Study on the Development of a Teacher Training Program to Improve the Pedagogical Knowledge of Unskilled Teachers in a New Nation: Focusing on Improving the Teaching Skills of Teachers Engaged in Literacy and Numeracy in South Sudan

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INTRODUCTION

The purpose of this study was to implement and evaluate a developed teacher training program aimed at enhancing the pedagogical knowledge and teaching competencies of unskilled teachers or beginner teachers in South Sudan, particularly those teaching literacy and numeracy in secondary schools. In a February 16, 2024 interview with Eye Radio, Kuyok Abol Kuyok the then Undersecretary of the Ministry of General Education and Instruction reported that only 20% of South Sudan's 64,000 teachers—about 15,360—are professionally qualified. This indicate that, there is a general lack of adequate programs to improve the quality of education, particularly in the areas of literacy and numeracy. This study sought to bridge the gap between unskilled teachers' existing instructional practices and the learner-centered pedagogical approaches required for effective teaching and learning. The program development intervention (PDI) focused at equipping teachers with effective instructional methods, classroom management techniques, and learner-centered approaches, the program belief to directly improve lesson delivery and student engagement. This shortage of qualified teachers stems largely from rapidly growing school sectors which is being aggravated by a number of other factors too, including government recruitment policy, the aging teaching population, irregular salaries, the high turnover rate of teaching staff, and the unattractiveness of teaching as a career compared to other careers (Ingersoll, 2002; Santiago, 2002).

The success of educational reform efforts in South Sudan greatly depends upon the provision of adequate qualified teachers, especially with most of its teaching workforce are unskilled teachers. This is consistent with the United Nation's (UN) Sustainable Development Goal (SDG) Goal 4, Target 4.c that aims to increase the supply of qualified teachers by the year 2030 (UN, 2015). Teachers are principal of professional human transformation because they don't only impart knowledge but equally moral values. Therefore, it is important that teacher education is taken seriously, because teachers can only convey what they have, if they are not educated, they cannot impart morals or ethical values for the production of ethical professionals (Amolo and Ganira, 2017).

Unfortunately, it is common in developing countries for many alternative route teachers not to have a bachelor's degree, only having completed secondary schooling and short induction courses before beginning as classroom teachers. In South Sudan, these alternative route teachers are referred to as 'Qualified Teacher Status', 'crash program teachers' the Global Education Monitoring report (UNESCO, 2022). It is a 40-day taught program which is taken in eight separate 1-week courses over a period of two years which is not even effective due to concurrent conflict and economic hardship the country is going through.

Theoretical framework

This study draws on the Whole Teacher Professional Development (WTPD) approach, alternatively, referred to, as the Gestalt (Korthagen, 2004, Korthagen, 2001). The Gestalt as a theorical framework provides a departure from the traditional approach of professional development that speaks primarily to teachers' acquisition of

knowledge and skills. The Gestalt or the WTPD emphasizes and addresses the salience of promoting all aspects of a teacher's development which encompasses attitudes, knowledge, and practice. Duff and Marriot, (2017) argue that educators should develop as lifelong learners, reflective thinkers and ethical leaders exemplifying the ideals of literacy and scholarship. Korthagen, (2007) has grouped the characteristics under three categories, namely, skill, concern for others and concern for self. The Gestalt or Whole Teacher Professional Development (WTPD) theoretical framework, particularly through the development of "Gestalt Pedagogy" is predominantly well-established and recognized in German-speaking countries and some Eastern European countries. For example, in China this theory is used in teaching Chinese characters to foreign students (Xiaoli, 2024).

To understand the impact of complete professional development on novice teachers. in view of the Gestalt objectives, teacher's quality becomes central and topic in the teacher education and education milieu. Numerous research studies indicate that the key to increasing teachers' proficiency in teaching is their continuing development and learning through effective professional development (Gurevich, Stein, & Gorev, 2017). Effective PD updates teachers' content knowledge, exposes them to new teaching strategies and methods, sustains their teaching effectiveness, and prompts continuous growth (Korthagen & Vasalos, 2005). Novice teachers might face challenges of workplace adjustment, poor mentoring and absence of professional collegiality which might inadvertently delay their achievement for the required professionalism development.

The uniqueness of the Gestalt or Whole Teacher Professional Development (WTPD) framework in this study lies in its holistic response to the complex realities faced by unskilled teachers in South Sudan. Unlike traditional Professional Development models that prioritize technical skills alone, WTPD integrates teachers' attitudes, emotions, self-concept, and professional identity—critical factors in a post-conflict context marked by low qualifications, limited mentorship, and weak collegial support. By addressing the "whole teacher," this approach nurtures reflective practice, confidence, and learner-centered mindsets, helping beginner teachers in literacy and numeracy develop not only instructional competence but also resilience and ethical commitment essential for effective teaching in fragile settings.

LITERATURE REVIEW

The study by Gordon (1991) reviews studies on novice teacher concerns to ascertain if teachers in particular subject areas had special problem. It is found that the majority of the cited research on the concerns of beginning teachers has some common findings despite of differences in the research methods or the sample of participants. The review recognizes the 12 most common concerns of beginning teachers which include managing the classroom, acquiring information about the school system, obtaining instructional materials and resources, planning, organizing, and managing both instruction as well as other professional responsibilities, assessing students and evaluating student progress and motivating students. Whilst acknowledging the common concerns of beginning teachers, the study by Gordon also found other significant concerns on using effective teaching methods, dealing with individual students' needs interests, abilities, and problems, communicating with colleagues, including administrators, supervisors, other teachers, communicating with parents, adjusting to the teaching environment and role, and emotional support.

Similarly, new problem emerges in Higdon (2005) case study of four first year teachers in two urban elementary schools in Central Texas. The individual and cross-case analyses of the study indicate additional component to the lists of perceived problems of beginning teachers by (Veenman, 1984; Gordon, 1991). This is because, the findings of the study by (Higdon,2005), implies that the participants also encountered challenges in understanding the cultures of their students and working with English language learners. These difficulties are due to the context of the schools that are located in urban districts which tend to be large with the rich diversity of communities within the district. Higdon argues some recommendations to overcome these challenges that requires active participation from school administrators especially from the principals of the schools.

