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Original Article

Teacher Educators' Professional Learning and Pedagogical Change in Relation to Learner-Centred Pedagogy

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Keywords:

Learner-centred Pedagogy, Teacher Educator Professional Development, Activity Theory, Uganda. Teacher education has received less attention in the literature on learnercentred pedagogy in the global south despite its recognised role in teacher learning. This paper explores the processes of teacher learning and pedagogical change in relation to Active Teaching and Learning (ATL), a learner-centred pedagogy, among pre-service teacher educators in Uganda. The study was framed by cultural-historical activity theory, specifically by the principle of 'contradictions' as a driver for change in activity systems, to analyse how teacher educators in three teachers' colleges learned, interpreted, and integrated ATL in their practices across a three-year period mediated by a professional development initiative. A qualitative interpretivist research approach, specifically a case study design was adopted for the study. In years 1 and 2 of the study, data comprising video recordings of reflection workshops and interviews were collected in three teachers' colleges. In the third year, 13 more interviews were held in one college, with 10 teacher educators and three administrators. All the data sets were thematically analysed. Findings showed that the first two years of implementation were characterised by contradictions in terms of initial resistance to ATL, misconceptions, and divergent interpretations of the approach, as well as perceived tension between ATL implementation and the institutional and broader contexts of practice. In the third year, significant positive changes in the teacher educators' perceptions, knowledge, and enactment of ATL were evident, which enabled the take-up of the pedagogic innovation in the practices of the researched college. The paper contributes insights into the professional learning and pedagogical change of teacher educators in relation to learner-centeredness and underscores the imperative of paying more attention to pre-service teacher education during pedagogical reforms in school systems.

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INTRODUCTION

Learner-centred pedagogy (LCP) has been promoted across developing countries including in sub–Saharan Africa (SSA) in the last two decades as part of education development aid and international education for all initiatives, notwithstanding limited evidence of its effective implementation in classrooms (Sakata, 2021; Guthrie, 2021, 2018; Altinyelken, 2010). Research shows that classrooms in primary and secondary schools in middle-and low-income countries have remained teacher centred despite the promotion of LCP in the education policies of these countries (Bremner et al., 2022).

Implementation of LCP in SSA is constrained by various factors, including lack of teacher knowledge and training in the approach (for example, Dison & Kearney, 2021 and Schweisfurth, 2011 in South Africa; Akello & Timmerman, 2018 in Uganda; Muvumba & Mtitu, 2022 in Tanzania) coupled with the long history of teacher centred practices and inadequate human and material resources (Chiphiko & Shawa, 2014 in Malawi). Other contextual constraints to LCP include large class sizes, systemic pressure on teachers to complete contentheavy curricula in time for public examinations (Sandamira, 2015 in Malawi; Sikoyo, 2010 in Uganda) and restricted flexibility due to overregulation of teachers' practices (Solomon & Lewin, 2016; Mendonça et al., 2012; Harvey et al., 2020). The tension between the pedagogic principles of LCP and the social-cultural norms on child-adult relations further limits its effective enactment in some countries (Guthrie, 2021; Tabulawa, 2013).

Although most studies on LCP paint a bleak picture, a review of its implementation in the middle- and low-income countries by Bremner et al. (2022) reports some success stories of its enactment in Nigeria and Kenya. In addition, a few studies have reported that LCP is positively perceived by teachers and students despite difficulties in its implementation in classrooms (Bremner et al., 2022; Isabirye, 2016; Altinyelken, 2010; Akello et al., 2016; Sandamira, 2015). On the other hand, some scholars (Hoadley, 2012; Guthrie, 2018; Tabulawa, 2013; Borg et al., 2018) argue against dichotomising teacher and learner-centeredness and advocate for 'mixed' pedagogy and enhancement of capacities in teacher-centred practices so that learners' conceptual development is not constrained given the poor teacher mastery of subject knowledge.

The Role of Teacher Education in LCP Implementation

A key enabler of pedagogical renewal that has received less attention in the literature on LCP implementation is the role of teacher education despite its recognised role in teacher learning. Pedagogic renewal largely depends on teacher learning which is, in turn, dependent on how they are trained and hence on their teachers, i.e., teacher educators. Yet pre-service teacher education is often

neglected during pedagogical reforms, with no parallel reforms aligned to those introduced in primary and secondary schools (Westbrook et al., 2013). Consequently, pre-service teachers miss an opportunity to experience the pedagogic innovations promoted by curriculum reforms during their own training (Sakata, 2021).

