

Relationship Between Teachers' Participation in Professional Development Programmes and the Effectiveness of Their Instructional Delivery in Junior Schools in Turkana East Sub-County, Kenya

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ABSTRACT

This study examined the relationship between teachers' participation in professional development (PD) programmes and the effectiveness of their instructional delivery in public Junior Schools (JS) in Turkana East Sub-County, Turkana County, Kenya. Teacher instructional delivery is a key determinant of learners' academic success, shaped directly by teachers' pedagogical knowledge and skill, yet the extent to which PD translates into improved classroom practice varies across contexts, particularly in arid and semi-arid (ASAL) settings such as Turkana East, where infrastructural and resource constraints limit the transfer of PD into learner-centred teaching. Anchored on Guskey's Theory of Teacher Change, the study adopted a convergent parallel mixed-methods design. The target population comprised 140 public JS teachers, 32 Heads of Institutions (HOIs), and 2 Curriculum Support Officers (CSOs), from which a sample using census and simple random sampling, with sample size determined through Yamane's (1967) formula. Quantitative data were analyzed using descriptive and inferential statistics while qualitative data from interviews were analyzed thematically. Descriptive findings showed that PD participation was strongly associated with more learner-centred teaching, effective lesson preparation, diverse assessment practices and greater confidence in lesson delivery, although regular use of teaching and learning materials during assessment remained low owing to resource constraints. Pearson correlation analysis revealed a strong, positive, and statistically significant relationship between teachers' participation in PD activities and instructional delivery ($r = .624$, $p < .001$, $N = 100$). Qualitative and observational evidence corroborated this relationship, with HOIs and CSOs describing PD as a driver of improved curriculum delivery. The study concludes that PD participation is significantly and positively associated with instructional delivery, though resource-related gaps continue to moderate its full translation into classroom practice, underscoring the need for targeted resource support alongside continued PD investment.

Keywords: professional development, instructional delivery, convergent parallel mixed-methods design, junior schools, Turkana East Sub-County

INTRODUCTION

Professional Development (PD) refers to structured, ongoing learning experiences that build teachers' pedagogical knowledge, subject mastery, and assessment practices, and, unlike pre-service training, supports continuous growth throughout a teacher's career (Waheed & Mirwan, 2022). Well-designed PD characterised by content focus, active learning, collaboration, and sustained duration consistently contributes to improved instructional strategies and increased learner engagement (Samundeeswari et al., 2024).

Teacher instructional delivery is an important determinants of learners' academic success, since it determines how effectively curriculum goals are translated into meaningful learning experiences, through lesson planning, learner-centred instructional strategies, classroom management, continuous assessment, and timely feedback. Because instructional delivery is shaped directly by teachers' pedagogical knowledge and instructional skill (Darling-Hammond et al., 2022; Hattie, 2023), it also serves as one of the clearest indicators of whether professional development has translated into improved classroom practice.

The identification of PD as a lever of instructional quality can be seen in the policy structures of developed countries. In countries such as the United Kingdom (UK) and the United States (US), continuing structured PD is mandatory under law in the form of the Early Career Framework and the National Professional Qualifications, which call for ongoing PD that focuses on mentoring, coaching, and evidence-based practice (Department for Education, 2024).

In Kenya, education reforms have placed teachers at the centre of implementation. The implementation of Competency Based Education (CBE) requires teachers to move from the traditional approach of teaching, which is content-driven and examination-oriented, to the learner-centred teaching approach and formative assessment, differentiated instruction, and critical thinking (Ndayisenga, 2025).

Nevertheless, how effective these interventions are in improving instructional delivery may differ from one area to another in Kenya, based on patterns observed in the region. Turkana East Sub-County, an arid and semi-arid land (ASAL) area, encounters barriers that hinder teachers' capacity to take advantage of PD opportunities and implement them in their classes. These barriers include insufficient instructional material for transforming PD into learner-centred teaching, poor infrastructural facilities, and a high teacher-to-learner ratio. Transfer of non-local teachers without replacement disrupts the continuity of monitoring programmes and the professional learning communities that PD depends on (Ahn et al., 2025).