On the other hand, findings from (Eckola, 2007) case study imply that fatigue and illness to be among the challenges for the participants in the study. This study examined the life of two new elementary teachers during their first year in the profession and also found time management and new professional roles to be major challenges for the participants. The study by (Eckola,2007) suggests that an induction program could be

developed to avoid challenging areas and provide beneficial items that were associated with a solid beginning in the profession. Similar to (Higdon, 2005) study, the study by (Eckola, 2007) concluded that the building principal and the district induction program director need to be actively involved in the organization and on-going implementation of first year induction activities and assessments in order to enhance the outcomes of the initial professional development experience.

In another study by (Souder, 2005; Fantilli & McDougall, 2009) discovers how first-year teachers reframed their initial challenges as they reflected on their teaching experience. Using qualitative approach, three Professional Development School program graduates teaching in different elementary Professional Development Schools in a Mid-Atlantic metropolitan area were interviewed. Participants initial challenges pivot around four themes: curriculum, meeting student needs, teaching practice, and workload. Challenges of curriculum includes its amount, curriculum planning, and integration of the curriculum while challenges of meeting students need include diagnosing their needs and meeting needs of individual students. On the other hand, challenges in practice comprise issues such as sickness and injury that interfere with practice, need for independence, living up to own expectations, conflicts, classroom management, team teaching, and need for appropriate support. Whereas, challenges with workload take account of unexpected amount of workload and administrative tasks, time required doing a good job and schooling pressure. Findings from this study suggest that the participants were able to learn from experience and reframe their initial challenges as they had a clear vision about their responsibility in creating and maintaining an optimal teaching and learning environment based on pre-service training and experience. They also had a reflective partner at the school that shared a similar vision and school environment that was receptive to change and allowed them the freedom to examine and transform their teaching practice, and these enable them to learn from experience and reframe their initial challenges.

The studied literature provides valuable understandings into the challenges faced by novice teachers, including classroom management, workload, curriculum demands, and cultural adjustment. However, most of these studies were conducted in developed contexts specifically in the USA, focusing primarily on individual and institutional support without considering the authenticities of under-resourced settings like South Sudan. Besides, the literature underlines first-year teachers' experiences but offers limited practical frameworks for addressing pedagogical skill gaps among unskilled teachers. There is also insufficient attention to structured professional development models that holistically boost teachers' knowledge, attitudes, and practices. This study addresses these gaps by developing and evaluating a contextually relevant training program for unskilled teachers as a mean of improving quality of teaching and learning in secondary schools.

Situation of education system in South Sudan

On a brief background to South Sudan education system, a new country borne in July 9, 2011. The country is seriously engaged in the process of reconstruction, including in the area of education. The country is in dire need of human capital and financial resources to achieve the striving goals that are fundamental both for her survival and development. Also, as a new nation, South Sudan still needs to establish institutional systems and procedures within the government and especially the education sector.

As the study is focusing on improving the skills of unskilled teachers in South Sudan, it is very important to begin with a brief history of teacher professional development in South Sudan of that time which displays that prior to the war period, which was 1980s there were about six teacher training institutes spread in various parts of the country. But by mid 1980s the government decided that all primary teachers must be university graduates, so the Teacher Training Colleges were attached to operate under universities. By the 1990s war deepened in the country so teacher training institutions were shut down and only two remain operational but could not serve the entire country due to insecurity in roads (USAID, 2009). In 2005 there was an enchantment of peace period and schools reopened but there was shortage of trained teachers to meet the required needs of the quality education in the country and the situation persist up to today.

In term of educational development, South Sudan is ranking third in the world record with a high illiteracy rate of 73% of aged 15 and above, according to the (Ministry of General Education and Instruction, 2016). In the same notice the General Education Strategic Plan South Sudan 2017- 2022 stated that the Gross Enrollment Ratio (GER) for primary education in 2016 was 62.3% (official age for primary is (6-13), while that for

secondary education was only 6.5% (official age for secondary is (14-17). For tertiary education, the GER has not been calculated yet because of a lack of reliable data. Therefore, without continuous professional development for teachers, there can be no quality education for the children of South Sudan. The vast majority of teachers have no training at all and operate as untrained volunteers.

The formal education hierarchy in South Sudan is an 8-4-4 system that is eight years primary education, four years of secondary education and four years of higher education classification (WIKIPEDIA, 2025). There is also what we call an Accelerated Education System (AES), which consists of six years of different programs, that includes the Accelerated Learning Program (ALP) and the Community Girls School (CGS) that offers flexible entry and exit points for children, youth and adults. For professional entry, the Teacher Training Institutes (TTIs) are established through which in-service and pre-service training are put in place to help inhabit the teaching workforce. The Technical and Vocational Education Trainings (TVETs) are established to prepare students with practical and relevant skills that will lead to employment through various programs that range in span from months to years.

On the policy governing teachers' recruitment, the (UNESCO; Ministry of General Education and Instruction, 2017) stated in their policy reforms of recruiting and registering trained teachers in public schools or public adult education or by a private a proprietor of a private school to grant him/her the final approval to enter the teaching profession must poses a minimum qualification. For instance, teachers who teach in pre-school should possess a South Sudan Certificate of Secondary Education or its equivalent and a teaching certificate from a recognized teacher training institution as well as those teachers who teach in primary school should have a South Sudan Certificate of Secondary Education or its equivalent or Diploma and a teaching qualification from a recognized teachers training institute. Meanwhile for teachers who teach in secondary school should have a Bachelor's Degree in Education or its equivalent or a Bachelor's Degree in other discipline and a teaching qualification from a recognized teachers' training institution.

In the absence of strong enforcement and adequate supervision from the ministry, these reforms have had little impact. This is evident from a statement by an official from the Ministry of General Education and Instruction, who noted that only 20% of teachers in both primary and secondary schools are professionally trained (Eye Radio, 2024). Several additional issues continue to undermine the quality of secondary education. These include an ageing teaching workforce, high turnover among beginner teachers, shortages of qualified staff in key subject areas, the lack of a harmonized curriculum, low academic qualifications among some teachers, limited instructional resources, weak assessment practices, poor admission procedures, inadequate libraries and office facilities, weak coordination, irregularities in teacher recruitment and payment, and limited political commitment to implement the teacher career development framework outlined in the (General Education Act, 2012).