It is, therefore, unsurprising that among other factors, failure to produce commitments in preservice teachers to adopt learner-centred methods in their practice is attributed to teacher educators not modelling to them the same methods during their training (Akyeampong, 2017; Otara et al., 2019; Sandamira, 2015). Thus, it is important for teacher educators to master and effectively use LCP so that pre-service teachers experience it rather than merely learning about it as a teaching method.

Research on LCP in Africa has focused mainly on its implementation in primary and secondary schools with less attention paid to its enactment in teacher education and higher education settings; hence little is known about the contexts and processes in which pre-service teachers are prepared for the pedagogic approach. The limited studies on LCP implementation in teacher education mirror the general paucity of published research on teacher education and the practices of teacher educators in Africa (Amakyi & Ampah-Mensah, 2014; Izadinia, 2014; Westbrook et al., 2013; Flores, 2018) as elsewhere (Borg et al., 2018).

More research on the practices of teacher educators in Africa is called for to better understand and improve the quality of teaching and learning in school classrooms (Akyeampong 2017) and their experiences in enacting learner-centred pedagogical reforms (Dison & Kearney, 2021). In addition, scholars are calling for studies that explore the nuances of LCP implementation from the perspective of different stakeholders, experiences of its implementation over longer durations and its implementation in higher education contexts (Bremner et al., 2022; Czerniawskia et al., 2017). This paper contributes to this research gap by exploring the processes of teacher learning and pedagogical change in relation to Active Teaching and Learning (ATL), a learner-centred pedagogy, among a group of teacher educators in Uganda. Framing our analysis within Cultural- Historical Activity Theory (CHAT) (Engeström, 2001) and specifically on the principle of 'contradictions' as a driver for change, the paper analyses the complex processes through which the teacher educators learn about, interpret, and integrate ATL in their practices across a three-year period mediated by a professional development initiative.

Study Context

Secondary teacher education in Uganda is provided by National Teachers Colleges (NTCs) and Universities. The NTCs offer a two-year diploma in the education programme to entrants with an advanced certificate in secondary education (UACE), while universities offer a three-year bachelor programme to entrants with either a UACE or a diploma in secondary or primary education. The teacher educators reported in this study taught in NTCs, with the majority holding bachelor's and master's degree qualifications. The other category of teacher educators reported in this study was based at the Health Tutors College (HTC), currently the only institution training tutors for post-secondary health training institutions in Uganda. Most tutors at the HTC are former health workers (nurses, midwives, and allied health professionals such as clinical officers, pharmacists, and laboratory technicians) with an additional qualification of at least a bachelor's degree in medical education.

The Government of Uganda in partnership with the Belgium Development Agency, initiated a teacher education project (TTE) to improve the pedagogic practices of teacher educators in four teachers' colleges (two NTCs, the HTC, and one BTVET instructors' college), specifically in Active Teaching and Learning (ATL) in tandem with the post-secondary education reform objective to promote learner-centred pedagogy (TFF, 2011).

The TTE project introduced a continuous professional development programme in the foregoing colleges to support teacher educators in implementing ATL.

The professional development activities comprised training on different aspects of ATL, peer mentorship, peer lesson observation, 'reflective workshops', support supervision by national experts, portfolio writing, and action research. A full-time project staff (a training coordinator) was attached to each college to support the professional development activities. Reflective workshops provided a platform for the teacher educators to collectively reflect on their efforts to enact ATL by jointly watching video recordings of samples of their lessons and thereafter discussing the emerging issues, facilitated by a training coordinator and at times with other experts from the TTE project and Ministry of Education. Portfolio writing and action research enabled them to document and reflect on their experiences of integrating ATL into practice.

Research Questions

The paper is guided by the following research questions:

- What contradictions characterised the teacher educators' professional learning and pedagogical change in relation to ATL?
- How did the teacher educators' perceptions, knowledge, and enactment of ATL evolve across the three years of implementation?

THEORETICAL FRAMEWORK

The paper draws on Activity theory as a theoretical lens to understand the complexities of the teacher educators' professional learning and pedagogic change in relation to ATL considering the social, cultural, and historical dimensions of classroom practice (Goodnough, 2019). Cultural-historical activity theory (CHAT) views human learning as a complex process that is socially situated and that human activities cannot be understood independently of the contexts in which they occur (Ekundayo et al., 2012).

Within Activity theory, social practices such as teacher education are construed as activity systems with specific objectives (objects), human actors (subjects) and rules regulating the practices. The subjects are the individuals or groups of actors engaged in the activity system; the object is the intention of the activity system, which leads to an outcome, i.e., the desired result of the activity system (Ekundayo et al., 2012). Rules are explicit and implicit regulations, norms and conventions that inherently guide or constrain actions and interactions within the activity system, while tools are the material and symbolic resources required to mediate relations between the *subject* and the *object* of the activity system. Division of labour refers to the different roles played by actors in the activity system, while the *community* comprises the various actors in the activity system.

