



**African Population and  
Health Research Center**  
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# Modeling practicum-based teacher professional development programs in Africa and moving them to scale

Literature Review

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## Executive Summary

Practice-based teacher education has been foregrounded as most effective for supporting pre-service teacher training worldwide given possibilities for practicing to teach in real school contexts. It bridges the theory acquired at teacher training institutions and the practice within schools. Yet a paucity of research on practicum Teacher Professional Development (TPD) from Africa exists despite studies problematizing the inadequately trained teachers. Therefore, the purpose of this systematic literature review was to examine successful approaches taken up in practicum TPD programs in order to inform future pre-service TPD in Africa. Guided by our inclusion and exclusion criteria, we selected 64 papers, which informed the review.

The review illuminated five main potentially promising approaches for making practicum TPD more effective in sub-Saharan Africa (SSA) namely: school-based mentorship; communities of practice; peer-observation of teaching; reflexive practice as well as practicum placement in diverse contexts. The success of those approaches was attributed to aspects including collaboration; partnerships between schools and colleges; bridging theory and practice; hands-on experience; co-teaching; reflection; psychosocial support; diverse feedback and blended learning. The prominence of collaboration as an aspect across the approaches confirms scholarship from other contexts, foregrounding collaboration as particularly effective in the practicum preparation of student teachers of foundation literacy and numeracy (FLN). This notwithstanding practicum TPD in SSA has been impeded by limitations including the gap between theory and practice; heavy mentor and student teacher workloads; limited mentor training and incentives; perceived hierarchies between teacher educators and mentor teachers; socio-cultural hindrances; inadequate practicum duration as well as preoccupation with grades rather than enhancement of teaching practices.

This scholarship however, prevalently qualitative, based on self reports as well as small samples of pre-service teachers largely from South Africa, is devoid of rigorous evidence from quasi-experimental studies for example, linking improved pedagogical practices and learning outcomes to specific approaches especially for FLN. This highlights the need for more robust research from diverse SSA contexts and stakeholders, on effectiveness of teacher preparation as measured in terms of improved pedagogical practice and learning outcomes. Further, evidence is needed on the efficacy of TPD approaches as informed by rigorous testing at scale in pre-service teacher education programs in SSA. Furthermore, studies comparing the efficacy of variations in duration and sequencing (between coursework and practicum) across TPD programs as well as studies on capacity development of teacher educators, especially in relation to preparation of FLN student teachers, are critical in forging relevant interventions. Finally, more studies are needed, particularly those that focus on innovative approaches to preparing pre-service teachers for inclusive classrooms.

# 1. Introduction

Practicum refers to the period when student teachers work with professional colleagues who supervise and support them to shape their practice (Matengu, Ylitapio-Mäntylä, & Puroila, 2021). During this time, student teachers are ideally provided opportunities and/or supervised experiences to integrate theory and practice, in order to appreciate the full scope of a teacher's role in an actual school environment. As a site for practicing the art of teaching in a real school context, practicum is considered the most highly valued component of teacher preparation, impacting student learning as well as increasing teacher retention (Feiman-Nemser, Tamir, & Hammerness, 2014; Gourgiotou, 2017; Tuli & Tynjala, 2015). Practice-based teacher education has been foregrounded as the most effective way of supporting student teachers' training worldwide (Jenset, Klette, & Hammerness, 2018; Zeichner, 2012). The practicum therefore, although varied in focus and approach, is integral to teacher education. Accordingly, teacher education is undergoing a major shift from a predominant focus on knowledge for teaching toward its application. Indeed, a large body of work dominantly from North America and Europe has focused on practicum/practice-oriented teacher professional development (TPD) (Korthagen, 2016; McDonald, Kazemi, & Kavanagh, 2013; Zeichner, 2012). This includes substantive reviews of literature that have synthesized best practices for constructing well-designed practice-based 21<sup>st</sup> Century teacher education programs (Clarke, Triggs, & Nielsen, 2014; Cohen, Hoz, & Kaplan, 2013; Lawson, Çakmak, Gündüz, & Busher, 2015; Matengu et al., 2021).

However, there is a paucity of research on pre-service practicum TPD from Africa. Indeed, Matengu et al.'s (2020) review of TPD from an early childhood context shows that most studies (37%) were from the United States, Australia (18%), New Zealand (9%), Finland (6%) and Israel (5%) and the rest spread across Europe and Asia. Consequently, pre-service TPD has largely been modeled using Western experiences. Indeed, Najjuma's (2023) study for example, uses the case of an outstanding teacher education program in England to elicit lessons for practice-based teacher education in Uganda. Similarly, Dos Sanots' (2020) study, conducted in Macau SAR, a Special Administrative Region of China, recommends that his findings should be localized to fit schools in South Africa. Further, the dearth of research on TPD in Africa is reflected in the paucity in reviews of existing literature on practicum TPD from the continent.

Therefore, in heeding calls for more international research on teacher education (Cochran-Smith et al., 2016; Grossman, 2021), this review illuminates promising approaches of practicum TPD taken up in SSA countries to provide best practices to inform teacher education programs. This is critical especially in SSA given practicum TPD programs described as prevalently obsolete and theoretical, with inadequately supervised school placements and student teacher experiences described as cases of "sink or swim,"—a precipitate for producing inadequately trained teachers (Akyeampong, 2017; Pryor, Akyeampong, & Westbrook, 2013; Westbrook et al., 2013). Further, given the extreme importance of foundational literacy and numeracy (FLN) for future progress, the review additionally reflects on the implications of the promising TPD approaches taken up in pre-service practicum TPD in SSA in the preparation of prospective teachers of FLN.

## 1.1. Teacher Training Across Africa

This section provides some descriptive information on teacher training across Africa, including typical qualifications; length of teacher programs as well as scope and timing of practicum as largely informed by Master Card Foundation's study on teacher preparation in SSA (Tylor, Deacon, & Robson, 2019).

Pre-service teacher education is largely provided by universities and teacher training colleges with dominantly face-to-face modes of learning and limited distance education programs (e.g. in Gambia, Sierra Leon, Namibia, Uganda, Botswana, Eretria and Madagascar). While the majority of countries offer diploma and degree qualifications, some offer degrees only (e.g. Gabon, Eretria, Comoros and South Africa); others diplomas only (e.g. Mozambique, Democratic Republic of Congo, Seychelles) and others certificates only (e.g. Burkina Faso, Liberia, Gambia). For admission, most countries such as Uganda, Kenya, Madagascar and South Africa require an upper secondary school leaving certificate or its equivalent while others also admit based on additional entrance examinations including psychosocial aptitudes (e.g. Namibia and Djibouti). While some degree programs consist of four years (e.g. South Africa), others are two-three years (e.g. Gabon, Mauritius, Madagascar and Uganda). Diplomas on the other hand range between two years (e.g. Ghana) and four years (e.g. Lesotho) while certificates are between two to three years except for countries like Burkina Faso where it is 18 months. The content of most programs comprises the teaching subject(s), pedagogical courses and practicum.

Practicums are varied in timing and duration: In Ghana for example, practicum also known as the "in-in-out" model, is undertaken in the third year of the bachelor program (Akyeampong, 2017). In Tanzania practicum takes 5-8 weeks (Vumilia & Semali, 2016), while in Cameroon, practicum can be as short as two weeks (Wohlfahrt, 2018). Zimbabwe's 2-5-2 deviates from typical one-off practicum in most SSA countries. Student teachers spend their first two school terms at a training college; five school terms in practicum at a practice school; and then the last two school terms at a training college for their final examinations. Practicum is therefore undertaken throughout the teacher education program (Musingafi & Mafumbate, 2014). Further, the block placement through which pre-service teachers do the entire practicum in the same school setting, with their placement based on administrative convenience rather than best learning experience in diverse classrooms is a prevalent practice. Additionally, most pre-service teachers work under the same inadequately incentivized practicing teacher for the entire duration of the practicum, hampering exposure to diversity of teaching expertise to prepare them for diverse situations. Further still, assessment of practicum is largely formative mainly through teacher educators' lesson observations (e.g. Cameroon, Nigeria, South Africa and Zimbabwe). However, while mentor teachers' assessment counts towards the final grade in Zimbabwe, Ghana and South Africa, this was not the case in Uganda where it does not count (Bwiruka, Maani, & Ssetumba, 2021).