Overall objective

To examine and assess a contextually relevant teacher training program that enhances the pedagogical knowledge and teaching practices of unskilled teachers engaged in teaching literacy and numeracy in South Sudanese secondary schools.

Specific objectives

To assess the extent to which Pedagogical Content Knowledge (PCK) training enhances teachers' ability to set clear, measurable, and content-specific learning objectives in their lesson plans

To examine whether Pedagogical Content Knowledge (PCK) training strengthens teachers' capacity to anticipate and addresses common student misconceptions during lesson planning

To identify contextual differences in (school types, school location or background) that influence how Pedagogical Content Knowledge (PCK) knowledge acquired through training translates into lesson planning practices

The purpose of this study is to implement and evaluate a developed teacher training program aimed at enhancing the pedagogical knowledge and teaching competencies of unskilled teachers in South Sudan, particularly those teaching literacy and numeracy in secondary schools. This study is unique because it addresses a critical educational challenge in one of the world's newest and least developed nations—South Sudan—where a large proportion of teachers lack formal pedagogical training. Unlike other contexts, South Sudan's education system faces the compounded effects of prolonged conflict, limited teacher training institutions, and resource shortages. Therefore, developing a contextually grounded teacher training program is not only innovative but essential for rebuilding the education sector. The study uniquely integrates local realities, such as linguistic diversity, limited infrastructure, and the urgent need for literacy and numeracy skills, to create a training model that is both practical and scalable within South Sudan's fragile education environment.

Research questions

1- To what extent does Pedagogical Content Knowledge (PCK) training improve lesson-plan quality?

2- Which Pedagogical Content Knowledge (PCK) dimensions show the largest gains (e.g., addressing misconceptions vs. task design)?

3- Do effects differ by school types (public vs. private) or context (urban vs. rural)?

Data source

The data presented in Tables 1-17, including Figure 1 originated from a structured pre- and post-intervention assessment of 20 unskilled teachers across urban and rural secondary schools in South Sudan. The data were collected through trainings, classroom observations, and lesson plan evaluations to measure changes in perception, teachers' competence and classroom practices. Analysis using SPSS revealed significant improvement in teachers' ability to plan learner-centered lessons, use teaching aids, and engage students actively. The presentation of results through tables enables a clear visualization of the intervention's impact, highlighting both urban–rural variations and overall progress in teaching quality.

In addition to the quantitative improvements observed, qualitative data from teacher interviews revealed meaningful changes in classroom behavior and professional attitudes. Teachers consistently reported increased confidence, better lesson organization, and a stronger commitment to learner-centered teaching. Rural teachers highlighted the importance of creativity and local resource use, while urban teachers emphasized improved assessment and planning. These reflections confirm that the intervention not only enhanced technical skills but also inspired a shift in teachers' beliefs and motivation toward more effective teaching practices.

METHODOLOGY

This section presents the methodology used for this research study. In particular, it highlights research approach and design, population and sampling procedures, data analysis and ethical considerations.

Research approach and design

The study employed a mixed-methods research approach to explore and get detailed information on assessing a contextually relevant teacher training program that enhances the pedagogical knowledge and teaching practices of unskilled teachers engaged in teaching literacy and numeracy in secondary schools of Eastern Equatoria and Central Equatoria states of South Sudan. In this study, a convergent parallel mixed method design was used. In this type of design, quantitative and qualitative data are simultaneously collected, separately analyzed, combined, and then interpreted to see if the findings supported or contradicted each other's interpretation of the overall results (Creswell & Creswell, 2018).

The training intervention developed for this study focuses on finding teachers pedagogical practice beliefs and understanding in relation to teaching practices and teaching competence that should have an impact on quality

of education and students' performance using learner- centered teaching method. The training intervention were categorized into four modules;

- Module 1 was on understanding the principles of so-called "Professional Learning Communities" (PLCs)
- Module 2 on basic of lesson preparation such as writing objectives using action verbs; selection of teaching and learning materials; assessment strategies and feedback; classroom management competencies; and learner participation
- Module 3 introduced the unskilled teachers to bigger idea of learner-centered method
- Module 4 focused on gaining understanding of different conceptions of teaching to help the unskilled teachers make informed decisions when choosing relevant teaching techniques for particular topic

This intervention was accompanied by training/workshop for the selected participants. Before conducting the workshop, the researcher observed the instructional approaches used by the selected participants while teaching students in their respective school classrooms. In each location the training took two days before initial involvements with the students. At the first day of the workshop session, two modules were facilitated during the first training session. The first module was intended to help both the untrained English and Mathematics teachers gain an understanding of working together as a learning community of teachers. The researcher thought that understanding the principles of so-called "Professional Learning Communities" (PLCs) was likely to help them develop a culture of working together through sharing the skills they had gained and supporting each other in teaching challenging English and Mathematics contents. The second part introduced the untrained/beginner English and Mathematics teachers to the basics of lesson preparation, such as: writing objectives using action verbs; the selection of teaching and learning materials; assessment strategies; writing classroom level lesson competencies; and evaluating the lesson. Lesson competency/competencies is a recently introduced concept in the South Sudan competence-based education curriculum, defined as 'a general statement detailing the desired knowledge, [behavior] and skills it is intended learners achieve by the end of the instruction session or course program' (Hartel and Foegeding, 2004). The untrained English and Mathematics teachers were also given the opportunity to evaluate different lesson plan templates from their schools and their old lesson plans in relation to the key features of well stated lesson objectives and students' lesson competencies.

In the second day. the workshop covered modules three and four. Module three introduced the untrained English and Mathematics teachers to the bigger idea of learner-centred method which was considered relevant to the unskilled/beginner English and Mathematics teachers because the South Sudanese competence-based education curriculum advocates the use of teaching strategies in classroom deliverable. Module four focused on gaining understanding of different conceptions of teaching English and Mathematics to help the untrained teachers make informed decisions when choosing relevant teaching approaches for a particular topic. They were encouraged to judgmentally examine several teaching ideas such as: imparting of knowledge; teaching as transmission, conceptual change; facilitating of knowledge; and interaction or transformation.

