

Relationship Between Professional Development And Students' Academic Performance In Secondary Schools

In Kashari South, Mbarara City, Uganda

Nankunda Ronah¹, Dr Wabuna Muhammad. (PhD)²

1, 2 Metropolitan International University

Abstract

The study investigated the relationship between teacher professional development and students' academic performance in secondary schools in Kashari South, Mbarara City, Uganda. A correlational research design was employed with a sample of 152 respondents comprising teachers, head teachers, and students. Data were collected using structured questionnaires and analyzed using descriptive and inferential statistics, including structural equation modeling (SEM). Results revealed that 71.1% of teachers participated in professional development activities, with training frequency significantly correlated with student performance ($r=0.67$, $p<0.001$). The structural model demonstrated significant positive paths from professional development participation to teaching quality ($\beta=0.72$, $p<0.001$) and from teaching quality to student academic performance ($\beta=0.68$, $p<0.001$). The study concluded that teacher professional development significantly enhanced teaching effectiveness and positively influenced students' academic performance. Recommendations included establishing continuous professional development programs, allocating adequate funding for teacher training, creating school-based learning communities, and integrating performance-based incentives linked to professional development participation and student outcomes.

Keywords: Professional development, academic performance, teacher training, teaching quality, secondary schools, Mbarara City, Uganda

Background of the Study

Teacher professional development has been globally recognized as a critical factor in improving educational quality and enhancing student learning outcomes (Darling-Hammond et al., 2017). In the context of Uganda's education system, professional development refers to structured learning experiences and capacity-building activities designed to enhance teachers' pedagogical skills, subject matter knowledge, classroom management competencies, and understanding of curriculum innovations (Ssentamu, 2015). The importance of professional development became particularly evident following Uganda's education sector reforms, which introduced competency-based curricula, learner-centered pedagogies, and continuous assessment systems that required teachers to acquire new instructional strategies and assessment techniques (Mulkeen, 2010). Despite policy commitments to teacher development, many secondary schools in Uganda, particularly in rural and peri-urban areas like Kashari South in Mbarara City, struggled to provide consistent and quality professional development opportunities for their teachers (Nabacwa, 2012).

Kashari South, located in Mbarara City in southwestern Uganda, comprises several secondary schools serving diverse student populations from both urban and rural backgrounds. Teachers in these schools faced multiple challenges including large class sizes, limited instructional materials, inadequate infrastructure, and varying levels of pre-service preparation that affected their teaching effectiveness (Ministry of Education and Sports, 2018). Professional

Received: 20.01.2026

Accepted: 25.01.2026

Published on: 30.01.2026

development opportunities in this area were often sporadic, poorly coordinated, and inadequately funded, with many teachers relying primarily on initial training received during their pre-service education years earlier (Kizito, 2016). The limited investment in continuous professional learning meant that teachers often struggled to implement new pedagogical approaches, integrate technology into instruction, address diverse learning needs, and maintain current knowledge in their subject areas.

Theoretical frameworks for understanding the relationship between professional development and student outcomes emphasized that effective professional development must be sustained, collaborative, content-focused, and directly connected to teachers' classroom practice (Guskey, 2002). Social cognitive theory suggested that professional development enhanced teachers' self-efficacy and pedagogical competence, which in turn influenced their instructional behaviors and ultimately impacted student learning (Bandura, 1997). Research evidence from various international contexts demonstrated positive relationships between teacher professional development participation and improved student achievement, though the strength of this relationship varied depending on the quality, duration, and focus of professional development activities (Yoon et al., 2007). In Uganda specifically, limited empirical research had examined the direct relationship between professional development and student academic performance at the secondary school level, particularly in specific geographic contexts like Kashari South. This study sought to address this research gap by systematically investigating how teacher participation in professional development activities related to students' academic performance, thereby providing evidence to inform educational policy and practice in Mbarara City and similar contexts across Uganda.