Finally, UNESCO data shows that the proportion of trained teachers has declined to the point that by 2030, less than half of Africa's teachers will have the training they need to do their jobs (UNESCO, 2018). This contravenes SDG 4c, which aims to substantially increase the supply of qualified teachers especially for least developed countries by 2030. Moreover, the dearth of information on enrollment, dropout and completion rates, gender balance, foundational literacy skills as well as similarities and differences across programs compromises the utility of research in providing lessons to inform the improvement of teacher education programs in Africa. This justifies studies to document best practices in order to inform these programs in Africa.

## 1.2. Purpose of the Study

This review examines practicum-based TPD approaches in order to establish what aspects make them successful and how they can inform future TPD in SSA. The review was guided by the following research questions:

What aspects of the practicum-based TPD program(s) in SSA, make them successful or have a potential to succeed in terms of better learning outcomes and better teaching practices? And why are they (practicum based TPD programs) successful?



## 2. Review Methodology

We adopted the Cochrane Handbook for Systematic Reviews of Interventions given its suitability for conducting methodical reviews (Shuster, 2011). We conducted a systematic review to collate evidence from studies on aspects of successful practicum TPD program taken up in SSA. This involved the following steps: 1) systematic literature search; 2) literature screening; 3) data extraction and synthesis.

### 2.1. Systematic literature search

The review began with a high-level search of the literature as conducted by three reviewers, using search terms reflecting the concepts in the research questions—namely: “practicum-based TPD in Africa”; “school practice in Africa”; “foundational literacy and numeracy and practicum in Africa”; “early childhood development and TPD in Africa”. We searched electronic databases including Eric, Jstor, SCOPUS, and EBSCO. We also conducted open searches mainly using Google Scholar (see summary in Figure 1).

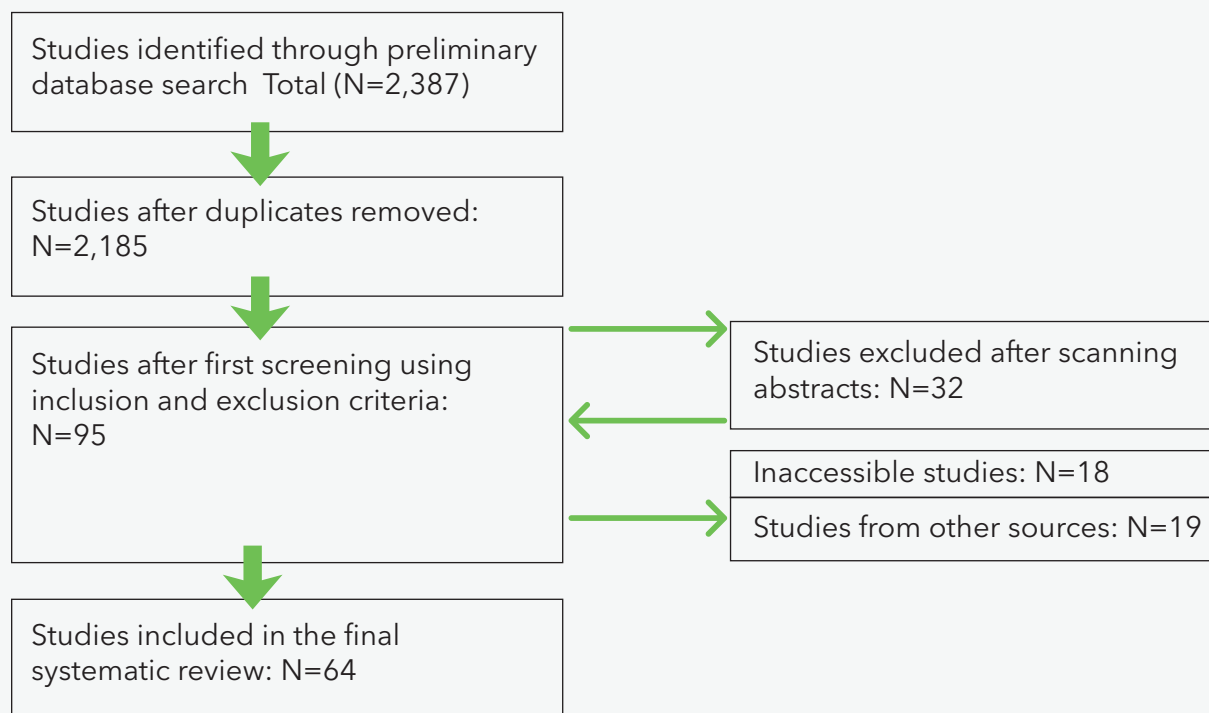
### 2.2. Literature screening

The review began with a high-level search of the literature conducted by three reviewers, using search terms from the research questions: “practicum-based TPD in Africa”; “school practice in Africa”; “foundational literacy and numeracy and practicum in Africa”; “early childhood development and TPD in Africa”. We searched electronic databases (Eric, Jstor, SCOPUS, and EBSCO) as well as open searches mainly using Google Scholar (see summary in Figure 1).

**Table 1: Inclusion and exclusion criteria for the review**

No.	Criterion	Inclusion	Exclusion
1.	Type	Empirical studies	Non-empirical studies
2.	Publication	Scientific publications (e.g. scholarly journals, technical reports, dissertations, books, working papers)	Non-scientific publications
3.	Data bases/ search engines	SCOPUS, ERIC, EBSCO, Google scholar, Jstor	Other databases
5.	Language	English	Other languages
6.	Focus	Pre-service practicum TPD	In-service practicum TPD
7.	Level	Early childhood, primary and secondary	Higher education
8.	Region	Sub-Saharan Africa	Other locations
9.	Timeframe	Since 2010	Before 2010

A total of 2,387 “hits” were found and saved in “Rayyan.ai”, which is an artificial intelligence (AI) inventory tool for systematic reviews. Out of these, 202 were duplicates, which were deleted leaving 2,185 papers. On further screening using the exclusion and inclusion criteria, 95 papers remained. These were further screened through reading the abstracts leading to a further exclusion of 32 papers. We excluded 18 on failing to access the entire paper, leaving 45 papers. To these 19 more were added through perusing reference lists of included papers as well as referrals. This led to a total number of 64 studies, which we reviewed (see figure 2 below).



**Figure 1. PRISMA Flow diagram: Search methods, inclusion criteria and results**

This set of studies is in no way considered as representative of the SSA continent; rather the selection is considered illustrative of promising practices in practicum TPD in SSA.

### 2.3. Data extraction and synthesis

This review follows a results-based convergent synthesis design, in which qualitative, quantitative and mixed-methods studies were identified in a single search, and integrated throughout the analysis, synthesis, and presentation (Noyes et al., 2019). We developed a synthesis matrix, which was used to extract and then thematically analyze the data from the selected papers. It was informed by a range of factors considered significant in understanding practicums, which according to Booth et al. (2016) can be identified by asking the analytical questions below:

1. What is the study's focus (in terms of practicum TPD models)?
2. What are the main contexts and who are the main participants?
3. What methodology was used to provide evidence?
4. What are the major and minor themes (in terms of aspects of successful TPD)?

Each study was read and coded against the above questions, and synthesized in terms of the type of practicum TPD approach; country contexts of the practicum TPD; methodology used to provide evidence and findings in terms of the aspects of successful TPD (what worked/strengths) and limitations/what did not work (see Appendix 1 for the complete synthesis matrix and Table 2 below for the abridged version).