Population and sampling procedures

A sample of 10 schools was selected from targeted schools of 109. The sample size for this study involved 20 classroom unqualified English and Mathematics teachers from two states out of 10 states. Although five (5) of them completed universities, but they were not originally trained as teachers based on their specialties. The study was conducted in the secondary schools of Eastern Equatoria and Central Equatoria states in South Sudan. The study employed convenience sampling techniques to select teachers according to their gender first come first serve techniques for each gender. The convenience sampling techniques was also used to select 10 schools according to their geographical locations of urban and rural. In the selection 6 schools were selected from urban with 12 participants and from rural schools 4 schools were selected and 8 participants participated in the training/workshops.

Data collection, Analysis and Ethical consideration

The researcher used Training Program Development Intervention (TPDI) and interview guide for data collection. The reliability of the instruments was computed through a mean score before, after the intervention, standard deviation (SD) and standard error (SE) based on the measurable indicators highlighted in the training module2. The researcher first developed the training program and shared it with the Okayama University Department of Education and technical team in the Ministry of General Education and Instruction in South Sudan to check the validity in relation with the curriculum subject contents of both English and Mathematics. Quantitative data was analyzed using descriptive statistics with the help of the Statistical Package for Social Science (SPSS). Qualitative data was analyzed through thematic analysis. The researcher asked for permission from the respective authorities in order to ensure ethics and to ensure confidentiality and anonymity in doing the research.

THE PRESENTATION, INTERPRETATION, AND ANALYSIS OF DATA

Profile of the respondents

In-depth Program Development Intervention (PDI) for English and Mathematics were conducted with twenty untrained teachers though others have professions but not in the field of education, including three female teachers from different locations (i.e., both urban and rural). The interviewed respondents were from both private and public schools. The profile of the interviewees (i.e., unskilled teachers for both Mathematics and English) is presented below.

Table 1. Profile of respondents

Participant	School Type	School Location	Participants' Age	Participants' Sex	Participants' Qualification	Teaching Experience	Teachers' Status	Training Status	Remark
1	Public	Urban	32	Male	Certificate	4	Part-time	Untrained	English teacher trained on job
2	Public	Urban	35	Male	Certificate	2	Permanent	Untrained	Math teacher Trained on job
3	Public	Rural	51	Male	Certificate	5	Permanent	Untrained	Math teacher trained on job
4	Public	Rural	27	Female	Certificate	4	Permanent	Untrained	English teacher trained on job
5	Private	Urban	43	Female	BA	5	Permanent	Trained	English teacher
6	Private	Urban	39	Male	BA	6	Part-time	Trained	Math teacher but

									statistician
7	Public	Rural	40	Male	Certificate	7	Permanent	Untrained	Math teacher trained on job
8	Public	Rural	41	Male	Certificate	9	Permanent	Untrained	English teacher trained on job
9	Private	Urban	28	Male	Certificate	3	Part-time	Untrained	English teacher trained on job
10	Private	Urban	31	Male	BSc	4	Part-time	Trained	Math teacher trained on job a computer science
11	Public	Rural	27	Male	Certificate	3	Permanent	Untrained	English teacher trained on job
12	Public	Rural	33	Male	Certificate	5	Permanent	Untrained	Math teacher trained on job
13	Public	Rural	44	Male	Certificate	7	Permanent	Untrained	Math teacher trained on job
14	Public	Rural	30	Male	Certificate	2	Part-time	Untrained	English teacher trained on job
15	Private	Urban	26	Male	Certificate	3	Part-time	Untrained	English teacher trained on job
16	Public	Urban	27	Male	Certificate	4	Permanent	Untrained	Math trained on job

17	Private	Urban	35	Male	BSc	5	Permanent	Trained	Math teacher qualified
18	Public	Urban	40	Male	BSc	10	Permanent	Trained	Math teacher qualified
19	Public	Urban	30	Male	Certificate	2	Part-time	Untrained	Math teacher trained on job
20	Public	Urban	27	Female	Certificate	2	Permanent	Untrained	English teacher trained on job

Demographic distribution of respondents

The qualitative data was collected on the basis of school type, school location, age, sex, academic qualifications, teaching experience, appointment status and training status, as shown in the table below. In terms of age group, equal numbers of respondents were selected from the 40 years above and younger age group and from the 40 years plus age group. The majority of the respondents were male with only three female teachers. Almost equal number of participants were selected from urban and rural schools, and slightly more were drawn from urban locations.

Table 2: Demographic distributions

S.N	Categories	Group	No. of respondents
1	Age group	25 - 40 years	14
		40 plus years	6
2	Gender	Male	17
		Female	3
3	School type	Public	7
		Private	3
4	School location	Urban	6
		Rural	4
5	Teachers' Experience	1 - 10 years	14
		10 plus years	6
6	Academic qualification	School certificate	15
		BA	5

7	Appointment status	Permanent	13
		Part-time	7
8	Training status	Trained	5
		Untrained	15

Looking at the academic qualifications and teaching experience of the respondents, the majority had completed secondary school certificates and three quarters had less than 10 years of teaching experience. This suggests that most of the respondents had less minimum academic qualifications and less work experience. Consequently, it is interesting to note that nearly all respondents from public schools were untrained teachers who are permanent teachers. However, only a few respondents from public schools had a part-time contract. Critically observing the age group 90% of the teachers are in age range between 25 – 40 years of age whereas only 10% is above 40 years of age. In term of school type, 7 public and 3 private schools were selected for the intervention as shown on the table above. In the category of school location, 6 urban 4 rural schools were selected for Program Development Intervention (PDI) for untrained teachers who teaches English and Mathematics in the lower secondary schools more especially from senior one to senior two.

This first section of the analysis explains the profile and distributions perception of the 20 respondents before and after the intervention by school location, school types, gender, qualification, status of schools, and training status. The interpretation of the data was done to ascertain the perception of the respondents on the teaching practices used before and after the intervention to measure the effectiveness of the training program.

Table 3: school location response before intervention

	School location	**Number**	**Mean**	**Standard Deviation**	**Standard Error**
Perception before intervention	Urban	12	45.67	5.105	1.474
	Rural	8	42	3.703	1.309

Before the intervention, urban teachers showed slightly higher perception scores (M = 45.67, SD = 5.11) than rural teachers (M = 42.00, SD = 3.70), indicating more positive initial attitudes among urban teachers toward teaching practices. The small standard error values (SE = 1.474 and 1.309) suggest reliable and consistent mean estimates.

