professional learning (Darling-Hammond et al., 2017; OECD, 2025).

Throughout cycles, structured practicum feedback systems, more precise articulation of course objectives, and participatory instructional practices were either retained or somewhat improved. Crucially, there was no indication of a long-term decline in learner-centered orientation, suggesting that instructional changes were stable at the cohort level rather than being transient reactions to training exposure.

Additionally, the results corroborate research that highlights the value of regular feedback cycles and mentorship in maintaining professional learning gains (Cameron, 2025; Timperley et al., 2020). Cycle 2 documentation indicates that mentorship procedures became more firmly ingrained in institutional practices. Keeping a pedagogical focus after the initial implementation phase seems to depend heavily on this institutionalization.

Over the course of the four years, gender-responsive and inclusive practices showed a slow consolidation. Over time, planning documentation and awareness increased, but observable differentiated instruction developed more unevenly. This discrepancy between behavioral depth and attitudinal stability is consistent with research from sub-Saharan African contexts showing that contextual and structural limitations affect the rate of inclusive transformation (Bold et al., 2022; Bergstrom and Özler, 2022). Large class sizes and inadequate ICT infrastructure in this study prevented deeper implementation, indicating that systemic resource conditions and professional learning design both influence sustainability.

It was discovered that a prerequisite for pedagogical stability was leadership engagement. Documentation and trends in instructional confidence were more consistent in institutions where principals and administrative officials continued to participate in mentoring and monitoring mechanisms. This is in line with studies on instructional leadership that highlights how leaders uphold reform coherence and reinforce professional norms (Ahmad and Rizvi, 2026; Nadeem, 2024). But rather from being a decisive factor, leadership engagement served as a mitigating influence. Site-specific variability suggests that contextual continuity and administrative stability continue to be critical components in maintaining the momentum of transformation.

With regard to teacher professional learning in East African teacher education contexts, the study adds to the scant body of longitudinal evidence. The majority of current research in the area is based on short-term program assessments or cross-sectional surveys. This study advances knowledge of sustainability and institutional embedding of professional learning reforms by analyzing cohort-level patterns spanning two cycles over a four-year period.

It is important to interpret results within the parameters of secondary cohort-level research. The design did not allow for causal attribution, and staff migration and graduation cycles limited individual-level tracking. Nonetheless, trust in the stability of noted trends is increased by triangulating data from surveys, observation checklists, documentation reviews, and interviews.

Overall, the findings imply that exposure to training modules alone is not enough for persistent professional learning. When leadership participation is sustained, inclusive practices are incorporated into regular documentation and feedback procedures, and mentorship systems are created, durability seems to be strongest. Stability of institutional procedures may be just as crucial in reform-intensive environments as creative instructional design.

5. Conclusion

Over the course of a four-year implementation of the Foundation for Learning (F4L) initiative in teacher education institutions in Kenya, Tanzania, and Uganda, this study looked at longitudinal patterns of professional development. The results of a secondary mixed-methods analysis of two structured cycles of data show that learner-centered orientation has persisted over time, inclusive planning practices have gradually been consolidated, and structured mentorship systems have stabilized.

Pedagogical changes seen at baseline were either sustained or slightly strengthened at follow-up, according to cycle comparisons. Over the course of the four years, cohort-level stability was shown via structured

practicum feedback systems, more explicit lesson aim alignment, and participatory instructional methodologies. Crucially, there was no indication of a shift back toward methods that were mostly lecture-based.

While the breadth of differentiated teaching strategies advanced more slowly, gender-responsive awareness and inclusive language use persisted over cycles. Stronger institutional consistency in mentoring and documenting procedures seemed to be linked to leadership engagement. However, the rate of more profound pedagogical change was slowed by enduring structural limitations, especially big class sizes and inadequate ICT infrastructure.

The longitudinal stability seen across several data sources indicates that structured mentorship, leadership engagement, and embedded reflective processes can support long-term professional learning outcomes in teacher education contexts, even though the design does not allow for causal attribution.

Overall, the study highlights the significance of institutional embedding for reform persistence and provides uncommon longitudinal evidence from East African teacher education institutions.

6. Recommendations

Based on the longitudinal findings, several recommendations emerge for policy and practice.

- Establish mentorship programs that go beyond project cycles. Stronger pedagogical stability was linked to structured mentoring and practicum feedback procedures. Instead of depending exclusively on projects with outside funding, ministries and teacher education institutions can establish mentorship systems within institutional policy.
- Develop your ability to lead lessons. Professional learning activities were more consistently documented and monitored when leaders were involved. Structured training in mentoring monitoring and instructional leadership should be part of principals' and college administrators' professional development.
- Include inclusive pedagogy in regular documentation. Incorporating gender-responsive and inclusive practices into lesson planning templates and monitoring tools resulted in more stability. Incorporating inclusive standards into routine documentation procedures can promote sustainability beyond awareness-based instruction.
- In order to further develop pedagogy, address structural limitations. ICT integration and enhanced differentiation are not always the results of a persistent learner-centered approach. Making investments in classroom supplies, infrastructure, and reasonable teacher-to-student ratios is crucial to transitioning from stability to more profound instructional change.
- Make longitudinal monitoring systems stronger. To improve the accuracy of longitudinal analysis and fortify the ability to draw conclusions about causality, future projects should integrate more reliable individual-level panel tracking technologies.
- Encourage more teacher education longitudinal research. In sub-Saharan Africa, there is still no evidence of the long-term viability of professional learning reforms. Future study in this area would be strengthened by hybrid designs that combine comparative features with longitudinal tracking.