**Table 2: Abridged Synthesis Matrix of the Selected Studies**

No.	Practicum TPD	Author/Year	Context	Method
1.	School-based mentorship SBM)	Richter (2016); Musingafi & Mafumbate's (2014); Lavonen et al. (2019); Wohlfahrt (2018); Akyeampong (2017); Nigate et al. (2023); Jita & Munje (2022); Maphalala (2013); Vumilia, et al. (2016); Moosa & Rembac (2020); Shumba et al. (2012); . Mukeredzi & Manwa (2019); Munyengwa (2018); Keating (2022); Dos Reis & Braund (2019); Nel et al. (2017); Botha (2023); Mukeredzi et al. (2017); Ngoepe (2014); Silbert & Verbeek (2016); Leke-ateh et al. (2013); Ausiku et al. (2019); Tauzi (2015); Mtika (2011); Karugu & Chege (2019)	South Africa, Zimbabwe, Cameroon, Ghana, Ethiopia, Tanzania, Namibia, Malawi Kenya	Qualitative, mixed methods
2.	Communities of Practice (CoPs)	Msimanga et al. (2021); Islam (2012); Chigona (2013) ; Van Wyk & De Beer (2019); Voskoglou (2019)	South Africa, Zimbabwe, developing countries	Qualitative
3.	Peer Observation of Teaching	Agoro & Akinsola (2013); Hassan & Wium (2014); Larbi & Kuranchie (2018); Njiku (2018); Nyaum & Mtetwa (2011); Makgakga et al. (2021); Manchishi et al. (2016); Mudau (2017); Kimaro et al. (2021); Kgwefane & Masimega (2023); Moolman et al. (2020); Mundalamo & Sedumedi (2012); Onwuagboke et al. (2017); Parr et al. (2017); Sunzuma et al. (2022)	Zimbabwe, Tanzania, Zambia, South Africa, Nigeria, Ghana, Botswana	Qualitative, mixed methods
4.	Practicum Placement in Contrasting Contexts	Makoelle & Mosito (2023); Muyungu (2015); Nketsia & Saloviita (2013); Robinson (2013); Rusznyak & Walton (2017); Walton & Rusznyak (2014)	South Africa, Tanzania, Ghana	Qualitative
5.	Reflexive practice	Asregid et al. (2023); Behizadeh et al., (2019); Beylefeld & Le Roux (2015); Carl & Strydom (2017); Dryer (2015); Esau (2013); Fataar (2010); Frick et al. (2010); Makina (2019); Mpofu (2019); Mukeredzi (2015); Thaba-Nkadimen (2017); Tlali (2019)	South Africa, Ethiopia, Zimbabwe	Qualitative

### 3. Results and Discussion

The review generated five dominant promising approaches of practicum TPD taken up in SSA, namely: school-based mentorship; communities of practice; peer observation; reflexive practice and practicum placement in diverse contexts. In the sections that follow, we explain each approach, highlighting its strengths and/or what makes it successful as well as its limitations towards enhancing better learning outcomes and teaching practices for practicum TPD programs in SSA. We end the discussion of each approach by highlighting its potential as regards the preparation of teachers for foundational literacy and numeracy.

#### 3.1. School-based Mentorship

School-based mentorship (SBM) foregrounds collaboration between practice schools and teacher training institutions in practicum TPD (LeeKeenan, 2020; Nigate, Mihiretie, & Kassa, 2020). It is based on interactions between a mentor (typically an experienced schoolteacher) and a mentee (student teacher) as well as college supervisor to facilitate acquisition of teaching and school management skills (Lichtenberger Majzikne & Fischer, 2017; Ulvik, Helleve, & Smith, 2018). Mentor teachers are influential in shaping student teachers' practices and beliefs, making it critical for them to work with college/university supervisors towards preparing student teachers for the diverse challenges they are likely to encounter in the classroom (Brown & Steadman, 2011; Killian & Wilkins, 2009). Moreover mentoring is mutually beneficial for both student teachers and mentors as the former are exposed to best practices and the latter to novel ideas, ruling out what Ngwenya (2020) described as the "hit and run" supervision which characterized traditional supervisory practices. SBM departs from traditional apprenticeship approaches in which college supervisors, largely perceived as outsiders, periodically visited practice schools, providing limited time for observing, evaluating, and providing feedback to student teachers (Anderson & Radencich, 2001).

School-based mentorship persists as a dominant approach to practicum TPD in SSA countries like Kenya, Uganda, Nigeria, Ghana, Zimbabwe, Cameroon, South Africa and Tanzania (Akyeampong, 2017; Jita & Munje, 2022; Musingafi & Mafumbate, 2014; Richter, 2016; Vumilia & Semali, 2016). Some studies from SSA have particularly explored the potential of SBM in enhancing student teachers' preparation for teaching FLN (Akyeampong, 2017; Keating, 2022; Zuilkowski & Ralaingita, 2023). Akyeampong's (2017) study for example, which draws on qualitative data from Ghana, explored eight teacher educators' practice and vision of good teaching of primary mathematics. Similarly, in South Africa, as Richter's (2016) mixed methods study explains, student teachers in the third or fourth year were screened to ensure eligibility in terms of ability to complete their studies successfully while participating in SBM.

##### 3.1.1. Strengths of school-based mentorship

###### Five key potential strengths of SBM emerge from literature:

- Partnerships between the university/college and practice schools provides opportunities for theory to meet practice;
- Mentor-mentee relationships provide student teachers with a skilled mentor to learn from;
- Mentorship provides opportunities for modelling a spectrum of competences including teaching and school management towards holistic TPD;
- Blended learning exposes student teachers to both face-to-face and e-learning.

Studies on SBM in SSA have lauded the collaboration between schools and universities/colleges as effective in delivering qualified teachers (Silbert & Verbeek, 2016). In a comparative study of SBM in Soweto in South Africa and Helsinki in Finland, Lavonen et al. (2019) concurred that student teachers' learning depends largely on partnerships between the university and practice school, which bridges theory-practice gaps. Indeed, Musingafi and Mutumbate's (2014) study of SBM in three high and three primary schools in Zimbabwe decried traditional practicum TPD approaches that depend almost exclusively on the outside-school expertise of teacher educators as largely ineffective in addressing systemic challenges in school contexts. SBM provides opportunities for student teachers to learn by observing teachers on a continuous basis (learning from practice) and also presenting lessons under the supervision of mentors (learning in practice). Jita and Munje's (2021) qualitative study on pre-service teachers' reflections about their mentoring experiences during eight weeks of practicum in a South African program lauded the mentors for modeling a spectrum of competences including lesson planning, delivery and assessment.

Yet the study is silent on the efficacy of this on the pre-service teachers' pedagogical competences and students' learning outcomes. Further, the use of blended learning as taken up to support SBM particularly in South Africa, is illustrated in Richter's (2016) study. While this demonstrated how virtual platforms enabled teacher educators to remain connected to the student teachers, there are gaps in evidence on how this enhanced technological competences to support pre-service teachers' pedagogical practice.

This notwithstanding, SBM allows for poor and disadvantaged learners to study while student teachers gain teaching experience. It has been used in both Zimbabwe (ZINTEC program) (Maguraushe, 2015) and South Africa (Richter, 2016) where pre-service teachers were recruited as assistant teachers, in order to plug teacher shortage gaps. In Indeed, Richter's (2016) study found that 94% of participating student teachers; 99% of principals of partnerships schools; 99% of mentor teachers and 100% of coordinators were positive as regards the efficacy of SBM as an adequate approach for practicum TPD in SSA. While these studies provided insights into the usefulness of SBM for training pre-services teachers while affording them practical exposure as assistant teachers, and, making it possible for poor students to learn, this scholarship is devoid of evidence as regards improved pedagogical competences and/or learner outcomes emanating from this approach.

More specifically, SBM has the potential to enhance the preparation of student teachers of FLN. This is because the experiences of practicing teachers/mentors who are at the center of donor-funded in-service FLN programs/interventions (e.g. the Tusome—"Let's read" in Kiswahili, a USAID funded project) can be leveraged to support student teacher outcomes. Despite the core role of pre-service teacher education institutions in the teacher education, their peripheral involvement in the implementation of FLN programs, suggests a disconnection from the evidence-based teaching and learning in schools (Norman, 2021). Indeed, scholars within FLN have highlighted the limitations in the capacity of teacher educators to adequately prepare pre-service teachers.

This has been attributed to their limited and/or outdated training, insufficient opportunities for professional development and inadequate exposure to evidence-based practices in FLN (Barnes, Boyle, Zuilkowski, & Bello, 2019; Gameda & Tynjälä, 2015). Barnes et al.'s (2019) mixed-methods study of teacher educators at four colleges of education in Nigeria for example, found gaps in their early-grade reading-related content knowledge and pedagogy required to teach pre-service teachers. These gaps were compounded by the limited classroom experience of several teacher educators especially in the early grades, given that several of them were hired either directly from their university programs, or were

former secondary school teachers holding university degrees (Pryor, Akyeampong, Westbrook, & Lussier, 2012). While this has implications for retooling teacher educators with current evidence-based trends in FLN teaching and learning, there is need for evidence regarding the extent to which donor-funded FLN interventions have impacted teacher preparation as mediated by practicing teachers who have been key beneficiaries of the interventions.

### 3.1.2. Limitations of school-based mentorship

#### Six limitations of SBM stand out from the literature:

- Inadequate preparation for the mentor role led to ineffective mentee support;
- Student teacher workload (college work, practicum work, and extra duties in the practice school) compromised acquisition of teaching skills;
- Mentor's workload (school work; large number of mentees) and view of practicum as disruptive to their routine;
- Inadequate resources (incentives for mentors, teaching materials) demotivated mentors;
- Lack of structure of mentoring programs led to uncertainty of their roles;
- Hierachy between supervisors and mentors compromised possibilities of leveraging the latter's experience to optimise learning in real classrooms.