This study therefore sought to establish the relationship between teachers' participation in professional development programmes and the effectiveness of their instructional delivery in junior schools in Turkana East Sub-County, Turkana County, Kenya, seeking to generate context-specific evidence on teachers' participation in PD, the relationship between PD and instructional delivery, and the contextual challenges influencing the application of professional learning in classroom practice.

LITERATURE REVIEW

The relationship between teachers' participation in PD activities and the effectiveness of their instructional delivery has attracted growing empirical attention, particularly as education systems seek evidence of whether investment in teacher training translates into observable classroom improvement. While the previous sections established that participation levels and application challenges vary considerably across contexts, this section reviews literature that has directly examined the strength and nature of the relationship between PD participation and instructional delivery, tracing the evidence from global to local contexts before identifying the gap the present study addresses.

Globally, the strongest evidence for this relationship comes from studies that have used rigorous quantitative or mixed-methods approach capable of isolating the effect of PD participation from other influences on classroom practice. In the United States, Alwaely et al., (2023) employed a pre-test and post-test quantitative design with 200 educators drawn from five separate institutions and found a positive association between structured, evaluation-linked PD and instructional outcomes, with more rigorously evaluated forms of PD producing stronger gains in teaching practice than looser, less structured forms. Complementing this quantitative evidence with a qualitative account, Saúde et al. (2025) found that Portuguese primary teachers who participated in a PD programme on experimental science teaching attributed direct improvements in their instructional delivery to their engagement in the programme. Taken together, these studies from two different continents point to a consistent conclusion: the relationship between PD participation and instructional delivery is strongest where participation is structured, evaluated, and deliberately connected to classroom practice, rather than where it is a single, isolated event.

In West Africa, the relationship has largely been examined in relation to teacher effectiveness and the responsiveness of classroom instruction to learners' needs. In Nigeria, Osiesi et al. (2024) surveyed 230 primary school teachers in Ekiti State using a sequential explanatory mixed-methods design and found that professional development significantly predicted teaching effectiveness, with teachers reporting higher levels of PD participation also reporting stronger classroom management and instructional delivery. In a related study by Susan et al. (2026), working with junior high school teachers in the Jirapa Municipality of Ghana's Upper West Region, found that teachers who had participated in PD were markedly more able to adapt their instruction to

learners' needs, while teachers with limited PD exposure tended to fall back on rigid, teacher-centred delivery. In a further Ghanaian study, Bingan et al. (2022) reported that science teachers' ability to practice differentiated instruction was closely tied to the PD opportunities available to them, with teachers who had received little relevant training struggling to translate differentiated instruction principles into their lessons. These West African findings suggest that PD participation shapes not only whether instruction is delivered, but how effective and responsive that delivery is to learners' needs.

In Southern Africa, evidence from South Africa's post-apartheid curriculum reforms lends further support to this relationship. Nakidien et al. (2022) investigated the association between teacher participation in Continuing Professional Teacher Development (CPTD) programmes and instructional effectiveness among teachers in Limpopo province, establishing a positive correlation between sustained PD participation and teachers' use of formative assessment and differentiated instruction. Notably, the study found that participation confined to single, once-off workshops produced negligible improvement in instructional delivery, reinforcing that it is the continuity of participation, rather than attendance alone that determines the strength of the relationship.

Moving to East Africa, Tiruneh et al. (2026) examined the relationship between teacher participation in Rwanda's continuous PD framework and instructional delivery among secondary school teachers. The study found that teachers who participated in structured, collaborative PD activities, including peer observation and joint lesson planning, demonstrated significantly stronger instructional delivery skills, particularly in learner engagement and formative assessment, than teachers whose participation was limited to annual workshop attendance. This finding affirms that, within the East African context as elsewhere, the format and continuity of PD participation mediate the strength of its relationship with instructional delivery.