The activity system of concern in this paper is preservice teacher education, while the subjects comprise the teacher educators in the participating colleges. The intended object of analysis is the integration of ATL in the teacher education programme in order to achieve the outcome of enhancing the quality of teachers required to improve teaching and learning in secondary schools. The *rules* comprise the explicit and implicit norms, principles, methods, and techniques regulating ATL and other teacher education practices. The tools include the various activities of the professional development programme and the instructional resources essential in facilitating the teacher educators' learning and implementation of ATL. Division of labour refers to the roles of teacher educators and pre-service teachers in the processes, while the *community* pedagogic comprises the teacher educators, pre-service teachers, the college leadership, the TTE project staff, the Ministry of Education and universities that regulate the teacher education programme. In the following sections, we review the principle of

contradictions and contradictions as a driver of pedagogical change in activity systems.

Contradictions

This paper specifically draws on the principle of contradictions from the third-generation Activity theory (Engeström, 2001). Contradictions are conceptualised as historically accumulating structural tensions which may be reflected in conflicts. misfits. dilemmas. frustrations. disruptions, misconceptions, miscommunication, or resistance within and across the different elements of the activity system, but also innovative attempts to transform the activity system (Engeström, 2009; Gedera, 2016).

Activity systems such as teacher education are constantly changing, driven by contradictions that emerge both within and between activity systems or between adjacent activity systems (Engeström, 1987; Giles, 2018). Contradictions may also emerge when an activity system adopts new elements from the outside such as a new rule or tool that may cause tension with existing elements of the activity system; for example, a pedagogic innovation like ATL may introduce new rules that may conflict with the rules of conventional practice that teacher educators are accustomed to, causing frustrations, discomfort, or resistance.

Contradictions As Drivers of Teacher Learning and Pedagogic Change

Activity theory underscores the central role of contradictions as drivers of change and development and as triggers for teacher learning and transformation of practice by causing tensions in activity systems (Engeström, 2001; Kaptelinin, 2013). Caspari-Gnann & Sevian (2022) note that contradictions should not be perceived as obstacles but rather as catalysts and growth points that allow systems to change; however, such contradictions must be settled for learning and development to take place. Identifying contradictions enables researchers to hypothesise possible shifts in and between systems, for example, potential shifts in pedagogical practice (Giles, 2018) as well as obstacles that need to be addressed to enable shifts in practice.

Using the CHAT framework, various scholars have shown how contradictions within and across the activity system act as drivers for change and growth points in teachers' professional knowledge and practices when productively resolved (Dai et al., 2020; Goodnough, 2019; Deignan & Brown, 2016; Gedera & Williams, 2016; Li et al., 2022). For example, Li et al. (2022) study reports that although temporary contradictions characterised the initial phase of implementing a pedagogic innovation, these were resolved, and the teachers embraced the innovation. Similarly, Gedera & Williams (2016) describe how productive tensions enabled a school to adopt a thematic curriculum and personalised learning.

This study employs the principle of contradictions to analyse the tensions, misconceptions, dilemmas, discomforts, internal dissonances, and conflicting perspectives that emerged among the teacher educators as they implemented ATL across three years and how the contradictions leveraged professional learning and pedagogic change. The paper contributes empirical and theoretical insights into complex processes of teacher educators' professional learning and changes in relation to LCP within a global south context.

RESEARCH METHODOLOGY

Research Design

A qualitative interpretivist research approach, specifically a case study design was adopted for the study premised on its appropriateness to analyse lived experiences of implementing ATL as recounted by insiders of the teacher education activity system. Case study design provides an indepth understanding of phenomena in their contexts (Yin, 2003) and according to activity theorists (Engestrom, 2001, Goodnough, 2019, Ekundayo et

al., 2012) one cannot understand social practices and human learning independent of their contexts. Accordingly, the case study design allowed an indepth analysis of the complex processes of professional learning and pedagogic change experiences of teacher educators and what shaped these processes. The study was conducted in three of the four TTE project-supported colleges, i.e., two NTCs and the Health Tutors College (HTC).

Data Collection

Data collection was undertaken in two phases. The first phase took place in the first and second years of implementing ATL in the colleges, while phase two was undertaken three years after the inception of ATL. The phased data collection aimed to capture experiences of implementing ATL over a longer period, given that pedagogical change takes time (Westbrook et al., 2013). Activity theorists argue that contradictions cannot be observed empirically, but these can be identified through dilemmas articulated by insiders of an activity system (Engeström et al., 2022; Hirsh, 2014). Thus, the data collection methods comprised interviews and observation data from video recordings of reflective workshops in the colleges.