References

Ahmad, N. and Rizvi, A.A. (2026), "Instructional leadership and teacher effectiveness in strengthening students' academic resilience at secondary level" *Journal of Social & Organizational Matters*, Vol. 5 No. 1, pp. 275-296. https://doi.org/10.56976/jsom.v5i1.400

Bold, T., Filmer, D., Martin, G., Molina, E., Rockmore, C., Stacy, B. and Svensson, J. (2022), "Experimental evidence on scaling up education reforms in Africa." *American Economic Review*, Vol. 112 No. 1, pp. 1–38.

Cordingley, P., Higgins, S., Greany, T., Buckler, N., Coles-Jordan, D., Crisp, B., Saunders, L. and Coe, R. (2015), "Developing Great Teaching: Lessons from the international reviews into effective professional development", Chartered College of Teaching. Available at: http://tdtrust.org/about/dgt/ (Accessed 14 June 2026).

Darling-Hammond, L., Hyler, M.E. and Gardner, M. (2017), "Effective teacher professional development." Learning Policy Institute Report. https://doi.org/10.54300/122.311

Bergstrom, K. and Özler, B. (2022), "Improving the Well-Being of Adolescent Girls in Developing Countries." The World Bank Research Observer, Vol. 38 No. 2, pp. 179–212. https://doi.org/10.1093/wbro/lkac007

Nadeem, M. (2024), "Distributed leadership in educational contexts: A catalyst for school improvement." *Social Sciences & Humanities* Open, Vol. 9. https://doi.org/10.1016/j.ssaho.2024.100835

OECD (2025), "Teacher Professional Learning: Drawing Upon International Practice for a Future Vision for Ukraine", OECD Publishing, Paris.

Kwauk, C., Sperling, G. B. and Winthrop, R. (2016), "What works in Girls' Education: Evidence for the world's best investment." The Brookings Institution. Available at: https://www.brookings.edu/wp-content/uploads/2016/07/What-Works-in-Girls-Educationlowres.pdf (Accessed 14 June 2026). https://doi.org/10.5040/9798765194782

Timperley, H., Ell, F. and Le Fevre, D. (2017), "Developing adaptive expertise through professional learning communities." In A. Harris, M. Jones, and J. B. Huffman (Eds.), *Teachers leading educational reform: The power of professional learning communities* (pp. 175–189). Routledge. https://doi.org/10.4324/9781315630724-14

UNESCO. (2020), "Global Education Monitoring Report 2020: Inclusion and education: All means all." Paris. In UNESCO eBooks.

(United Republic of Tanzania [URT] and Nombo, 2025), C.I. (2025), "Education Sector Development Plan 2025/26 – 2029/30 [Report]". Available at: https://www.moe.go.tz/sites/default/files/ESDP%202025-26%20hadi%202029-30%20Final-%2026%20February%202025.pdf (Accessed 14 June 2026).

Jeptepkeny, A. and Keter, J. (2025), "Teacher training and Professional development: Assessing the quality of teacher training programs and ongoing professional development initiatives in improving teaching practices in Kenya." *East African Journal of Education Studies*, Vol. 8 No. 3, pp. 726–737. https://doi.org/10.37284/eajes.8.3.3718

Ssebanakitta, N.G., Masagazi, J.Y., Ocheng, M.K. and Stephen, K. (2026), "Teachers' perceived challenges and the uptake of E-Learning in Kampala capital city." *East African Journal of Education Studies,* Vol. 9 No. 1, pp. 322-341. https://doi.org/10.37284/eajes.9.1.4409

Gouëdard, P., Pont, B., Hyttinen, S. and Huang, P. (2020), "Curriculum reform." OECD Education Working Papers.

Rarieya, J. F. A., Wango, N. C., Oluga, M.,and Abunga, O. (2024), "Accelerating primary education tutors' acquisition of Gender-Responsive Pedagogies" *European Journal of Education and Pedagogy*, Vol. 5 No. 4, pp. 47-54. https://doi.org/10.24018/ejedu.2024.5.4.849

Sungura, R.I., Amuli, A.J., Maulid, M.J., Mgullah, S.M., Wango, N.C., Rarieya, J.F.A., Mzelela, L.J. and Mtenzi, F. (2026), "School leadership and management in supporting primary teachers' preparation: Adoption of gender-responsive teaching and learning materials in Lindi Region." *European Journal of Education and Pedagogy,* Vol. 7 No. 1, pp. 76-82.

Savolainen, H., Malinen, O. and Schwab, S. (2020), "Teacher efficacy predicts teachers' attitudes towards inclusion – a longitudinal cross-lagged analysis." *International Journal of Inclusive Education*, Vol. 26 No. 9, pp. 958-972. https://doi.org/10.1080/13603116.2020.1752826

Mousavi, A., Mares, C. and Stonham, T. (2015), "Continuous feedback loop for adaptive teaching and learning process using student surveys." *International Journal of Mechanical Engineering Education*, Vol. 43 No. 4, pp. 247-264. https://doi.org/10.1177/0306419015606618

Mwinyi, H. (2024), "Challenges and Opportunities of implementing education technology in rural and underserved areas of Tanzania, assessing the sustainability and educational impact of such initiatives." *African Journal of Education and Practice*, Vol. 10 No. 4, pp. 27-39. https://doi.org/10.47604/ajep.3031