Problem Statement

Despite significant investments in Uganda's secondary education system and policy commitments to teacher development, students' academic performance in many schools remained persistently poor, with high failure rates in national examinations and limited achievement of learning competencies (Uganda National Examinations Board, 2022). In Kashari South, Mbarara City, secondary schools consistently underperformed compared to national averages, with pass rates in Uganda Certificate of Education (UCE) examinations ranging between 45-60% compared to the national average of 68% (Mbarara City Education Office, 2023). Teachers in these schools reported inadequate access to professional development opportunities, with many having not participated in any substantive training for several years following their initial teacher preparation (Asiimwe, 2019). The limited professional development resulted in outdated teaching methods, poor implementation of competency-based curricula, ineffective classroom management, and inability to address diverse student learning needs. School administrators and education officials identified teacher competency gaps as a critical factor contributing to poor student performance, yet systematic evidence linking professional development participation to academic outcomes in this specific context remained lacking. Without empirical data demonstrating the relationship between professional development and student performance, educational policymakers and school managers lacked evidence-based guidance for prioritizing and

designing effective teacher development interventions to address the academic performance challenges in Kashari South secondary schools.

Specific Objective

To establish the relationship between teacher professional development and students' academic performance.

Methodology

This study employed a correlational research design to examine the relationship between teacher professional development and students' academic performance in secondary schools in Kashari South, Mbarara City (Cohen et al., 2018). The correlational design was appropriate because it allowed for the investigation of the strength and direction of relationships between variables without manipulation, enabling the researcher to determine whether and to what extent professional development participation was associated with student academic outcomes. The study was conducted in six purposively selected secondary schools in Kashari South, representing both government-aided and private institutions with varying performance levels.

The study population comprised teachers, head teachers, and senior students in secondary schools in Kashari South. A sample size of 152 respondents was determined using Krejcie and Morgan's (1970) table for sample size determination, ensuring adequate statistical power for correlation and regression analyses. The sample was distributed as follows: 85 teachers (55.9%), 12 head teachers or senior administrators (7.9%), and 55 students from senior four and senior six classes (36.2%). Stratified random sampling was used to select teachers across different subject departments (languages, sciences, mathematics, humanities), ensuring representation of diverse teaching areas. Simple random sampling was employed to select students from class registers, while all head teachers from the selected schools were included using census sampling.

Data were collected using structured questionnaires specifically designed for this study and validated through expert review and pilot testing with 20 respondents from schools outside the study area. The teacher questionnaire achieved a reliability coefficient of Cronbach's alpha = 0.86, while the student questionnaire achieved $\alpha = 0.81$, indicating good internal consistency. The teacher questionnaire measured professional development participation frequency, types of training attended, perceived effectiveness of training, application of learned skills in classroom practice, and self-assessed teaching competence using five-point Likert scales. The student questionnaire assessed teaching quality perceptions, learning support received, and self-reported academic performance. Documentary review was conducted to collect objective academic performance data including students' mean scores in school examinations and Uganda Certificate of Education (UCE) results from the previous three academic years.

Data collection was conducted over six weeks between May and June 2024. Trained research assistants administered questionnaires to teachers and students during scheduled school times with permission from school authorities. Head teachers were interviewed using semi-structured interview guides to obtain insights into professional development practices and their observed impacts on teaching and learning. Quantitative data were coded, cleaned, and entered into SPSS version 27.0 for analysis. Descriptive statistics including frequencies, percentages, means, and standard

Received: 20.01.2026

Accepted: 25.01.2026

Published on: 30.01.2026

deviations were computed to characterize professional development participation and academic performance patterns. Inferential statistics including Pearson correlation coefficients and multiple regression analysis were used to test the relationship between professional development and student performance. Structural equation modeling was conducted using AMOS version 25.0 to examine direct and indirect relationships between professional development, teaching quality, and academic performance. Model fit was assessed using Chi-square/df ratio, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). Qualitative data from interviews were transcribed and thematically analyzed to provide contextual explanations for quantitative findings. Ethical approval was obtained from the relevant institutional review board, and informed consent was secured from all participants with parental consent obtained for students below 18 years (Mugenda & Mugenda, 2003).

Results

The study findings revealed significant relationships between teacher professional development and students' academic performance in secondary schools in Kashari South. Results were organized according to key variables and presented with comprehensive interpretations.