In phase one, six video recordings of reflective workshops in NTC A, NTC B, and the HTC were collected, two sessions per college. In addition, interviews were held with four teacher educators (three males, one female) from NTC A and B, two per college, identified as A1, A2, B1 and B2 in the paper. The interviews were held immediately after each reflective workshop and targeted the teacher educators whose lessons were observed and discussed in the workshops and aimed to document their perspectives on the joint reflections on ATL.

The second phase of data collection was conducted in only NTC B to allow a more nuanced analysis of the teacher educators' experiences of implementing ATL across a three-year period. The sample in this phase comprised thirteen (13) participants, including ten (10) teacher educators (seven male and three female), two college administrators, i.e., the Principal and the Deputy Principal (male and female), and one male project training coordinator attached to the college.

All the teacher educators had a teaching experience of at least five years in the college and taught courses from either Arts and Humanities, Basic Sciences, or Business, Technical and Vocational Education. We assigned these teacher educators codes ranging from L1 to L10. The teacher educators were interviewed about their understandings, perceptions, and experiences of implementing ATL and what enabled and constrained their professional learning and pedagogical change processes. The Principal and Deputy Principal provided insights on the experiences of implementing ATL in the college from an administrative perspective. The training coordinator provided insights on the implementation of ATL as a technical expert supporting the teacher educators' professional development activities, as well as information on the TTE project's role in supporting the implementation of the pedagogic approach. Each interview ranged from 45 to 60 minutes and all interviews were audio recorded.

Data Analysis

The audio recordings of the interviews were transcribed verbatim and the transcripts were read and re-read several times to provide general insights on the implementation of ATL in the three colleges at inception and after three years in NTC B. The transcripts were then coded and the codes were categorised to generate themes and patterns across the data. Similarly, we watched the video recordings of the reflective workshops several times to get a general sense of the teacher educators' reflections and taking note of the substance and processes in the discussions, including the tone and non-verbal communication of the participants to allow synthesis of emerging contradictions in the talk and actions. The analysis considered the nature and thematic focus of the discussions among the teacher

educators, including points of agreement, tension, and divergent perspectives and how these were eventually addressed during the workshops. The thematic patterns emerging from the analysis of the video recordings and interview transcripts identified the contradictions that characterised the teacher educators' implementation of ATL and how the contradictions leveraged their professional learning and pedagogical change.

RESEARCH FINDINGS

Contradictions in the teacher educators' professional learning and pedagogical change processes

This section presents the contradictions that emerged within and among the teacher educators' professional learning and pedagogical change journey across three years of implementing ATL. The initial phase of implementation was characterised by contradictions in terms of resistance to ATL and discomfort with peer lesson observations. Subsequently, contradictions in the form of divergent interpretations of ATL and its principles and tension between ATL and its implementation emerged. context These contradictions are elaborated in the following subsections.

Initial Resistance of ATL

The inception of ATL implementation in the colleges was marked by resistance from the teacher educators, the students (pre-service teachers), and college management. The teacher educators resisted ATL because they perceived it as complicated, time-consuming, and strenuous in relation to planning lessons, while students experienced it as very demanding, as illustrated by a teacher educator's comment below;

ATL looked like a very complicated method to us as lecturers; to the learners, they thought it was a waste of time and oppressing because it would not give them time to do other things (Teacher educator, L6). The training coordinator explained that at the commencement of the professional development activities, the teacher educators were apprehensive and questioned how ATL would position and benefit them, which implied negative attitudes towards the approach. Additionally, the college management considered ATL costly in terms of providing instructional resources, while the students thought the teacher educators had relinquished their pedagogic roles by requiring them to take more responsibility for their learning. It is thus evident that the entire college community resisted ATL initially.

Anxiety and Discomfort with Peer Lesson Observations

Another contradiction that emerged during the initial phase of implementing ATL was the teacher educators' discomfort with peer lesson observations and critique, yet these activities aimed to promote peer support and collaborative practices. Highlighting the teacher educators' reluctance to open their practice to peers, the training coordinator remarked, 'Originally it was that somebody going to a class of another teacher was actually a threat, people did not like that'.

Additionally, the teacher educators were uncomfortable with the practice of peers observing and discussing samples of their video-recorded lessons during the reflective workshops, as illustrated by the following extracts.

Rarely are we watched by colleagues, so being watched teaching by colleagues was a new experience, a milestone and a turning point in my teaching. Initially, I was nervous but later realised that critiques are for building and not pulling one down; looking at myself was not comfortable until I started seeing some positive things in my teaching, then I was happy to be critiqued, I realised how useful it was especially when they appreciated my teaching, and for me the critiques were like adding value to me. (Teacher Educator A1, NTC A)

When I learnt about the selection of my video for the reflective workshop, I got challenged a bit and developed some cold feet, I asked myself if I did my best and felt maybe they are going to criticise me and find out so many faults, but as the lesson was critiqued, there were constructive critics, the intention was to help me to see ways of improving, it was not bad that they were tearing me apart but helping me to improve (Teacher Educator B1, NTC B).