Studies on SBM in SSA have decried challenges such as the lack of formal training of school-based mentors (Dos Reis & Braund, 2019; Leke-ateh, Assan, & Debeila, 2013; Tauzi, 2015). Musingafi and Mafumbate's (2014) study of SBM in primary and secondary schools demonstrated that in most cases, mentor teachers were not equipped with any specific mentoring skills during their own teacher education, creating avenues for insufficient mentee support, with negative repercussions on student teachers' pedagogical practices. This is corroborated in Moosa & Rembach's (2020) study of 1<sup>st</sup> year BEd primary and secondary school student teachers in South Africa, which revealed that the majority of pre-service teachers (91%) did not feel supported during teaching practice given the authoritarian and technocratic interactions as well as dominantly negative feedback from mentors. Additionally, 54% of the participants questioned the professionalism of mentor teachers given the unethical behavior such as disciplining learners using corporal punishment, which is illegal in South Africa.

Further, the efficacy of mentorship was questioned given the pervasive tendency of mentors to abscond their duties to mentees during practicum (Richter, 2016). In Cameroon, a study found that schools took advantage of practicum periods to schedule in-service training for the regular classroom teachers (Wohlfahrt, 2018). Similarly, a study in Zimbabwe found that many pre-service mathematics teachers were left largely on their own during their eight-month teaching practicum (Makamure & Jita, 2019). Student teachers with little experience were left to their own devices, resulting in negative practicum experiences. This was corroborated in Musingafi and Mafumbate's (2014) study in Zimbabwe, where student teachers were accorded full load to plug manpower gaps in poorly resourced schools.

Similarly, mentor teachers problematized their own increased workload (Ausiku, Likando, & Mberema, 2019). The mentor teachers for example pointed out that the timing of school and university examinations created a conflict of interest in their priorities, compromising their primary duty of teaching and/or syllabus coverage as revealed in Jita and Munje's (2022) as well as Ausiku et al.'s (2019) study

of mentorship experiences in South Africa and Namibia respectively. Moreover, the ratio of mentors to mentees as Vumilia and Semali's (2016) study in Tanzania revealed, remains problematic given the large student numbers. This was aggravated by the lack of incentives as well as teaching materials, all of which demotivated the mentors.

The quantity and quality of mentoring and support were often highly dependent on the teacher to whom student teachers were assigned. Nkambule and Mukeredzi's (2017) study of practicum in Mpumalanga Province in South Africa was insightful. It showed that while some mentor teachers were supportive and scaffolded pre-service teacher growth, others were unwilling to observe or be observed by their pre-service teachers and reluctant to offer any form of support. Moreover, as Asuo-Baffour, Daayeng & Agyemang's (2019) mixed methods study of a mentoring program in Ghana illuminated, some mentoring programs are not only unsystematically structured but the mentors are largely unaware of what is expected of them.

Within the context of foundational learning, Akyeampong's (2017) study of eight teacher educators' practice and vision of good teaching in primary mathematics in Ghana provided insights into the limitations of SBM. The study found that teacher educators' practice and vision of good teaching largely overlooked principles of learner-centered pedagogy, which are suitable for teaching mathematics. Additionally, the hierarchical relationship between teacher educators and mentors limited the possibility of questioning the former's practice based on what works in real mathematics classrooms. Moreover, the training provided to mentors before taking up mentoring was often informed by "best practices" set by the teacher education colleges. This hierarchy was further accentuated by the grade-awarding power of the college supervisors, which espoused their feedback over that provided by the mentors, who also tended to undervalue their own wisdom of practice. Therefore, the hierarchy between teacher educators and mentors was an impediment to leveraging mentor teachers' experiences through SBM to prepare students teachers particularly for FLN.

Overall, studies have highlighted the impediments to using SBM including the inadequate preparation of mentors; heavy student teacher and mentor workloads; inadequate resources for SBM; haphazard mentorship arrangements including the hierarchical relations between mentors and teacher educators. This notwithstanding, SBM has the potential in terms of creating possibilities for partnerships between the university/college and practice schools for theory to meet practice as well as enabling mentor-mentee relationships, towards modelling a spectrum of competences. However, evidence is needed not only to show how the challenges of its uptake can be addressed, but also to clearly demonstrate the relationship between SBM and specific effective instructional outcomes especially in relation to FLN.

### 3.2. Communities of Practice

Lave and Wenger (1991) coined the term "Communities of Practice" (CoPs) in studying apprenticeship as a learning model. According to Wenger et al. (2002), CoPs entail "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (p. 4). The group can evolve naturally or it can be created specifically because of the members' common interest with the objective of gaining knowledge related to their field. CoPs have been taken up to afford learning opportunities to student teachers who are linked to peers and to teacher educators for mentoring and coaching in subjects (Bouchamma & Michaud 2010; Rohde, Klamma, Jarke, & Wulf, 2007). Teachers of FLN, for example, can become a CoP through sharing the

domain of FLN, participating in FLN-related activities, and sharing best practices and resource. Msimanga et al.'s (2021) qualitative study explores a program provided to PGCE student teachers in South Africa which provided the opportunity to take up CoPs in critically reflecting on their practicum experience. The cohort of all 230 PGCE student teachers (both male and female of ages 20-35 years) participated in a two-week long practicum. On completion of the practicum, they participated in an educational excursion, during which they cooperatively reflected on the practicum with a focus on their concerns, problems, and challenges.

The purpose of this reflexive CoP exercise was to improve their professional, pedagogical and content knowledge as well as their classroom management through learning in community/CoP. Reflection sessions, as integral to the CoP, were conducted in breakaway groups, which then reconvened to a plenary session in order to provide feedback as well as deliberate on the breakaway discussions. Similarly, Van Wyk & De Beer's (2019) study in South Africa provides another example of the ways in which a CoP was taken up to prepare pre-service teachers at a university for Life Sciences in South Africa. While the student teachers established a CoP and not only planned but also taught and then reflected on their lesson in groups with the supervision of mentor teachers and teacher educators, evidence as regards the ways in which this particularly enhanced teaching and learning remains implicit.

Further, in reflecting on the efficacy of CoPs for teaching and learning in the context of foundational learning, with a focus on numeracy, Voskoglou's (2019) engagement with teachers, mathematical educators and researchers from developing countries during the 59<sup>th</sup> CIEAEM Congress, was insightful. The participants emphasized that pre-service teacher education and in-service teacher training are inadequate in terms of producing *the* competent mathematics teacher. Accordingly, Voskoglou (2019) endorses inquiry communities and/or CoPs comprising learners, student teachers, practicing teachers, teacher educators and researchers of mathematics education, as an important component for teaching and learning mathematics (and literacy as we would add), at all levels—from elementary to tertiary.

### 3.2.1. Strengths of communities of practice

#### Six key potential strengths of CoPs emerged from literature:

- The team work amongst members of CoPs fosters a collegial working environment;
- Partnerships between schools of practice and colleges/universities were strengthened;
- Well-coordinated responses from effective CoPs enhanced classroom management;
- Co-teaching arrangements made it possible for student teachers to observe mentor teachers in practice, providing opportunities to learn from experienced teachers;
- Reflection, as taken up in the CoP, provided a platform for the student teachers to share personal challenges and receive feedback;
- Online CoPs have great potential for sharing resources and experiences.

The mutual cooperation between student teachers and practicing teachers as members within a CoP served to engender a collegial working environment in the schools. Indeed, Van Wyk and De Beer 's (2019) study emphasized that taking up CoPs accentuated the partnerships between practice schools and teacher education institutions. This provided a platform for greater commitment amongst the parties, who provided regular feedback and mentorship to the pre-service teachers. CoPs fostered teamwork

amongst the student teachers who worked together in peer teaching arrangements for example, supporting each other in responding to learners' difficult questions. However, the studies remain silent as regards the evidence linking team teaching to better instructional practice and subsequent improved learning outcomes.

Further, Msimanga et al. (2021) demonstrated that CoPs also enhanced classroom management particularly given the untenable levels of violence in South African schools. These were alleviated through well-coordinated responses from effective CoPs, thereby enhancing the professional growth of pre-service teachers. Further, the use of co-teaching made it possible for student teachers to observe mentor teachers in practice, providing opportunities to learn from experienced teachers. Indeed, student teachers developed deeper pedagogical content knowledge given the ways in which CoPs afforded opportunities for concepts to be revisited to ensure understanding. Indeed, Van Wyk and De Beer's (2019) study illuminated for example, that student teachers who did not know how to handle scientific apparatus improved drastically throughout the year with more interactive lessons.