In Kenya, the relationship between PD participation and instructional delivery has drawn growing empirical attention following the roll-out of the Competency-Based Education. Kariuki et al. (2024) argue that reorienting teacher PD around Professional Learning Communities, rather than episodic retooling workshops, offers a more sustainable pathway to improved instructional delivery, since collaborative, school-based structures allow teachers to translate PD content into classroom practice with ongoing peer support. Examining how PD is delivered rather than merely whether it occurs, Uribe-Banda et al. (2023) assessed blended and online-only PD formats among Kenyan teachers and found that those exposed to blended formats, combining online content with facilitated practice, reported stronger confidence in applying new instructional strategies than teachers in online-only formats. In a related vein, Echaune (2026) found that school-based in-service mentorship, a sustained and job-embedded form of PD participation, was associated with tangible improvements in teachers' classroom instructional practices, while Werimba (2024) reported a positive relationship between teacher capacity-building participation and instructional delivery among public secondary school teachers, cautioning that this relationship weakened in schools with limited follow-up supervision. Jeptepkeny and Keter (2025) add that it is the quality, rather than the mere existence, of teacher training and PD initiatives that determines whether participation meaningfully improves teaching practice. Collectively, Kenyan studies affirm a consistent, positive relationship between PD participation and instructional delivery, while showing that the strength of this relationship is conditional on PD quality, delivery format, and institutional follow-up support.

Within Turkana County, and more specifically Turkana East Sub-County, empirical evidence on this relationship remains largely absent. The few available studies, such as Kiprop, et al. (2022), focus principally on the structural barriers limiting teachers' access to PD rather than on whether, and to what extent, the PD teachers do access translates into improved instructional delivery within this ASAL context. Given the documented socioeconomic and infrastructural constraints unique to Turkana, findings from better-resourced Kenyan counties, or from other African and global contexts, cannot be safely generalized to Junior School teachers in Turkana East.

Viewed through Guskey's Theory of Teacher Change (1986, 2002), the studies reviewed in this section collectively document the first three stages of his model: teachers access to professional development, react positively, and in some contexts acquire new knowledge, but consistently fall short of confirming that the fourth stage, actual application in the classroom producing improved instructional delivery, is reliably reached in resource-constrained environments.

The present study therefore sought to bridge this contextual and methodological gap by directly examining the statistical relationship between PD participation and instructional delivery among Junior School teachers in Turkana East Sub-County, a context in which, based on Guskey's model, the organizational and resource conditions that enable the application stage are precisely the ones under greatest strain.

METHODOLOGY

The study employed a mixed-methods approach to conduct study in Turkana East Sub-County, Kenya, which combined quantitative and qualitative approaches specifically a convergent parallel design that accorded the two strands equal weight and implemented them concurrently through a descriptive survey. The study's target population consisted of 140 public Junior School (JS) teachers, 32 Heads of Institutions (HOIs), and 2 Curriculum Support Officers (CSOs).

All 32 public JS schools in the sub-county were covered through a census, after which simple random sampling drew 104 teachers from the identified strata, giving each an equal chance of selection and minimising selection bias; the teacher sample size was determined using Yamane's (1967) formula, a well-established approach for computing sample size from a known finite population (Uakarn, Chaokromthong & Sintao, 2021). A census was used to reach all 32 HOIs and both CSOs, producing an overall sample of 138 respondents, representing 74% of teachers and 100% of HOIs and CSOs.

Four researcher-developed instruments were used for data collection: a questionnaire, an interview schedule, an observation checklist, and a document analysis guide. Content validity was ensured through consultation with two experienced researchers, colleagues, and university supervisors, who confirmed that the questionnaire items adequately captured the constructs of interest. Construct validity was reinforced by aligning items with the study's objectives and research questions, while face validity was confirmed by two university supervisors who reviewed the tools. Cronbach's Alpha was used to assess reliability, yielding coefficients of 0.76 to 0.85 across the variables, reflecting acceptable to good internal consistency and confirming that the instruments were fit for data collection. Piloting took place in Turkana South Sub-County, and respondents who took part in the pilot were excluded from the main study to avoid contaminating the results.