The teacher educators' initial discomfort with opening their practices to peers may be attributed to being unaccustomed to such collaborative practices at the time.

Divergent Interpretations of ATL and its Regulating Rules

Another type of contradiction that emerged among the teacher educators was the divergent interpretations of ATL and its principles during discussions in their reflective workshops, which often led to questioning and problematising the pedagogic approach and its implementation. For example, divided opinion emerged among teacher educators at NTC B on the concept of 'active learning' and what constitutes 'active' and 'passive' learner participation in particular, leading to a lengthy debate on whether a student listening to a teacher exposition of concepts constitutes active learning. Similarly, at the HTC, health tutors took time pondering what 'active learning' entailed and later agreed to differentiate between 'passive' and 'active' listening, arguing that the quality of learner engagement depends on the type of learning activities in the lesson. At the end of the workshop, the health tutors resolved to devote more time and thought to preparing lessons to ensure that they include activities that promote active learning.

Furthermore, during a reflective workshop at NTC A the teacher educators questioned whether an activity of writing down lesson notes 'dictated' [read out] by a teacher constitutes active learning. Some teacher educators argued that such an activity

entailed active learning, while others maintained it was a passive act because the students mechanically wrote the notes without thinking. After considerable back-and-forth arguments, the workshop facilitator guided the educators to consider active learning as entailing active construction of meanings leading to conceptual development and not mere physical engagement in activities, a view that settled the debate.

Another example of a contradiction manifesting as divergent and conflicting interpretations of ATL was observed at HTC as the health tutors reflected on implementing the pedagogic approach within health tutor training. In one incident, a divided opinion emerged regarding the appropriate time to correct mistakes tutor students make during microteaching sessions. Two divergent perspectives emerged in the group, with most tutors suggesting that such mistakes are best pointed out after a microteaching episode so that students are not discouraged. On the other hand, one senior tutor called for immediate interception and correction of such mistakes, referring to this as 'nipping it in the bud', arguing that averting potentially fatal mistakes on patients is critical within health training contexts. The latter perspective did not only conflict with the views of most tutors in the group but also with conventional teacher education practice.

Questioning the Sustainability of ATL within Teacher Education Practices

In the second year of implementing ATL, the teacher educators' discussions in the reflection workshops progressed from focusing on critical incidents in lessons to considering factors within their colleges and the broader education system that frame practice and hence their adoption of ATL. For example, a teacher educator at NTC A pointed out the importance of rolling out ATL beyond the teachers' colleges to the entire education system in order to ensure its sustainable implementation and impact. Similarly, a teacher educator at NTC B emphasised the need for better alignment between pedagogy and assessment processes within teacher

education to ensure sustainable adoption of ATL. The discussions acknowledged that changing pedagogic practice sustainably requires broader contextual factors that frame teacher education beyond individual educator practices. These discussions suggested that the teacher educators had developed a deeper and holistic understanding of their professional practice beyond immediate classroom contexts.

In addition, three teacher educators at NTC B and the college administrators called for better alignment between the curriculum, pedagogy, and assessment processes of the pre-service teacher education programme. L10 suggested the need to review the teacher education curriculum to align it with the ATL approach, whereas L3 called for more use of formative assessment that aligns better with ATL than summative examinations that were emphasised then. Furthermore, the principal explained that the public university, which regulates the teacher education curriculum and assessment processes, was 'not yet on board with ATL', which negatively impacted its effective implementation and sustainability.

Overall, the various contradictions reflect intrapersonal and interpersonal experiences that characterised the teacher educators' interpretations of ATL and shaped their professional learning and pedagogical change processes.

Transformation of the Teacher Educators' Knowledge, Practice, and Perceptions of ATL

This section analyses the professional learning and pedagogic change among teacher educators at NTC B in the third year of implementing ATL, drawing on the perspectives of 10 teacher educators, the college administrators, and a project officer. Overall, the findings show a remarkable shift in the teacher educators' perceptions, understandings, and enactment of ATL three years into implementing the approach, as discussed in the following subsections.