Further still, reflection, as taken up in the CoPs, provided a platform for the student teachers to share personal challenges and receive feedback. In Van Wyk and De Beer's (2019) study for example, the student teachers commended the reflection exercises as a space to unpack the lesson and devise measures for improvement. The student teachers intimated that reflection had become part and parcel of their entire lesson from planning through to delivery and assessment, which is essential preparation for their role as future teachers. Yet as variously belabored, this body of work on CoPs is bereft of evidence to show causation between CoPs and enhanced instructional competences and/or learning outcomes amongst the pre-service teachers and their learners respectively.

Online CoPs have great potential for student teachers to share resources and experiences about teaching and to communicate each other. Botha and Nel (2022) study for example undertaken in South African within the context of practicum during the COVID-19 pandemic, provided insights into the benefits of online CoPs. As the study demonstrated, utilizing technology such as live Google Docs ensured continuous communication amongst student teachers and teacher educators facilitating collaboration coupled with fostering a sense of accountability especially amongst the student teachers. Similarly, WaGioko and Manza (2022) study in Kenya reviewed six platforms of 560 schools from 38 counties after a three-day face-to-face session during the school term practicum. The platforms were Edmodo, WhatsApp, Slack, Kaizala, Twitter, and Facebook. Activity logs (posts and content) were analyzed over 12 months of practicum (communities of learning) sessions. While the use of social media extended the learning experiences, continued cohort engagement, increased numbers reached, and transfer of principles into practice, there are gaps in evidence on the impact on instructional effectiveness. Moreover, gaps in evidence on the efficacy of online CoPs in improving instructional effectiveness for pre-service teachers is heightened by the dearth of scholarship on online CoPs particularly within an FLN practicum context in SSA.

This notwithstanding, CoP have the potential to enhance the preparation of student teachers for foundational skills given the collaborative requirement in engaging literacy and numeracy as social-cultural disciplines (Voskoglou, 2019). In creating possibilities for sharing therefore, CoPs make it possible to exchange ideas and experiences, solve educational problems as well as learn new methods of teaching. Moreover, the new technologies, particularly computers have augmented communication among people from different contexts. CoPs as such have the potential of facilitating the cooperation among developed and developing countries to support the preparation of teachers to enhance FLN

outcomes. Further, the participation in CoPs in the context of FLN promises to foster the 4Cs—namely: communication, collaboration, creativity and critical thinking in engaging FLN-related problems. Further, high-quality FLN-focused teacher training requires a wealth of teaching and learning materials such as primary-grade curricula texts and leveled readers (Barnes et al., 2019). While CoPs can be leveraged to access a wealth of materials required to support teacher preparation for FNL especially in resource poor contexts particularly in SSA, there is need for evidence on the specific efficacy of CoPs in supporting pedagogical effectiveness of pre-service teachers.

### 3.2.2. Limitations of communities of practice

#### Two limitations of CoPs stand out in the literature:

- The inexperience and/or lack of confidence of engaging in CoPs inhibits novice teachers' participation and learning;
- Socio-cultural dynamics such as socioeconomic class, gender, educational differences, race and ethnicity are likely to disrupt group cohesiveness.

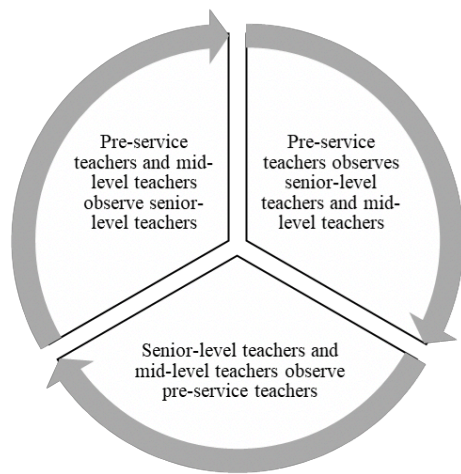
The effectiveness of CoPs has been limited by the inexperience of novice teachers when they first enter as peripheral participants. While the more experienced teachers were more likely to engage deeply as Msimanga et al.'s (2021) study demonstrated, the peripheral participants (student teachers) often felt intimidated, lacked the confidence to contribute, and consequently, rarely interacted freely. This lack of confidence affected participation, and subsequently, the student teachers' learning. Additionally, studies on the use of CoPs as part of practicum TPD in SSA illuminated the challenge of attaining group cohesiveness. Islam's (2012) qualitative study for example, which explored the effectiveness of CoPs as part of practicum teacher preparation in a South African university demonstrated that dynamics such as race and ethnicity disrupted group interconnectedness. Moreover, some members in the CoP remained in the periphery because of gaps in language proficiency as the case of pre-service teacher who did not participate because of his non-native English. Van Wyk and De Beer 's (2019) study also illuminated possibilities of conflict in CoPs, which stemmed from differences in educational backgrounds as well as ideas on time management.

Overall, while several studies suggest teacher professional development can be improved by CoP, there is need for evidence on what this means - what is actually improved and how do we know that CoP is directly responsible? Evidence is also needed linking the practical skills and attitudes as well as general improved teacher professional practice developed from the practicum CoPs and effective instructional practice and student learning outcomes especially for FLN. This highlights the need for more robust research on the effectiveness of teacher preparation as measured in terms of improved practice and learning outcomes—which is lacking in the general literature on teacher preparation in the African context.

### 3.3. Peer-observation of Teaching

Peer-observation of teaching, based on Do Santos (2017) peer observation cycle program, suggests that by learning through observing others, the knowledge and behavior from TPD can influence teachers' outcomes. This is informed by Bandura's (2004) social cognitive theory, which suggests that people learn through observation, modeling, and imitating behaviors, attitudes, and emotional reactions of others.

In this approach, three teachers including a pre-service, senior and mid-level teacher are assigned to a single observation group. First, pre-service teachers observe both senior and mid-level teachers. Second, senior and mid-level teachers observe pre-service teachers. Third, pre-service and mid-level teachers observe senior teachers. The POCP is illustrated in Figure 3.



**Figure 2** The peer observation cycle program, Source: Dos Santos (2017, p.4)

The post-observation sharing meeting follows, in which each of the teachers provides feedback to the other. Peer-observation is dominant approach within TPD in contemporary educational environments (Lu, 2010; Stahl, Sharplin, & Kehrwald, 2017; Stewart, 2014).

Research from SSA shows a modification in the use of the approach from observations by practicing teachers (See Figure 3), to observations by student teachers (Çapan & Bedir, 2019; Monyatsi & Ngwako, 2019; Mundalamo & Sedumedi, 2013; Njiku, 2018; Parr, Faulkner, & Rowe, 2017)—in what has been conceptualized as reciprocal peer mentoring (RPM). RPM refers to activities of peer teachers undertaken for continuous improvement (Agoro & Akinsola, 2013; Moolman, Essop, Makoae, Swartz, & Solomon, 2020; Zwart, Wubbels, Bergen, & Bolhuis, 2009). Contrary to the hierarchical relationships overriding traditional mentoring practices, RPM engages peers who are counterparts in an essentially mutual relationship, increasing possibilities for peers to contribute to each other's personal and professional development (Nguyen, 2013). RPM entails a recurrent process of planning, observing, collecting data and providing feedback and reflective analysis.

Reciprocal peer mentorship has been taken up especially in SSA to plug acute shortages of mentor teachers (Kisakali & Kuznetsov, 2015). The shortage in teachers in schools within SSA has forced them to take on alternative forms of teacher recruitment, ranging from hiring contract teachers at a lower cost (Chudgar, Chandra, & Razzaque, 2014) to the use of peer-student mentors to provide support during practicum. RPM is prevalent in the form of "micro-teaching" and/or "peer teaching" conducted in preparation for practicum TPD. Undertaken in several countries such as Nigeria (Onwuagboke, Osuala, & Nzeako, 2017); Tanzania (Kimaro, Mhagama, & Onyango, 2021); Ghana (Larbi & Kuranchie, 2018); Zambia (Manchishi & Mwanza, 2016) and Zimbabwe (Sunzuma, Zezekwa, Gwizangwe, & Zinyeka, 2022), studies on micro-teaching provide insights into peer observation/RPM given the similarities in approach in terms of feedback provided by peers. In Zimbabwe for example, peer teaching is a prerequisite in the teacher training programs in preparation practicum (Sunzuma et al., 2022). Peer teaching in this case is part of a methodology course which runs for 12 weeks comprising aspects such as drawing schemes of work and

lesson plans, lesson introduction and development, lesson delivery and assessment. In the preparation stage for peer teaching, the student teachers develop a lesson plan, select teaching materials and then teach the peers. Whilst the peer was teaching, others assumed the role of learners and assessors and provide feedback for purposes of learning rather than actual grading. Overall, while prospective teachers need professional support from experienced teachers and colleges or university supervisors, they can also improve their practices by sharing and learning from each other (Nyaumwe & Mtetwa, 2011). RPM provides this opportunity especially in the preparation of student teachers of FLN, which requires regular supervision and reflection.