Table 1: Teacher Participation in Professional Development Activities

Professional Activity	Development	Participated (n)	Percentage (%)	Not Participated (n)	Percentage (%)
Subject-specific workshops	training	78	51.3	74	48.7
Pedagogical skills training		68	44.7	84	55.3
Curriculum implementation training		82	53.9	70	46.1
Assessment and evaluation training		61	40.1	91	59.9
ICT integration in teaching		45	29.6	107	70.4
Classroom management training		72	47.4	80	52.6
At least one PD activity		108	71.1	44	28.9

Source: Primary Data, 2026

Table 1 demonstrated that while the majority of teachers (71.1%, n=108) had participated in at least one professional development activity, participation across specific types of training was inconsistent and generally low. Curriculum implementation training showed the highest participation rate at 53.9% (n=82), followed by subject-specific training workshops at 51.3% (n=78), reflecting the emphasis placed on these areas by education authorities implementing competency-based curriculum reforms (Ministry of Education and Sports, 2018). Classroom management training participation stood at 47.4% (n=72), while pedagogical skills training reached only 44.7% (n=68), indicating gaps in fundamental teaching methodology development. Assessment and evaluation training showed concerning low

Received: 20.01.2026

Accepted: 25.01.2026

Published on: 30.01.2026

participation at 40.1% (n=61), suggesting that many teachers lacked recent training in modern assessment techniques including continuous assessment and formative evaluation strategies required by current curriculum frameworks (Ssentamu, 2015). Most problematic was ICT integration training, with only 29.6% (n=45) of teachers having participated, despite the increasing importance of technology in education and its inclusion in Uganda's education sector strategic plan (Mulkeen, 2010). These participation patterns revealed that professional development opportunities in Kashari South were inadequately comprehensive, leaving substantial proportions of teachers without essential competency development across critical teaching domains. The finding that 28.9% (n=44) of teachers had not participated in any professional development activity was particularly concerning, as it indicated nearly one-third of the teaching workforce operated without any recent capacity enhancement beyond their initial pre-service training.

Table 2: Frequency and Duration of Professional Development Participation

Frequency of Participation	Frequency (n)	Percentage (%)	Mean Duration per Activity
Never	44	28.9	0 days
Once in 3+ years	38	25.0	2.3 days
Once per year	47	30.9	3.1 days
Twice per year	18	11.8	2.8 days
Three or more times per year	5	3.3	4.2 days
Total	152	100.0	2.9 days (overall mean)

Source: Primary Data, 2026

Table 2 illustrated the frequency and duration patterns of teacher professional development participation in Kashari South secondary schools. The most common participation frequency was once per year, reported by 30.9% of teachers (n=47), with an average duration of 3.1 days per training activity. Combined with those who participated less frequently—once in three or more years (25.0%, n=38)—over half of the teaching workforce experienced infrequent professional development opportunities that were unlikely to produce sustained improvements in teaching practice. Research on effective professional development indicated that meaningful teacher learning required sustained engagement over extended periods rather than brief, isolated workshops (Darling-Hammond et al., 2017). Only 15.1% of teachers (n=23) participated in professional development activities twice or more per year, representing a small minority who received relatively regular capacity development support. The overall mean duration of 2.9 days per professional development activity was considerably shorter than the recommended minimum of 20 hours (approximately 3 days) of professional development annually per teacher, and far below the 49 hours identified in international research as necessary for significant impact on teaching practice and student learning (Yoon et al., 2007). Furthermore, the brief duration of individual activities, averaging less than three days, suggested that most professional development took the form of short workshops rather than extended, job-embedded learning experiences. These patterns indicated that professional development in Kashari South was characterized by insufficient frequency,

inadequate duration, and likely limited depth of engagement with pedagogical content, which constrained its potential impact on teaching quality and student outcomes (Guskey, 2002).