Improved Professional Knowledge

The findings show that the teacher educators' knowledge of ATL, as well as their general pedagogical content and knowledge, improved. The teacher educators' accounts reflected a clear understanding and articulation of what ATL entailed, its application in classroom contexts as well as its pedagogic benefits from the perspective of teachers and learners. The teacher educators explained that their knowledge and practices had been enhanced through the various professional development activities. For example, L4's understanding of students' learning had improved through action research while L8 learnt how to develop and use new assessment techniques and tools including rubrics and portraits which enhanced her assessment practices. Furthermore, teacher educators (L10) had become innovative by improvising instructional resources from locally available materials.

Two teacher educators (L5 and L7) and the principal observed that although ATL had been presented to them as a new pedagogic approach, they had later realised that it was not entirely new because they had previously encountered it in one form or another. L5 remarked that,

"This ATL, I don't think is a new thing. People have ever been saying it is participatory, others have been saying that it is active pedagogy, we have been trying it out, but we were doing it in an uncoordinated way".

The fact that these teacher educators recognised that ATL was not an entirely novel approach much later points to their gradual understanding of the pedagogic approach.

ATL Integrated in Practice

The study sought to establish the extent to which ATL had been taken up in the teacher educators' practices in the third year of implementation. During the interviews, we asked the teacher educators how often they used ATL in teaching and

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their accounts showed that they had integrated the approach in their practice and used it regularly. For example, L2 said, '*It is now part of my life. I apply it whenever I go to lectures*'. Similarly, L3 said,

'I think every time I go to class, I now use ATL; it has become very interesting. Every time I go, consciously or unconsciously, I use it; I think I have gone very far in adopting ATL'.

Similarly, L9 said he had adopted more practicaloriented teaching strategies through ATL, which he found more effective for biology than the theoretical methods he previously used. He said,

"You see, before ATL sometimes we used to teach theoretically and you may even have the leaves outside but you just talk about it. But now with ATL, it helps them to get a feel of the real situation and it is very important".

The college administrators and project training coordinator confirmed that the teacher educators at NTC B regularly used ATL, which implied that the approach had been fully integrated into the pedagogic practice of the college.

Furthermore, increased professional agency among the teacher educators was evident through their pragmatic and innovative stance towards the resource constraints in the college. At one of the reflective workshops at NTC B, a video recording showed how one educator had adapted ATL to actively engage 200 students in a mathematics lesson. This case demonstrated that it was possible to actively engage and maximise student interaction despite large class sizes, something which challenged the teacher educators to identify other innovative ways of adapting ATL to the material limitations in the college. Another educator explained how she adapts ATL by identifying techniques and methods suitable for different class sizes, topics, and available time for teaching. Such pragmatic actions contrasted the educators' earlier pessimism on implementing ATL in their college context with its high-class sizes, limited classroom space and inadequate instructional materials.

Beyond integrating ATL in their practices, two teacher educators (L4, L5) explained that they also overtly modelled the pedagogic approach to their students to enable them to effectively apply it in their teaching after college, as narrated below;

In the process of teaching, I also emphasise the importance of doing what I am doing to them to their own students when they are in class. I do that a lot because at the back of my mind, I know I am not just training them to pass exams, but I am training them so that they can go and train others (Teacher educator, L4).

Although students had resisted ATL considering it a burden at inception, the teacher educators reported that they had now fully embraced the approach, always looking forward to using it, including during school practice, as remarked by L3,

"They are very positive, very positive even up to schools where we go to see them for SP [school practice], they are now using ATL, and even when we come to class, they ask, "are we not using ATL today, are you not using ATL"? So, I think they have embraced it".

Enhanced Collaboration and Peer Support

Another remarkable change in the teacher educators' practices was their willingness to collaborate through peer lesson observation, unlike their earlier discomfort and hesitation. The educators explained that reciprocal learning from peer lesson observations, mentorship and joint reflective workshops improved their practice. For example, six teacher educators reported that peers and mentors provided input on their lesson plans, observed them teaching and provided insights that enhanced their practice, as illustrated in the following excerpts.

We are at liberty, you can invite a friend and say, "you come and see my lesson as I apply

learning stations, as I apply group work, as I apply ABCD". So, our colleagues come, sit at the back, they assess the lesson, and after that, we sit and conference amongst ourselves (Teacher educator, L1).

And this peer supervision, we are ever doing it. We now feel free calling a colleague, or somebody who is above you or a supervisor to come and see you, which has made us now not fear being seen in class, whereas previously, we have been feeling that aah when somebody comes to see you in class, the person is coming to identify problems. But now, after peer supervision and after the comments, you see the adjustments and you reflect on what the person has done. (Teacher educator, L5).

It appears that the teacher educators appreciated collaborative practice after experiencing its benefits. The training coordinator also explained that the teacher educators had become more receptive to peer lesson observation and that there was a noticeable shift in their team spirit, reflected in more openness, collaboration, and support for one another.