### 3.3.1. Strengths of peer observation

#### Five key potential strengths of peer observation emerged from literature:

- The practical experiences enhanced pedagogical content knowledge through lesson preparation, delivery, assessment and classroom management;
- The free interaction nurtured collegiality and modelled best practices for both the peer teacher and peer observers;
- It cultivated more collaborative dispositions amongst the student teachers given the collegial rather than hierarchical support and feedback through regular observations and communication;
- It provided substantial social, psychological and professional support, embedded in the peer conferences;
- It provided more time for practice and feedback, plugging supervisory gaps especially given the limited time from mentor teachers and supervisors.

As Sunzuma et al.'s study (2022) of peer observation of diploma teachers of mathematics in Zimbabwe revealed, peer observation provided opportunities for pre-service teachers to enhance their pedagogical content knowledge through preparing lesson plans, selecting learning materials and appropriate methods of teaching, assessment, managing classrooms as well as observing more experienced peers. Additionally, aspects of professionalism including time management, class control, confidence and dress code were inculcated as Manchishi & Mwanza's (2016) study of pre-service teachers from Zambia highlighted. The hands-on experience generally afforded practical experience for student teachers, which prepared them for the practicum. In addition, as the student teachers from Manchishi, & Mwanza's (2016) study explained, the peer teaching sessions nurtured free interaction fostering collegiality as well as benefitting both the peer teacher as well as the peer observers through opportunities to improve learning that practicalities of teaching made possible.

Additionally, the substantial social, psychological and professional support embedded in peer conferences provided opportunities to enhance pre-service teachers' holistic development. Indeed, as Çapan and Bedir (2019) explained, peer conferences provided valuable psychosocial support well-suited to the student teachers' prevailing practicum context, disrupting pervasive conceptions of practicum as a lonely struggle characterized with lack of support (Najjuma, 2023).

Further, peer observation, particularly from pre-service teachers plugged supervisory gaps especially given the limited number of teaching staff in subjects like mathematics as Njiku's (2018) study of a peer observation in a mathematics program in Tanzania revealed. Moreover, student teachers were able to

find more time for classroom observation with their peers than university supervisors or school teachers. Peer feedback approaches remain most valuable in contexts like SSA where costs are likely to limit the number of times a teacher educator and/or mentor teacher can observe a student teacher's lessons. Overall, while scholarship generally provides insights into the benefits of peer mentoring in terms of building collegiality, providing psychosocial support and modeling best practices, evidence is needed to demonstrate the ways in which this actually impacts pedagogical competences of the pre-service teachers and/or learning outcomes.

### 3.3.2. Limitations of peer observation

#### Seven limitations of peer observation stand out in the literature:

- Competence gaps especially in content knowledge compromised the quality of peer feedback;
- Social desirability hindered constructive feedback from peers;
- The association of observation to grades, compromised student teachers' focus on improving their classroom practice;
- Logistical challenges associated with timetabling hindered peer observation given incompatible time schedules;
- The shortage of subject specific peers to observe lessons compromised the quality of feedback;
- The paucity of teaching materials affected the quality of peer observation;
- Lack of documentation of peer observation sessions and feedback encumbered follow-up actions.

Competence gaps amongst the student teacher-peers as regards providing feedback were a drawback (Hassan & Wium, 2014). In Mundalamo & Sedumedi's (2013) study for example, peer-observation within a science classroom in a secondary school in South Africa, showed that the student-teacher peer observers focused on teaching methods, largely overlooking mastery of learning content, which had the least comments from them, suggesting possible gaps in their own content knowledge. Similarly, Çapan and Bedir's study (2019) showed gaps in peer conferences, which fell short of generating constructive suggestions to address classroom management problems, particularly in regard to extreme discipline problems amongst learners. Further, Sunzuma et al. (2022) showed disparities between peer-assessors' and teacher educator's grades—with the former awarding higher marks than the latter. The student teachers' and teacher educators' assessments agreed only on 33.3% whilst they disagreed on 62.7% on five items, namely: lesson introduction, lesson development, student learning, media and lesson closure. This disparity was attributed to social desirability on the part of the student teachers who awarded higher grades on the accord of maintaining relationships with their peers as corroborated in Mudau's (2017) study in South Africa where peers awarded subjective and inconsistent scores on peer to peer assessment during practicum.

Further, the association of peer observation with grading negatively affected student teachers' attitudes towards improving their teaching outcomes, culminating into a pre-occupation with grades instead. Njiku's (2018) qualitative study, which focused on peer observation within mathematics in eight practice schools in Tanzania, provided some insights in this regard. It illuminated that while all eight student teachers preferred peer observation from other student teachers, five were comfortable with peer observation from practicing teachers while none of them was comfortable with observation from the university lecturers, as it was associated with grading. This was corroborated in Manchishi & Mwanza's

study (2016) in Zambia in which student teachers revealed that they were more likely to welcome observation and feedback associated with lesson improvement rather than grades.

Further still, the student teachers revealed that the time demands required for peer observation were a primary constraint especially for student teachers whose programs were incompatible with their peers (Çapan & Bedir, 2019). Student teachers according to Manchishi and Mwanza's (2016) study in Zambia did peer teaching theoretically by explaining rather than demonstrating how they would teach a concept. Additionally, because of the shortage in specialized subject peers for subjects like mathematics as in the case of Njiku's (2018) study, student teachers resorted to observation from peers outside their subject specialization, which was likely to inhibit engagement with subject content-specific challenges. As Manchishi and Mwanza's (2016) study added, peer teaching was further frustrated by the paucity of teaching materials, which affected the quality of the exercise. Additionally, the lack of documentation of peer observation and post-observation sessions implied a lack of evidence to support follow-up and implementation of feedback.

This notwithstanding peer observation could potentially support the preparation of student teachers of FLN, especially in SSA, which faces shortage of teachers to support regular supervision—which as Njiku (2018) explains, is especially desirable for mathematics and we would argue literacy. However, the overwhelming challenges of taking it up, coupled with the lack of evidence as regards its efficacy in improving instructional practice and/or learning outcomes necessitates robust research in order to use evidence to leverage best practices

### 3.4. Reflective Practice

Reflective practice, based on the work of Dewey (1993) and popularized by Schön (1983; Schön, 1987), has gained recognition in teacher education (Hodson, Smith, & Brown, 2012; Loughran, 2002). It is the intentional act of inquiring into one's actions and thoughts in light of a perceived problem (Goodell, 2006). As Shulman (1987) opines, student teachers must not be taught how to act but should be guided to reflect on their actions. Reflective practice has been taken up in various forms to support pre-service TPD, such as the use of critical incidents (Mpofu, 2019) as well as collaborative reflections using reflective questions (Olsher & Kantor, 2012). Goodell (2006) describes critical incidents as ordinary events that teachers face in practicing their profession which make them question and reflect on their decisions. As Mpofu (2019) contends, without reflecting on critical incidents during their practicum, student teachers are likely to merely mimic the mentor teacher, frustrating their professional development. Using reflective questions on the other hand, enables student teachers examine their practice independently, bringing classroom experiences and complexities into focus, and, connecting knowledge, practice and learning (Olsher & Kantor, 2012). Reflective questions direct learning towards a focus on contextual dimensions of professional development.

Mpofu's (2019) study reports the practicum experience of the first cohort of third-year students of English language studies at a university, which opened in the post-apartheid era of South Africa. This university took up a constructivist, experiential and transformative learning approach that not only emphasized the integration of theory and practice, but also curricula that incorporated skills, values, competencies, dispositions and reflection. Reflection was a critical cognitive tool for monitoring the professional growth of the student teachers, using questions directing them to pay attention to critical aspects, including unpredictable situations. Mpofu's (2019) study provides insights into strengths and weaknesses of using critical incidents in the context of English language teaching as explained later.