Table 4: school location response after intervention

	School location	**Number**	**Mean**	**Standard Deviation**	**Standard Error**
Perception after intervention	Urban	12	74.17	4.783	1.381
	Rural	8	68.75	2.55	0.901

After the intervention, urban teachers scored higher (M = 74.17, SD = 4.783) than rural teachers (M = 68.75, SD = 2.55). The small standard errors (SE = 1.381 and 0.901) indicate precise and consistent mean estimates across both groups.

Table 5: types of school response before intervention

	Types of school	Number	Mean	Standard Deviation	Standard Error
Perception before intervention	Public	14	43.36	4.483	1.198
	Private	6	46.17	5.529	2.257

Before the intervention, private-school teachers recorded a slightly higher perception mean score (M = 46.17, SD = 5.53) than public-school teachers (M = 43.36, SD = 4.48). The standard error values (SE = 1.198 for public and 2.257 for private) indicate reasonably precise estimates, with public-school teachers showing more consistent responses. Overall, private-school teachers exhibited slightly more positive perceptions of teaching practices before the training intervention.

Table 6: types of school response after intervention

	Types of school	Number	Mean	Standard Deviation	Standard Error
Perception after intervention	Public	14	70.21	3.683	0.984
	Private	6	76.17	4.75	1.939

After the intervention, teachers' perceptions improved markedly, with private-school teachers scoring higher (M = 76.17, SD = 4.75) than public-school teachers (M = 70.21, SD = 3.68). The low SE values indicate reliable estimates, reflecting positive effects of the training intervention across both school types.

Table 7: gender response before intervention

	Gender	Number	Mean	Standard Deviation	Standard Error
Perception before intervention	Male	17	44.29	4.753	1.153
	Female	3	43.67	6.506	3.756

Before the intervention, male teachers had a slightly higher perception score (M = 44.29, SD = 4.75) than female teachers (M = 43.67, SD = 6.51). The larger SE for females (3.756) indicates less precise estimates compared to males (1.153).

Table 8: gender response after intervention

	Gender	Number	Mean	Standard Deviation	Standard Error
Perception after intervention	Male	17	71.88	4.595	1.114
	Female	3	72.67	7.024	4.055

After the intervention, female teachers scored slightly higher (M = 72.67, SD = 7.02) than male teachers (M = 71.88, SD = 4.60). The smaller SE for males (1.114) indicates more precise mean estimates than for females 4.055.

Table 9: qualification response before intervention

	Qualification	Number	Mean	Standard Deviation	Standard Error
Perception before intervention	Certificate	15	43	4.071	1.051
	BA/BSc	5	47.8	5.675	2.538

Before the intervention, BA/BSc teachers demonstrated relatively higher perception levels (M = 47.8, SD = 5.68) than those with certificates (M = 43.0, SD = 4.07). The lower SE for certificate holders (1.051) reflects greater uniformity and reliability in their responses.

Table 10: qualification response after intervention

	Qualification	Number	Mean	Standard Deviation	Standard Error
Perception after intervention	Certificate	15	70.73	4.284	1.106
	BA/BSc	5	75.8	4.604	2.059

After the intervention, teachers with BA/BSc qualifications scored higher (M = 75.8, SD = 4.60) than certificate holders (M = 70.73, SD = 4.28). The smaller SE for certificate holders (1.106) indicates more consistent and reliable mean estimates as compared to BA/BSc 2.059.

Table 11: teachers' status response before intervention

	Teachers' status	Number	Mean	Standard Deviation	Standard Error
Perception before intervention	Permanent	13	45	4.69	1.301
	Part-time	7	42.71	5.155	1.948

This table indicates that before the intervention, permanent teachers scored higher (M = 45.0, SD = 4.69) than part-time teachers (M = 42.71, SD = 5.16). The smaller SE for permanent teachers (1.301) shows more precise and consistent mean estimates.

Table 12: teachers' status response after intervention

	Teachers' status	Number	Mean	Standard Deviation	Standard Error
Perception after intervention	Permanent	13	72	3.916	1.086
	Part-time	7	72	6.506	2.459

This table reveals that following the intervention, both permanent and part-time teachers recorded the same perception mean (M = 72). Nonetheless, the lower SE for permanent teachers (1.086) reflects greater precision and consistency in their responses compared to part-time teachers (SE = 2.459).

Table 13: training status response before intervention

	Training status	Number	Mean	Standard Deviation	Standard Error
Perception before intervention	Trained teacher	5	47.8	5.675	2.538
	Untrained teacher	15	43	4.071	1.051

This table shows that before the intervention, trained teachers had higher perception scores (M = 47.8, SD = 5.68) than untrained teachers (M = 43.0, SD = 4.07). The smaller SE for untrained teachers (1.051) indicates more consistent and reliable mean estimates.

Table 14: training status response after intervention

	Training status	N	Mean	SD	SE
Perception after intervention	Trained teacher	5	75.8	4.604	2.059
	Untrained teacher	15	70.73	4.284	1.106

This table illustrates that following the intervention, trained teachers achieved higher perception scores (M = 75.8, SD = 4.60) compared to untrained teachers (M = 70.73, SD = 4.28). The lower SE for untrained teachers (1.106) reflects more stable and dependable mean estimates.

Generally, teachers' perceptions improved remarkably after the training intervention. While early perceptions were moderate with slight group variations, post-intervention results showed higher and more consistent scores across all categories. This implies that the training program effectively enhanced teachers' attitudes and understanding of sound pedagogical practices.

Table 15, presents unskilled teachers' performance before and after the training intervention in English and Mathematics. It compares pre-test and post-test mean scores to demonstrate individual improvement and key classroom observations. The results show a clear shift from teacher-centered to learner-centered approaches, with the overall mean score improving from **44.2** to **72**, representing a **27.8%** increase in teaching competence.