Improved Perceptions of ATL

As reported earlier, the entire college community initially resisted ATL because they perceived it as being complicated, strenuous, time-consuming and costly. However, after experiencing ATL in classrooms, the teacher educators started appreciating its benefits and changed their perceptions, as reflected in their accounts and confirmed by the training coordinator and college administrators.

Teacher educator L8 explained that she previously discriminated among learners by paying more attention to those who performed better in class while ignoring academically weak learners, hence not catering for their individual differences. She observed that ATL had enabled her to recognise the importance of supporting all learners, especially when they make mistakes, saying,

ATL has also taught me that you should not discourage any performance of any activity a learner has taken, we learn by mistakes and we keep trying; that is how we improve, which we had not known before; we used to criticise learners.

The teacher educators' positive perceptions of ATL were also evident from their description of its benefits. They observed that ATL had enhanced their confidence in teaching, fostered better lesson preparation and made teaching more interesting, easier, and less stressful than conventional approaches. For example, L4 explained how ATL had eased his teaching, saying,

"First of all, the tedious work is preparation, but once you are already prepared, teaching becomes very easy. You do not struggle much because you will have gotten enough teaching and learning aids, and you are making your learners be involved actively in their own learning. So, in that situation, your work becomes very easy".

Similarly, L3 remarked, "You talk less and allow learner engagement".

Furthermore, and contrary to the earlier perception that ATL was time-consuming, L1 observed that one could cover more using the approach; he remarked, "One can cover much content, for example, through learning stations".

From a learner's perspective, the teacher educators explained that their students were now more actively involved in lessons and enjoyed learning; they ably searched for new knowledge and that the practical and authentic learning approaches had enhanced their understanding of concepts. In addition, students were more confident and

responsible; they expressed themselves better, were more self-regulating and improved their leadership and social skills.

The college administrators reported an overall improvement in the students' learning outcomes over the three years, reflected in the dramatic increase in the number of first-class academic awards, positive feedback on ATL from schools where teaching practicums were conducted and those that had recently recruited alumni of NTC B. The following extract is illustrative.

No, I see it [ATL] already having an impact because those in the field in our practising schools are already demanding that they also be retrained to have this ATL approach to teaching. I think they [students]are going to have an impact because these are methods we are exposing them to during training, so I believe they will continue to embrace it and create an impact in the schools where they will be functioning. (Deputy Principal).

The fact that secondary schools had noticed an improvement in the pedagogical skills of the student teachers implies that ATL had started positively impacting the quality of pre-service teachers graduating from the college, which is the ultimate expected outcome of implementing the approach in the teachers' colleges.

Overall, the teacher educators' professional learning and pedagogical change that facilitated the take-up of ATL by NTC B was attributed to three main factors; the professional development activities, particularly the reflective workshops, peer support, and mentorship; the personal drive of the teacher educators, and supportive college leadership.

DISCUSSION AND CONCLUSION

This paper has reported the professional learning and pedagogical change experiences of Ugandan pre-service teacher educators in relation to learnercentred pedagogy from an activity theory perspective. Through the principle of contradictions, the study identified various tensions, misconceptions, and dilemmas the teacher educators experienced as they individually and jointly interpreted and enacted ATL and how addressing the contradictions leveraged transformation in their knowledge, perceptions, and practices, resulting in effective implementation of the innovation. The study thus underscores the importance of uncovering and addressing contradictions that may constrain professional development and pedagogic change among educators (Goodnough, 2019). Contradictions as sources of change hence a useful way to identify and address challenges in implementing pedagogical reforms.

The study has shown that the teacher educators' professional learning and pedagogical change was complex, characterised by various contradictions at the personal, group, and institutional levels. The educators initially resisted ATL and had misconceptions and misunderstandings about the approach. At the group level, contradictions emerged in the form of divergent interpretations of ATL with some of its rules perceived as conflicting with conventional teacher education practice. Moreover, the teacher educators also perceived the curriculum and assessment of the teacher education program as mismatched with the ATL approach, hence unsupportive of its effective implementation. Limited physical and material resources in the colleges were perceived as further constraints to ATL implementation. These constraints are reflected in other studies on LCP implementation in SSA (Mendonca et al., 2012; Chiphiko & Shawa, 2014).

Consistent with Engeström's (2001) idea that once contradictions are resolved, they trigger new understandings, perceptions and shifts in an activity system, the contradictions that emerged in this study leveraged change in the teacher educators' thinking, perceptions, and practices. For example, initial resistance to ATL was addressed through professional development activities where

misunderstandings and misconceptions of the approach were resolved. In addition, personal experiences of using ATL enabled the educators to appreciate its pedagogic benefits, which, in turn, positively impacted their attitudes towards the approach. Implementation of LCP has been documented to pose uncertainty and dilemmas, leading to its initial resistance in other contexts (Caspari-Gnann & Sevian, 2022; Bremner et al., 2023).