Further, in using collaborative reflections with reflective questions in residential practicum in a rural South African school, Mukeredzi (2021), a teacher educator, developed a template of reflective questions (see questions below) adapted from Minott (2008) and Korthagen and Vasalos' (2005) typologies for reflection. The questions were piloted and tested on different groups of student teachers before rolling them out for a 4-week long school-based practicum.

1. What happened? How did the act go?
2. What did I experience? How did I feel? (Satisfied? Bored?)
3. Why did things happen that way? (My contributions, contributions of others, reflection)
4. What does all this mean to me personally and professionally?
5. What could I have done differently? What can I do differently in future?

The questions provided a framework for student teachers' personal reflections in daily journaling, which were then followed by collaborative reflections guided by the teacher educator. The students discussed classroom experiences and in their reflective journals, addressed all the questions, identifying personal and professional learning points in great detail. The teacher educator then took students through an open reflective discussion where each discussed the day's highlights drawing on their journal entries. Thus, collaborative reflections created a dynamic process for students' professional development. Answering reflective questions, students cross-examined and examined, interrogated, probed, questioned, quizzed, described and detailed their experiences.

The students therefore had to carefully think back to their lessons, explaining the events, methods used, what worked and what did not, as well as future plans. Reflexive practice has been taken up in its diverse forms largely in South Africa and used to support the development of socially just student teacher dispositions, through uncovering and challenging deep-seated assumptions that perpetuate social injustices (Dreyer, 2015; Frick, Carl, & Beets, 2010).

### 3.4.1. Strengths of the reflective practice

#### Four key potential strengths of reflexive practice emerged from literature:

- Self-assessment of teaching performance continually improved practice and autonomous learning;
- Allowed for deeper engagement with the foundations of individual and peer teaching styles, beliefs, and teacher professional identities as part of continuous learning;
- Supported the development of socially just student teacher dispositions, through challenging deep-seated assumptions that perpetuate social injustices;
- Prepared student teachers to become lifelong learners who continually reflect on and improve their practice.

In Dryer's (2015)'s study in South Africa, the guided journal activity called for a weekly reflection on the lessons, which led to student teachers' adjustments in teaching techniques. This was informed by the reflective guiding questions on what worked well and otherwise, making it possible for self-assessment of teaching performance to continually improve practice. Indeed, Mukeredzi's (2021) reflective questions promoted deep reflection, enabling student teachers resolve their teaching uncertainties while enhancing learner autonomy.

Reflective practice also allowed for deeper engagement with the foundations of professional identities and/or dispositions as part of continuous learning, preparing student teachers to become lifelong learners who continually reflect on and improve their practice. Mpofu's (2019) study provides an example in which, upon reflexive journaling, one participant realized the need to question the expectation that her learners would be as self-motivated as she had been as a student in spite of the scarcity of resources in her school. She realized that she needed to continuously encourage her learners to take their work seriously.

Mpofu's (2019) study particularly illuminated the potential of reflexive practice, specifically using critical incidents for the teaching of English and/or literacy. In the study, student teachers, described critical incidents encountered in contextualizing theory in English language teaching and learning. One of the participants for example, explained that while she had excelled in a test on theories of language learning, it is the school-based teaching, particularly the reflective practice that provided a space to reflect on the application of the theory/knowledge in supporting learning in the classroom. Yet, as argued hitherto, this scholarship is devoid of evidence that links improved pre-service pedagogical practice to approaches such as reflexive practice.

### 3.4.2. Limitations of reflexive practice

#### Three limitations of reflexive practice stand out in the literature:

- Competence gaps in undertaking reflexive practice compromised its outcomes ;
- The preoccupation with grades deflected student teachers' focus on strategies such as reflection, which could improve practice;
- Heavy timetables and expectations from the schools compromised reflexive practice.

Studies have problematized gaps in student teachers' reflective competence (Makina, 2019). This was revealed for example in Makina's (2019) study of journal entries by 10 final year English pre-service teachers during their five-week practicum in disadvantaged schools in South Africa. Through investigating the nature and depth of reflection, the findings revealed that most reflections were on contextual issues, lacking in-depth exploration of classroom practice. Additionally, student teachers, unwilling to take on any additional tasks unless they counted for marks, placed a lower value on reflection regardless of its importance in informing pedagogical and relational aspects of teaching. Moreover, they complained about the time-consuming nature of journaling given their heavy workload and expectations from the practice schools.

This notwithstanding, reflexive practice remains relevant for preparing teachers especially for FLN given the studies showing for example, that teachers who reflect on their teaching of mathematics broaden

their view of how well to teach the subject and consequently improving students' learning (Naresh, 2013; Njiku, 2018). Nonetheless, there is need for evidence linking reflexive practice to improved pedagogical practice and learning outcomes to inform its uptake for pre-service practicum TPD programs particularly in preparation of student teachers of literacy and numeracy in SSA.

### 3.5. Practicum Placement in Diverse Contexts

The increase in diversity of learners, including those with special needs, socioeconomic, linguistic, gender, race has informed the importance of integrating pedagogic responsiveness to diversity in pre-service teacher education programs (Black-Hawkins & Florian, 2012; Florian, 2015)2012; Florian, 2015. This is anchored in policies such as the Salamanca Statement and Framework for Action (UNESCO, 1994), which proclaims every child's right to basic education and maintains that all children, including those with disabilities, should learn together while their diverse learning needs are accommodated through the provision of appropriate support. In contexts like the USA, co-teaching arrangements between general teachers and those with expertise in special needs education work together, sharing responsibilities for planning, delivery and assessment of learners (Solis, Vaughn, Swanson, & Mcculley, 2012). Through co-teaching, students with additional learning needs remain in regular classrooms and gain access to both mainstream as well as specialized teaching and learning. However, this remains elusive to resource-constrained contexts especially in SSA, given budgetary and infrastructural limitations.

Practicum placement of student teachers in diverse contexts provides an opportunity for them to gain inclusive pedagogical skills (Beylefeld & Le Roux, 2015). This approach is critical in developing contexts such as SSA, where budgetary and infrastructural constraints require that general classroom teachers provide access to learning for all learners in the class, without the support of special education specialists. South Africa's teacher education policy for example, requires pre-service teachers to be exposed to wide-ranging and dissimilar contexts of schooling to learn to teach inclusively (Rusznyak & Walton, 2017; Walton & Rusznyak, 2013).

Walton and Rusznyak 's (2014) study in a university situated in Johannesburg in South Africa provided insights into pre-service teacher outcomes culminating from placement in diverse schools. The University offers a four-year pre-service teacher education qualification - a Bachelor of Education (B.Ed.). In each of the four years, pre-service teachers undertake practicum sessions. While the pre-service teachers complete practicum in mainstream schools in and around Johannesburg in their first, second and fourth years, those who demonstrate acceptable levels of classroom competence are encouraged to undertake a practicum placement in a "diverse" context or in a school with "diverse" students in their third year.

In these cases, supervision is provided by teachers in the practice schools, and student teachers required to complete a number of reflective and analytical tasks in addition to their regular lesson preparation, all of which are submitted for assessment on their return to the university.

Practicum placement in diverse contexts is also illuminated in Rusznyak and Walton's (2017) study also undertaken in South Africa. The student teachers in this study were placed in two contrasting contexts (in urban regular schools, and either rural schools or special schools), in order to inculcate inclusiveness. The authors analyzed the reflections of this group of pre-service teachers, which illuminated the strengths and weaknesses of the approach.

### 3.5.1. Strengths of practicum placement in diverse contexts

#### Five key potential strengths of practicum placement in diverse contexts emerged from literature:

- Students gained understanding of disabilities, including identifying and supporting these learners;
- Inculcated empathy for learners with different needs;
- Instilled contentituousness to the pedagogical implications of diverse classrooms, strengthening the resolve to teach inclusively;
- Motivated aspirations for collaboration and continuous professional development, particularly in relation to research and capacity development in inclusive education;
- Created possibilities for openness to future deployments in rural and disadvantaged locations.