Table 15: Unskilled teachers' individual perceptions Before and After training

Location	Subject	Number of Teachers	Mean Score (Pre-test)	Mean Score (Post-test)	Improvement %	Key Observations
Urban	English	1	45	74	29	Teachers applied group work, learner discussion, and contextual examples effectively.
Urban	Math	1	42	70	28	Improved use of visual aids and real-life problem-solving activities.
Urban	English	1	50	80	30	Teachers shifted from rote methods to storytelling and question-based lessons.
Urban	Math	1	39	68	29	Limited materials, but teachers improvised with

						local examples and peer learning.
Urban	English	1	40	74	34	Objective was clearly set and students were able to participates actively
Urban	Math	1	46	78	32	Teacher summarizes the key points on the chalkboard
Urban	English	1	52	81	29	The lesson was more participatory
Urban	Math	1	47	75	28	Teaching aids was used during the lesson
Urban	English	1	50	76	26	Homework was given to learners after the lesson
Urban	Math	1	54	77	23	Students were given opportunity to solve question on the blackboard
Urban	English	1	39	65	26	Teacher started the lesson by revising previous lesson
Urban	Math	1	44	72	28	Students took greater role during the lesson and teacher was a facilitator
Rural	English	1	40	70	30	Students were attentive, asking questions during the lesson
Rural	Math	1	37	66	29	Teacher asked 9 formative assessment question for lesson observed
Rural	English	1	42	70	28	Teacher facilitated students' discussion as students were making presentation of their group work
Rural	Math	1	46	71	25	Lesson objectives were clearly stated in advance
Rural	English	1	41	68	27	Teacher started the lesson by revising previous lesson and checking a few students exercise books
Rural	Math	1	45	70	25	Teachers used local available teaching resources

						and asked 6 formative assessment questions
Rural	English	1	47	71	24	Objectives of the lesson were outlined on the blackboard
Rural	Math	1	38	64	26	Students were arranged in groups to discuss the lesson concepts and teachers provided extra explanation
Overall		20	44.2	72	27.8	Positive shift toward learner-centered and participatory teaching practices.

The data in Table 15, present the pre-test and post-test mean scores of 20 untrained teachers (12 from urban schools and 8 from rural schools) who participated in the teacher training program. The scores were collected from both English and Mathematics lessons. The results highlight the degree of improvement in pedagogical competence and classroom practices after the intervention.

A. Urban Teachers' Performance and Perceptions

Out of the 20 teachers, 12 were from urban secondary schools**.** Their pre-test means scores ranged between 39 and 54**,** with an average of 45.8**,** while their post-test means scores ranged between 65 and 81**,** averaging 74.5**.** This represents an average improvement of approximately 28.7%.

Key Findings and Observations

Most urban teachers showed increased ability to apply learner-centered methods**,** including group work, pair discussions, and question-based lessons during the implementation of the intervention for both Mathematics and English.

Teachers demonstrated better use of visual aids, storytelling, and real-life examples to promote understanding of the subject content in the classroom practices.

Lesson objectives were clearly stated, and students were more active and engaged during lessons.

Teachers' confidence improved, reflected in their ability to facilitate lessons rather than dominate them.

Despite resource limitations, teachers improvised effectively, showing creativity in using locally available materials**.**

Interpretation

The data indicate that the training intervention had a strong impact on improving lesson planning, classroom delivery, and assessment strategies among urban teachers. Their higher improvement rate suggests that access to better facilities, peer collaboration, and exposure to diverse teaching environments supported their adoption of learner-centered approaches.

B. Rural Teachers' Performance and Perceptions

The remaining 8 teachers were from rural secondary schools. Their pre-test means scores ranged between 37 and 47, with an average of 42.6, while their post-test scores ranged from 64 to 71, averaging 69.2. This shows an average improvement of 26.6%.

Key Findings and Observations

Rural teachers demonstrated clear progress in lesson organization and the use of formative assessment strategies.

Lessons became more interactive, with students participating through group discussions and presentations.

Teachers showed improved ability to set and communicate lesson objectives clearly.

There were increased use of local resources and a focus on practical examples relevant to students' experiences.

Some challenges persisted, including limited instructional materials and overcrowded classrooms, which slightly constrained performance gains.

Interpretation

The training intervention produced meaningful pedagogical improvement among rural teachers, despite environmental constraints. The shift from teacher-centered to learner-centered practices indicates that even in resource-limited settings, targeted professional development can significantly enhance teaching effectiveness.

Across all 20 participants, the overall pre-test mean score was 44.2**,** increasing to a post-test mean score of 72**,** indicating an average improvement of 27.8%**.** Both urban and rural teachers displayed a positive shift toward participatory and student-focused teaching practices**.**

Conclusion

The data clearly illustrate that a structured and continuous teacher development intervention can effectively transform untrained teachers' classroom practices. The overall improvement highlights the potential of localized, context-specific training programs in addressing teacher quality gaps within fragile education systems such as that of South Sudan.

Table 16, summarizes the overall performance of untrained teachers before and after the training program in English and Mathematics across urban and rural areas. It highlights the mean score improvements and key observations, showing an overall increase from **43.8** to **71.5**, reflecting a **27.6%** improvement and a clear shift toward learner-centered teaching practices.

Table 16: Summary of Untrained Teachers Perceptions Before and After the Training Program

Location	Subject	Number of Teachers	Mean Score (Pre-test)	Mean Score (Post-test)	Improvement %	Key Observations
Urban	English	6	46	75	29	Teachers applied group work, learner discussion, and contextual examples effectively.
Urban	Math	6	45.333	73.333	28	Improved use of visual aids and real-life problem-solving activities.
Rural	English	4	42.5	69.75	27.25	Teachers shifted from rote methods to storytelling and question-based lessons.