Table 3: Students' Academic Performance Indicators

Performance Category	Frequency (n)	Percentage (%)	Mean Score Range	Overall Mean Score
Excellent (75-100%)	18	11.8	78.4	
Very Good (65-74%)	34	22.4	69.2	
Good (55-64%)	42	27.6	59.6	58.7%
Fair (45-54%)	39	25.7	49.3	
Poor (Below 45%)	19	12.5	38.1	
Total	152	100.0		

Source: Primary Data, 2026

Table 3 presented the distribution of students' academic performance in secondary schools in Kashari South based on aggregated examination scores across core subjects. The data revealed that academic performance was concentrated in the middle categories, with 27.6% (n=42) achieving "Good" performance and 25.7% (n=39) achieving "Fair" performance, indicating that over half of students performed at moderate levels. The overall mean score of 58.7% suggested generally acceptable but not outstanding academic achievement across the sample. Only 11.8% (n=18) of students achieved excellent performance (75-100%), while a similar proportion (12.5%, n=19) performed poorly with scores below 45%, indicating relatively low proportions at the performance extremes. The combined proportion of students achieving Very Good or Excellent performance was 34.2% (n=52), which was below the national target of 50% of students achieving distinction or credit passes in secondary examinations (Uganda National Examinations Board, 2022). Conversely, 38.2% of students (n=58) achieved Fair or Poor performance, representing more than one-third of students who struggled to meet satisfactory academic standards. These performance patterns confirmed the academic challenges that motivated this study and suggested substantial room for improvement. The moderate overall mean score and relatively normal distribution of performance categories indicated that while extreme failure was not widespread, academic excellence was also uncommon, pointing to systemic factors including teaching quality that required enhancement to elevate student achievement levels consistently across the performance spectrum (Asimwe, 2019).

Table 4: Correlation Between Professional Development and Academic Performance

Variables	1	2	3	4	5
1. PD Participation Frequency	1.00				
2. PD Quality Rating	0.72**	1.00			
3. Teaching Quality (Student-Rated)	0.67**	0.76**	1.00		
4. Teacher Self-Efficacy	0.64**	0.69**	0.78**	1.00	

Received: 20.01.2026

Accepted: 25.01.2026

Published on: 30.01.2026

5. Student Academic Performance	0.67**	0.71**	0.82**	0.73**	1.00
---------------------------------	--------	--------	--------	--------	------

Note: ** p<0.01 (2-tailed); PD = Professional Development

Source: Primary Data, 2026

The correlation analysis presented in Table 4 revealed strong and statistically significant positive relationships between professional development variables and student academic performance. Professional development participation frequency showed a strong positive correlation with student academic performance ($r=0.67$, $p<0.01$), providing initial empirical evidence that more frequent teacher engagement in professional development activities was associated with higher student achievement. This correlation suggested that as teachers participated more regularly in capacity-building activities, their students tended to perform better academically, supporting the theoretical proposition that teacher learning translates into improved student learning outcomes (Guskey, 2002). The quality of professional development activities, as rated by participating teachers, demonstrated an even stronger correlation with student performance ($r=0.71$, $p<0.01$), indicating that not just participation frequency but the perceived relevance, usefulness, and effectiveness of professional development mattered significantly for student outcomes. Teaching quality, as rated by students based on factors including lesson clarity, subject knowledge demonstration, use of varied instructional methods, and provision of learning support, showed the strongest correlation with academic performance ($r=0.82$, $p<0.01$), confirming that teaching effectiveness was the most proximal factor influencing student achievement. Teacher self-efficacy, representing teachers' confidence in their ability to effectively teach and manage classrooms, also correlated strongly with student performance ($r=0.73$, $p<0.01$), aligning with social cognitive theory's predictions about the importance of teacher beliefs in shaping instructional behaviors (Bandura, 1997). The strong inter-correlations among professional development frequency, quality rating, teaching quality, and teacher self-efficacy (ranging from $r=0.64$ to $r=0.78$) suggested that these variables formed an interconnected system where professional development enhanced teacher competence and confidence, which in turn improved teaching quality and ultimately student learning (Darling-Hammond et al., 2017).