Additionally, individual educators' challenges and dilemmas in enacting ATL were discussed, best practices were shared, and innovative solutions to contextual constraints were identified. Furthermore, divergent perspectives were jointly reflected upon and discussed, and misconceptions were clarified, which enhanced understanding of ATL and reconceptualization of practice. The multiple and diverse perspectives among the teacher educators leveraged learning, consistent with De Jong et al. (2022) argument that some level of heterogeneity in collaborative professional development contexts can be beneficial.

Activity theorists consider dialogue among subjects central to transforming the object of an activity system by providing an opportunity to uncover and resolve contradictions and by so doing, fostering expansive learning, innovation, and change (Engeström, 2001; Avis, 2007). In this study, the dialogue was achieved through teacher educators acting as 'critical friends to one another by questioning and stimulating new ideas and perspectives on practice, which enhanced their individual and collective understanding of ATL.

This paper contributes insights into the professional learning and pedagogical change of teacher educators. First, the study findings have demonstrated that changes in the teacher educators' perceptions, understanding, and enactment of ATL were gradual, confirming the view that teacher learning and pedagogical change, particularly the transition to LCP, takes time (Sakata et al., 2022) because it entails unlearning and relearning of knowledge, beliefs, and skills. It took three years to realise shifts in knowledge, perceptions, and practices among the educators in this study. Secondly, learning happens both individually and jointly. The educators needed to first understand ATL to enact it in their individual practices, while group learning was realised through collaborative activities such as reflective practice and peer lesson observation. Previous studies on teacher learning argue that in addition to joint learning, individual understandings are vital for effective professional development (Uffen et al., 2022; Mendonça et al., 2012).

Observation and feedback on practices among peers is a particularly powerful form of teacher colearning and professional development because teaching is conventionally a solitary undertaking (Bremner et al., 2023). Reflective workshops provided a safe environment of trust, care and collegiality for the teacher educators, which addressed their initial discomforts with peer lesson observations. As Uffen et al. (2022) suggest, teachers uncustomed to collaborative modes of interaction may feel insecure at the start and hence need safe and secure spaces where all views are welcomed and valued. Other studies have established that open, collegial, but critical interactions and discussions among peers enhance professional learning and growth among teachers (Lunenberg et al., 2017; Giles, 2018; Izadinia, 2014; De Jong et al., 2022).

Expert views are valuable for providing new knowledge and insights on pedagogic innovations and challenging previous assumptions on practice (Nordgren et al., 2021; Brennan & King, 2022). The national training on ATL, support supervision by national experts and the facilitators of the reflective workshops provided expert views on the practice. When misconceptions or multiple interpretations of the approach emerged during the workshops, the facilitators provided new knowledge and guided further reflection on the contentious concepts, which often required educators to rethink their

conventional understandings and assumptions on practice, leading to new insights.

Thirdly, the factors that enabled professional learning and pedagogical change of the educators in this study were at individual, group, and institutional levels. Personal initiative to learn and try out ATL in practice enabled the educators to appreciate its pedagogic benefits. while collaboration, peer support, mentors and expert views ensured critical engagement and multiple perspectives that facilitated learning. The college leadership provided structured time for the various professional development activities and eventually institutionalised the programme in order to sustain ATL implementation beyond the TTE project that initially funded it. These findings resonate with De Jong et al. (2022)'s call for professional development designers to pay close attention to factors at all the foregoing three levels of teachers' practice.

In general, the professional development model adopted in the current study was ongoing, collegebased, contextualised in practice, structured, collaborative, and provided expert views on the practice. Previous studies have demonstrated the effectiveness of teacher learning and professional development that is collaborative, contextualised in practice (Sagre et al., 2021; Bell & Mladenovic, 2014), sustained over time (Bremner et al., 2023), provision of expert views and feedback on practice, reflection, and opportunities to try out new ideas in classrooms, (Nordgren et al., 2021; Goodnough, 2019; Brennan & King, 2022).

In conclusion, the introduction of ATL in Uganda's teachers' colleges was intended to provide preservice teachers with first-hand experiences of learner-centred pedagogy and in turn inspire them to adopt the approach in their practices. The positive feedback from secondary schools on the quality of teachers trained using the ATL approach provides evidence of its effectiveness. The study has therefore demonstrated the potential of pre-service teacher education positively impacting LCP implementation, underscoring the importance of teacher educators' modelling of effective pedagogy to their learners. This study has contributed literature to the limited research on professional development and practices of teacher educators from the global south.

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