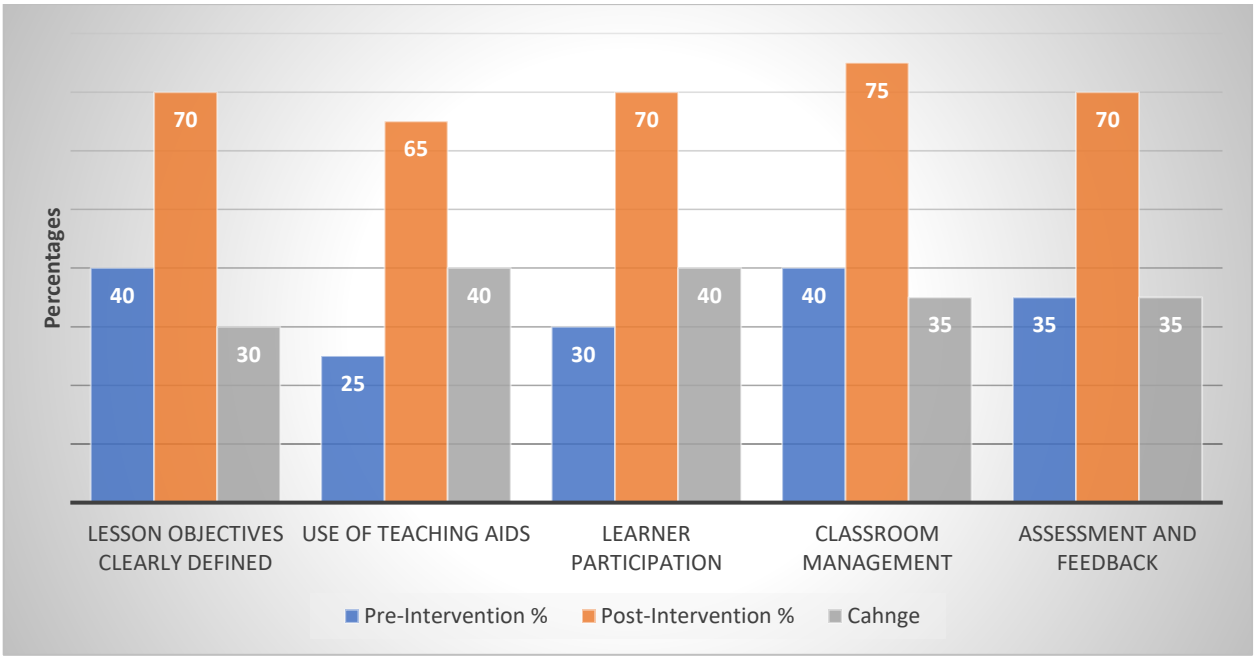
Rural	Math	4	41.5	67.75	26.25	Limited materials, but teachers improvised with local examples and peer learning.
Overall			**43.833**	**71.458**	**27.625**	Positive shift toward learner-centered and participatory teaching practices.

Interpretation of Comparative Results

The comparative data reveal that urban teachers achieved slightly higher improvement (28.5%) than rural teachers (26.8%). This difference can be attributed to better access to teaching resources, classroom facilities, and peer collaboration in urban settings. Nonetheless, both groups demonstrated substantial gains in pedagogical knowledge and classroom practice. Rural teachers showed strong adaptability and creativity, effectively using local materials and encouraging student engagement despite infrastructural challenges. The overall improvement (27.6%) confirms that the training intervention positively transformed teaching practices, promoting a shift from teacher-centered to learner-centered methodologies across both contexts.

Figure 1 compares teachers' lesson planning competence before and after the training intervention. It highlights improvements in key pedagogical areas such as defining lesson objectives, using teaching aids, promoting learner participation, classroom management, and applying assessment and feedback.

Figure 1: Comparison of Teachers' Lesson Plan Competence (Pre- and Post Intervention)



Interpretation and analysis

The results show a significant improvement in teachers' lesson planning skills, with the overall competence rising from 34% before to 70% after the intervention—an overall gain of 36%. The highest improvements occurred in use of teaching aids (40%) and learner participation (40%), indicating that teachers increasingly adopted interactive and resource-based teaching methods. Classroom management (35%) and assessment and feedback (35%) also improved, showing enhanced ability to organize learning activities and evaluate student progress effectively. Additionally, gains in stating clear lesson objectives (30%) also improved notably, reflecting better understanding of the topics. Overall, the data confirm that the training greatly strengthened teachers' ability to plan and implement learner-centered lessons.

Qualitative data presentation

Table 17, presents six key themes that emerged from teachers' reflections after the training intervention. These themes highlight changes in teaching practices, lesson preparation, classroom interaction, assessment methods, and teachers' professional confidence. The reflections show a clear shift toward learner-centered approaches and improved instructional competence among untrained teachers.

Table 17: Six Emerging Themes from Teachers' Reflections After the Training Intervention

Theme	Description	Illustrative Quotes from Teachers
Shift toward learner-centered pedagogy	Teachers reported adopting participatory and discussion-based teaching methods rather than relying on rote teaching	Teacher E2, "Before the training, I used to explain everything myself, but now I allow students to share ideas and discuss before giving feedback to them".
Improved lesson planning and organization	Teachers became more systematic in preparing lesson objectives, orderly content, and using teaching aids effectively	Teacher M1, "Now I start each lesson with clear objectives and ensure that every activity links to the topic and learning outcomes"
Use of local and contextualized teaching resources	Teachers learned to improvise and use locally available materials, especially in rural settings with limited resources	Teacher M5, "Even when we lack charts or printed materials, I use sticks and drawings on the chalkboard to make learning practical."
Enhanced classroom interaction and learners' participation	Teachers observed increased learner engagement, questions, and collaboration during lessons	Teacher E7, "Learners now participate more actively; they even volunteer to present group work and ask questions without fear."
Strengthened assessment and feedback practices	Teachers developed new approaches to monitor learning process through formative assessments	Teacher M10, "I have started using short oral questions and written exercises at the end of each lesson to check students understanding."
Professional confidence and motivation	The training helped untrained teachers feel more capable and motivated to improve their teaching	Teacher E5, "I used to feel unsure about my teaching methods, but after this training, I am more confident and prouder of my lesson presentation and organization."

Characteristics of beginner or unskilled teachers in South Sudan compared with developed countries

Beginner or unskilled teachers in South Sudan exhibit characteristics shaped by a unique combination of limited professional preparation, post-conflict realities, and systemic constraints. Unlike beginner teachers in developed countries—who typically enter the profession with formal teacher-training degrees, supervised practicum experience, structured induction, and established mentoring systems—many South Sudanese beginner teachers enter classrooms with only secondary education, short-term "crash programs," or minimal pedagogical training. Their instructional practices are often traditional, teacher-centered, and reliant on rote methods due to inadequate preparation in content pedagogy for literacy and numeracy.