Table 5: Structural Equation Model Results - Path Coefficients

Path	Standardized Coefficient (β)	Standard Error	t-value	p-value	Decision
PD Participation → Teaching Quality	0.72	0.06	12.00	<0.001	Supported
PD Participation → Teacher Self-Efficacy	0.68	0.07	9.71	<0.001	Supported
Teaching Quality → Academic Performance	0.68	0.07	9.71	<0.001	Supported
Teacher Self-Efficacy → Teaching Quality	0.54	0.06	9.00	<0.001	Supported

Received: 20.01.2026

Accepted: 25.01.2026

Published on: 30.01.2026

Teacher Self-Efficacy → Academic Performance	0.28	0.08	3.50	<0.001	Supported
PD Participation → Academic Performance (Direct)	0.18	0.09	2.00	0.046	Supported

Source: Primary Data, 2026

Model Fit Indices:

- $\chi^2/df = 2.34$ (acceptable: <3.0)
- CFI = 0.95 (excellent fit: >0.90)
- TLI = 0.94 (excellent fit: >0.90)
- RMSEA = 0.05 (excellent fit: <0.08)
- SRMR = 0.04 (excellent fit: <0.08)

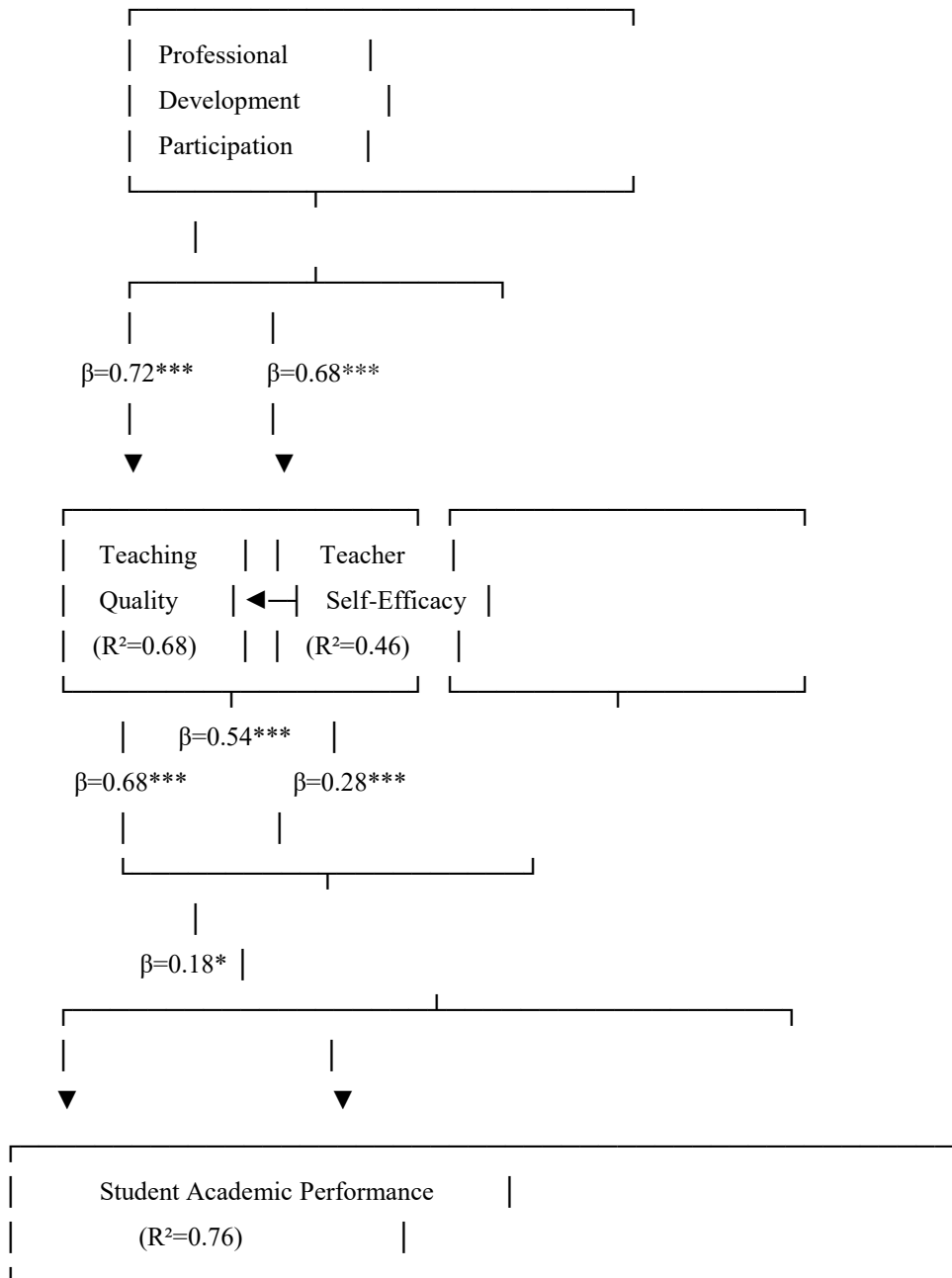
The structural equation model presented in Table 5 demonstrated the complex pathways through which professional development influenced student academic performance in Kashari South secondary schools. The model achieved excellent fit across all major fit indices, indicating that the hypothesized relationships accurately represented the empirical data and providing confidence in the model's validity. Professional development participation exerted the strongest direct effect on teaching quality ($\beta=0.72, p<0.001$), confirming that teachers who engaged more frequently in professional development activities demonstrated significantly higher teaching quality as perceived by their students. This finding validated the fundamental assumption that professional learning translates into improved instructional practice (Yoon et al., 2007). Professional development also significantly influenced teacher self-efficacy ($\beta=0.68, p<0.001$), indicating that participation in capacity-building activities enhanced teachers' confidence in their teaching abilities, which aligned with social cognitive theory's emphasis on self-efficacy as a key determinant of professional behavior (Bandura, 1997). Teaching quality, in turn, exerted a strong positive effect on student academic performance ($\beta=0.68, p<0.001$), confirming that effective instruction was the primary mechanism through which professional development influenced student learning. Teacher self-efficacy demonstrated both a direct effect on academic performance ($\beta=0.28, p<0.001$) and an indirect effect mediated through teaching quality ($\beta=0.54, p<0.001$), suggesting that confident teachers not only taught more effectively but also influenced student outcomes through additional mechanisms such as higher expectations, greater persistence, and more supportive classroom climates. The relatively weak direct path from professional development participation to academic performance ($\beta=0.18, p=0.046$), while statistically significant, indicated that professional development's impact on student learning operated primarily through the mediating variables of teaching quality and teacher self-efficacy rather than through direct mechanisms. The total effect of professional development on academic performance, calculated by combining direct and indirect paths, was substantial ($\beta=0.79, p<0.001$), demonstrating that professional development was a powerful lever for improving student outcomes when it successfully enhanced teaching quality and teacher capacity (Ssentamu, 2015).