Studies from SSA have confirmed that indeed, practicum placements in diverse contexts support the preparation of student teachers for inclusive education. In Walton and Rusznyak 's (2014) study for example, the pre-service teachers gained an understanding of learning difficulties, including those related to disabilities, which they had previously had little or no previous experience, given their limited contact with students with disabilities. The student teachers also demonstrated awareness and sensitivity toward disability, and, gained the capacity not only to recount the types and relative severity of disabilities, but also identify children with learning disabilities and engage them appropriately. This corroborates Rusznyak and Walton's (2017) study in which practicum placement in contrasting rural and urban schools prompted pre-service teachers' consideration of the pedagogical implications of student diversity. Student teachers were more convinced of the feasibility of inclusive education by building support into their overall planning of lessons. As Makoelle and Mosito (2023) study in South Africa affirmed, pre-service teacher training should ensure the enhancement of their capacity to deal with barriers to learning and support vulnerable students. Indeed, Muyungu (2015) study, which investigated pre-service student teachers' training and preparation for inclusive education in Tanzanian, affirmed that student teachers need more time for field practice in inclusive and special schools, as part of their training towards inclusive education.

Furthermore, pre-service teachers who completed a special school practicum became more contentious towards exclusionary and/or marginalizing practices in both special and mainstream schools, strengthening their resolve to teach inclusively (Walton & Rusznyak, 2014). As Nketsia and Saloviita (2013) study in Ghana affirmed, the level of knowledge and feelings of self-efficacy were highest among pre-service teachers who had had the experience of supporting children with special education needs during their practicum. Additionally, practicum placement in special schools motivated pre-service teachers' aspirations for collaboration and continuous professional development, particularly in relation to research and capacity development in inclusive education. This promises to develop the field of inclusive education.

Teacher deployment and/or placements in rural and disadvantaged schools remains problematic in SSA as teachers especially women often resist such placements refusing to accept them or transferring to preferred location (Asim, Chimombo, Chugunov, & Gera, 2019). In a case study of 61 pre-service teachers in a teacher training college in Zimbabwe for example, the student teachers showed preference for placement in schools with specific quality of life factors such as access to water, transport, mobile

phone networks, electricity, and adequate teacher accommodation (Cosmas, Sithulisiwe, & Jenny, 2014). The higher likelihood of female rejection of rural placements has implications as regards the presence of female role models in such locations, also perpetuating system-level inequities given the urban-rural disparities in educational outcomes.

### 3.5.2. Limitations of practicum placement in diverse contexts

#### Three limitations of practicum placement in diverse contexts stand out in the literature:

- Student teachers' shift to embrace separate special education schools threatens strides towards inclusive education;
- Ideas of newly qualified teachers are often marginalized and disregarded by senior teachers;
- It risks compromising the quality of education as well as the success of local-language programs.

Scholars have problematized practicum placement in special contexts, which resulted in some student teachers embracing separate special education (Walton & Rusznyak, 2014). This position challenges progress towards attaining inclusion within mainstream schools. This is incongruent with the advocacy towards the implementation of inclusive education, with teachers in mainstream schools especially in contexts where separate special education is not available. Further, research has suggested that the concerns and ideas of newly qualified teachers are often marginalized and disregarded by senior teachers (Gravett, Henning, & Eiselen, 2011), making it difficult for them to implement novel approaches to promote inclusive education in the practice schools.

Further, practicum placement in diverse contexts poses a challenge particularly in regard to early-grade reading instruction within local language programs. The possible mismatches between student teachers' language and schools' language of instruction can be problematic (Mangila, 2019). This is because evidence-based approaches for literacy instruction include the explicit instruction of foundational skills of literacy, such as phonological awareness, and mapping sounds to symbols. In Kenya, an evaluation of the impact of a mother-tongue in a donor-funded literacy intervention, found that teachers who were non-native speakers of Kikamba, a Kenyan language, could not correctly make that language's diacritic vowel sounds (Piper, Zuilkowski, & Ong'ele, 2016). Such incongruities, which can culminate from practicum placement in diverse contexts, risk compromising the success of local language programs.

Notwithstanding the limitations, practicum placements in contrasting contexts have potential for supporting the preparation of student teachers to foster literacy and numeracy within inclusive classrooms. Indeed, studies show that literacy and numeracy abilities are diverse (Widodo & Indraswati, 2022), justifying the imperative to prepare teachers with competences to foster FNL in ways that support the diverse literacy and numeracy abilities.

## 4. Conclusion

The review illuminated five promising approaches that inform successful practicum TPD in SSA: school-based mentorship; communities of practice; peer-observation; reflexive practice as well as practicum placement in diverse contexts. The success of those approaches was attributed to aspects such as collaboration; partnerships between schools and colleges; bridging theory and practice; hands-on experience; co-teaching; reflection; psychosocial support; diverse feedback and blended learning (see Table 3).

**Table 3: Approaches to practicum TPD in SSA and what makes them successful**

Practice/ Approach	Mentorship	Communities of practice	Peer observation	Reflexive practice	Practicum placement in diverse contexts
What makes it successful	Hands-on experience	Collaboration	Reflection	Reflection	Hands-on experience
	Bridging theory and practice	Co-teaching	Micro-teaching	Bridging theory and practice	Reflection
		Reflection	Multiple/ Diverse feedback	Collaboration	Collaboration
	Collaboration	Blended learning	Hands-on experience	Reflection	
	Partnerships between schools and colleges	Partnerships between schools and colleges	Collaboration		
	Blended learning		Psychosocial support		

The prominence of collaboration as an aspect that shapes promising practicum TPD programs across the approaches as revealed in the review based on studies from SSA confirms scholarship from other contexts. Indeed, scholars have developed several collaborative practicum models, to illuminate best practices in this regard (Hastings & Squires, 2002; Jones, 2008). Jones' (2008) collaborative practicum model for implementing science teacher education and professional development for example, is based on the "premise that professional learning can take place for both the practicing and the pre-service teacher through a collaborative partnership with one another that values both the 'expert' and the 'novice' partners' knowledge and contribution equally" (p. 62). The shift from a unidirectional approach toward a model that is more collaborative and reflective has therefore been foregrounded.

Indeed, collaboration has been fronted as key to overcoming some of the problems associated with the practicum TPD (Hastings & Squires, 2002; Villers & Mackisack, 2011). The dichotomy between theory and practice for example, attributed to the lack of genuine partnerships between schools (practice) and institutions of teacher education (theory) can be bridged using collaboration between the former and latter ensuring hands-on practicum experience. Moreover, collaboration allows for provision of valuable psychosocial support especially for student teachers to cope adequately, given the pervasive negative

experiences encountered during school practice. Non-hierarchical collaborative arrangements are particularly effective in the practicum preparation of student teachers of numeracy and literacy. As already belabored, the practicing teachers not only bring their expertise and experience in terms of classroom management and pedagogies but are also privy to contemporary trends given their central position in FLN refresher programs (Norman, 2021). Similarly, the current knowledge of strategies and theories discussed in the pre-service teachers' lectures can be leveraged to enrich the practicing teachers. On the whole a collaborative practicum model can form bedrock to anchor best practices and/or what works best for practicum TPD in SSA.

The scholarship on best practices for practicum TPD in SSA, however, is devoid of evidence linking improved pre-service teachers' pedagogical competences and/or practices as well as students' learning outcomes to specific approaches especially for FLN. This highlights the need for more robust research on the effectiveness of teacher preparation as measured in terms of improved practice and learning outcomes—which is lacking in the general literature on teacher preparation in the African context. Indeed, most studies are qualitatively oriented, based on small samples comprising prevalently pre-service teachers. This has overlooked the perspectives and experiences of other stakeholders in practicum TPD such as teacher educators, coordinators, mentor teachers and the learners. Additionally, the pervasiveness in the use self-reporting risks generating unreliable data threatened by both self-reporting bias as well as social desirability. Moreover, the focus on research published in English limited the access for example, to practicum TPD in French and Portuguese-speaking countries in SSA, providing but a partial picture of the field. Additionally, the prevalence of studies from South Africa is an indicator of the need for research from other parts of SSA. Further still, the limited availability of publicly available grey literature affected the integration of critical information as informed by the work undertaken by nongovernmental organizations (NGOs), local partners, and schools.

Future research should extend this work by undertaking quasi-experimental empirical studies to amplify the diverse stakeholder perspectives and experiences to inform recommendations to policy and practice as regards practicum TPD especially in relation to teaching and learning outcomes in the context of FLN. Furthermore, studies comparing variations in duration and sequencing (between coursework and practicum) across TPD programs would provide insights as regards best practices given the disparity across and within pre-service teacher education programs in SSA. Further still, studies on capacity development of teacher educators, especially in relation to preparation of student teachers of FLN is critical given the changing trends in pedagogy, in order to forge relevant interventions. Finally, more studies are needed, particularly those that focus on innovative and effective approaches to preparing pre-service teachers for inclusive and gender-equitable classrooms.

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