Additionally, these unskilled teachers work in environments characterized by large class sizes, scarcity of teaching materials, irregular salaries, and weak administrative support, all of which limit their opportunity to grow professionally. While novice teachers in developed countries may struggle with workload, classroom

management, or adapting to school culture, they generally benefit from stable school systems, structured professional development pathways, and collegial networks that support reflective practice. In contrast, South Sudanese beginner teachers often lack sustained mentorship, clear professional standards, and opportunities for ongoing pedagogical development. This results in lower instructional confidence, limited use of learner-centered methodologies, and inconsistent planning and assessment practices—factors that heavily impact general pedagogical outcomes.

Thus, the primary distinction lies not merely in skill level but in **systemic readiness**: developed countries prepare novice teachers through comprehensive pre-service education and institutional support, while in South Sudan, structural instability and shortages of trained personnel compel teachers into classrooms before they have acquired foundational pedagogical competencies.

DISCUSSION

This study examined the impact of a teacher training program intervention on untrained teachers' pedagogical knowledge and classroom practices in South Sudan. The findings discovered substantial improvements in teachers' perceptions, lesson planning competence, and instructional delivery after the intervention, demonstrating the effectiveness of the program in transforming teaching practices in the education sector particularly secondary schools which are the focused of this study.

The results notably across all variables—school location, school type, gender, qualification, and employment status—showed outstanding improvement in teachers' perceptions following the intervention. Prior to training, teachers displayed moderate perceptions toward teaching, reflecting limited exposure to modern pedagogical methods. After the intervention, mean perception scores increased considerably, displaying enhanced understanding of learner-centered pedagogy, utilization of teaching aids, and use of formative assessment strategies. Urban teachers recorded fairly higher scores than rural teachers both before and after the training, feasibly due to better access to instructional resources and collaboration opportunities. However, rural teachers also demonstrated significant post-intervention gains, confirming that a well-designed, context-based professional development program can improve teaching across diverse environments. These findings are consistent with Gordon's (1991) conclusion that targeted training enhances novice teachers' confidence and competence regardless of setting. Similarly, Darling-Hammond (2017) emphasized that localized, practice-oriented professional development fosters sustainable pedagogical growth. The findings also indicate teachers in private schools scored marginally higher than those in public schools, which could be attributed to smaller class sizes and more flexible institutional management. Nonetheless, all groups displayed significant improvement, confirming the inclusiveness and effectiveness of the intervention.

Similarly, the influence of teachers' qualification and employment status were taken as important factors in measuring the perception of teachers. Teachers holding bachelor's degrees (BA/BSc) consistently performed better than those with only certificates, both before and after the training. However, the remarkable post-intervention improvement among certificate holders demonstrates that the program effectively met the needs of teachers with varied educational backgrounds. The training's participatory design—emphasizing peer learning, practical demonstrations, and reflection—enabled all participants to acquire essential pedagogical competencies (Desimone & Garet, 2015). Though permanent teachers initially scored higher than part-time teachers, post-intervention results revealed equal mean scores (M = 72), indicating that both groups benefited equally. This finding reflects the program's success in bridging competence gaps among teachers with differing employment statuses. The result aligns with the Organization for Economic Co-operation and Development (OECD, 2020), which reported that continuous professional development enhances instructional quality and teacher self-efficacy across employment categories.

The findings from the study further show transformation in teaching practices and lesson delivery from both the two subjects. Comparison of pre- and post-test results in English and Mathematics revealed substantial improvement in teachers' performance. The overall mean increased from 44.2 to 72, representing a 27.8% gain in teaching competence. Urban teachers improved by 28.7%, while rural teachers recorded a 26.6% increase. These results indicate stronger lesson delivery, clearer learning objectives, and improved classroom

management. Teachers shifted from traditional, teacher-centered instruction to participatory learning that encouraged student interaction, group discussions, and application of real-life examples. These outcomes support Guskey's (2002) argument that professional development positively influences teachers' beliefs and classroom practices when it integrates hands-on engagement and reflective activities. The considerable progress among rural teachers despite resource constraints underscores the adaptability and relevance of the training model in low-resource contexts (O'Sullivan, 2006).

Another key area which this study measured was teachers' lesson planning competence which rose from an overall average of 34% before the training to 70% after, marking a 36% increase. The largest gains occurred in the use of teaching aids (40%) and learner participation (40%), followed by classroom management and assessment (35% each). These findings demonstrate enhanced ability to plan coherent lessons, incorporate visual and local materials, and conduct ongoing assessments. Teachers also became more adept at formulating clear learning objectives, indicating improved instructional organization. Such gains align with Joyce and Showers' (2002) assertion that practical, feedback-driven training strengthens teachers' capacity to translate theory into effective classroom strategies.

More importantly the findings of the qualitative insights on pedagogical changes on the thematic variables indicate tremendous improvement across the two subjects towards learner-centered methods. Qualitative reflections corroborated the quantitative findings, revealing six central themes: a shift toward learner-centered pedagogy, better lesson organization, increased use of local resources, greater student participation, enhanced assessment practices, and improved professional confidence. Teachers reported being more systematic, confident, and motivated after the intervention. They incorporated group discussions, storytelling, and local examples to make lessons more engaging and relatable. These qualitative insights confirm that the intervention not only enhanced technical teaching skills but also shaped teachers' professional identity and intrinsic motivation. This dual transformation—cognitive and attitudinal—supports the argument by Avalos (2011) that effective professional development fosters deep reflection, collaboration, and commitment to continuous learning. In fragile education systems like South Sudan's, such holistic transformation is essential for building a sustainable teaching force.

CONCLUSION

This study examined the challenges faced by beginner or unskilled teachers in South Sudan and evaluated the impact of a learner-centered training intervention on their professional growth. The findings show that most teachers enter the classroom with limited pedagogical skills, weak classroom management, and little administrative or collegial support—challenges consistent with global literature but intensified by South Sudan's post-conflict conditions and resource constraints. Despite these limitations, the intervention produced meaningful improvements. Teachers demonstrated increased confidence, clearer lesson planning, better use of participatory strategies, and stronger classroom management. These shifts illustrate the value of holistic professional development that nurtures both pedagogical competence and teachers' sense of identity and responsibility. Principally, the study concludes that targeted and context-responsive professional development can significantly enhance teaching quality not only in literacy and numeracy but in entire subjects. Strengthening teacher preparation, providing continuous support, and improving school conditions remain critical for improving learning outcomes across South Sudan.

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Data Availability: The data presented here are all from the author primary sources.

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