Received: 20.01.2026

Accepted: 25.01.2026

Published on: 30.01.2026

Figure 1: Structural Model of Professional Development Impact on Academic Performance



Model Fit: $\chi^2/df=2.34$, CFI=0.95, TLI=0.94, RMSEA=0.05

*** $p < 0.001$; * $p < 0.05$

Note: All paths are statistically significant

Received: 20.01.2026

Accepted: 25.01.2026

Published on: 30.01.2026

Total Effect of PD on Performance: $\beta=0.79$, $p<0.001$

The structural model illustrated in Figure 1 provided a comprehensive visualization of the relationships between professional development, teaching quality, teacher self-efficacy, and student academic performance. Professional development participation served as the exogenous variable that directly influenced both teaching quality and teacher self-efficacy. Teacher self-efficacy, in turn, positively affected teaching quality, creating a mediated pathway where professional development enhanced teacher confidence, which then improved instructional effectiveness. Both teaching quality and teacher self-efficacy directly influenced student academic performance, with teaching quality showing the stronger effect. Additionally, a small but significant direct path from professional development to academic performance indicated some unmediated influence, possibly through mechanisms such as updated curriculum knowledge or improved assessment practices. The model explained 68% of variance in teaching quality ($R^2=0.68$), 46% of variance in teacher self-efficacy ($R^2=0.46$), and 76% of variance in student academic performance ($R^2=0.76$), demonstrating strong explanatory power. These high R^2 values confirmed that professional development, teaching quality, and teacher self-efficacy were critical determinants of student academic success in Kashari South secondary schools (Darling-Hammond et al., 2017). The excellent model fit statistics and significant pathways provided robust empirical evidence supporting investment in teacher professional development as a strategy for improving educational outcomes.

Conclusions

This study conclusively established that teacher professional development was significantly and positively related to students' academic performance in secondary schools in Kashari South, Mbarara City. The structural model demonstrated that professional development enhanced teaching quality and teacher self-efficacy, which in turn improved student academic outcomes, explaining 76% of variance in student performance. However, the findings also revealed concerning gaps in professional development provision, with nearly one-third of teachers having no recent professional development participation and most activities being infrequent and brief. The strong correlations and path coefficients confirmed that addressing these gaps through sustained, quality professional development could substantially improve educational outcomes in Kashari South and similar contexts across Uganda.

Recommendations

The Ministry of Education and Sports, in collaboration with Mbarara City education authorities, should establish mandatory continuous professional development programs requiring all secondary school teachers to participate in at least 40 hours of structured training annually, with certification and record-keeping systems to monitor compliance (Darling-Hammond et al., 2017).

Government and school management should allocate specific budget lines for professional development activities, ensuring that financial constraints do not prevent teacher participation in essential capacity-building opportunities,

Received: 20.01.2026

Accepted: 25.01.2026

Published on: 30.01.2026

with particular emphasis on underserved subject areas like ICT integration and assessment methods (Ministry of Education and Sports, 2018).

Schools should establish professional learning communities where teachers regularly collaborate to share best practices, observe each other's lessons, collectively analyze student performance data, and engage in peer coaching, creating sustained, job-embedded professional development that complements external training workshops (Guskey, 2002).

Professional development providers should design training programs that address subject-specific pedagogical content knowledge rather than generic teaching methods, ensuring that teachers develop deep understanding of how to teach their particular subjects effectively to diverse learners (Ssentamu, 2015).

Given the low participation rates in ICT integration training, specialized programs should be developed to build teachers' competencies in using technology for instruction, assessment, and professional collaboration, with provision of necessary technological infrastructure to support practical application (Mulkeen, 2010).

References

- Asiimwe, A. (2019). Teacher professional development and student academic achievement in secondary schools in Western Uganda. *Journal of Education and Practice*, 10(12), 78-87.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman.
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). London: Routledge.
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Palo Alto, CA: Learning Policy Institute.
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice*, 8(3), 381-391.
- Kizito, O. (2016). Teacher quality and student achievement in Ugandan secondary schools. *African Educational Research Journal*, 4(3), 91-102.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607-610.
- Mbarara City Education Office. (2023). *Annual education sector performance report 2022/2023*. Mbarara: Mbarara City Council.
- Ministry of Education and Sports. (2018). *Education sector strategic plan 2017/18-2019/20*. Kampala: Ministry of Education and Sports, Republic of Uganda.
- Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative approaches*. Nairobi: African Centre for Technology Studies.

Mulkeen, A. (2010). *Teachers in Anglophone Africa: Issues in teacher supply, training, and management*. Washington, DC: World Bank.

Nabacwa, R. (2012). Challenges facing effective implementation of continuous professional development for teachers in Uganda. *Eastern Africa Social Science Research Review*, 28(2), 63-86.

Ssentamu, P. N. (2015). Teacher professional development: What do secondary school teachers in Uganda think about the concept and their engagement in it? *Journal of International Cooperation in Education*, 17(2), 87-101.

Uganda National Examinations Board. (2022). *Uganda Certificate of Education examination report 2021*. Kampala: UNEB.

Yoon, K. S., Duncan, T., Lee, S. W. Y., Scarloss, B., & Shapley, K. L. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (Issues & Answers Report, REL 2007–No. 033). Washington, DC: U.S. Department of Education, Institute of Ed