For this objective specifically, item-level Likert responses on PD participation and instructional delivery were entered into SPSS version 30 and summed into composite indices for each construct. Approximate normality was confirmed through tests of skewness, kurtosis, and graphical inspection, justifying the use of Pearson's Product-Moment correlation, a parametric measure of the strength and direction of the linear association between two continuous variables, with significance evaluated at the 0.05 level. Interview data obtained from HOIs and CSOs were analysed thematically.

RESULTS AND DISCUSSION

This section presents findings related to the second specific objective, which sought to examine the relationship between teachers' PD participation and the effectiveness of their instructional delivery in public Junior Schools in Turkana East Sub-County. The section is organized into two parts: descriptive statistics that summarize how respondents rated each variable, followed by Pearson correlation analysis to examine the strength and direction of the relationship between teachers' PD participation and their instructional delivery.

Response Rate

The study achieved a high overall response rate. Out of 104 targeted teachers, 100 responded by completing the questionnaires, yielding a response rate of 96.2%. 28 HOI responded yielding a response rate of 87.50%. All CSOs who were targeted participated in the interview, resulting in a 100% response rate. The response rate is illustrated in Table 1.

Table 1: Response Rate

Category	Targeted Respondents	Actual Respondents	Data Collection Tools	Response Rate (%)
JS Teachers	104	100	Questionnaire	96.2%
Heads of Institutions	32	28	Interview	87.50%
CSOs	2	2	Interview	100%

Table 1 show response rate results. Findings shows that 100 out of 104 teachers responded, thereby giving a response rate of 96.2%. On the other hand, 2 (two) CSOs participated in the interviews, thereby giving a 100% response rate. 28 (87.50%) HOIs participated in the interviews. High response rates, particularly the 100% response rate by CSOs, show high engagement and enhance validity and reliability of the results. According to Mugenda & Mugenda (2003), a response rate of 70% and above is adequate for analysis and reporting. Therefore, the response rate achieved in this study was sufficient to support valid analysis and interpretation of the findings. The high response rate may be attributed to the researcher's prior authorization from the relevant authorities, timely administration of the research instruments, and the cooperation of the respondents during the data collection process.

Descriptive Statistics for the Relationship Between Teachers' Participation in Professional Development Programmes and the Effectiveness of their Instructional Delivery

Before the correlation analysis, descriptive statistics were computed for all five perception items to provide contextual understanding of how respondents rated each variable. The results are presented in Table 2 below.

Table 2: Relationship Between Teachers' Participation in Professional Development Programmes and the Effectiveness of their Instructional Delivery (n = 100)

Statement	SD	D	N	A	SA	Mean
Professional development activities have helped me use more learner-centred teaching methods.	6.0	6.0	8.0	50.0	30.0	3.92
I prepare lessons effectively after attending professional development activities.	4.0	16.0	4.0	56.0	20.0	3.72
I regularly assess learners using teaching and learning materials during lessons.	22.0	50.0	16.0	8.0	4.0	2.22
I regularly assess learners using diverse assessment methods.	6.0	4.0	10.0	52.0	28.0	3.92
Attending professional development has made me more confident in delivering lessons.	2.0	4.0	20.0	70.0	4.0	3.70

Table 2 above presents descriptive findings of PD activities and instructional delivery. The findings reveal that PD participation outcomes translate into improved instruction. Majority of teachers tied PD to more learner-centred teaching (80% agreed, 12% disagreed; Mean = 3.92) and to more effective lesson preparation (56% agreed, 20% strongly agreed; Mean = 3.72), which suggests PD is shaping how teachers plan and run lessons, not just what they know theoretically.

Similarly, diverse assessment practice showed the same strength (52% agreed, 28% strongly agreed; Mean = 3.92), pointing to teachers varying how they assess learners rather than relying on one method. On confidence in lesson delivery, 70% agreed and 4% strongly agreed (Mean = 3.70), suggesting that PD activities are helping teachers feel more capable in the classroom, which in turn supports better classroom practices. On regular use of teaching and learning materials during assessment, only 8% of teachers agreed and 4% disagreed, while the majority, 22% strongly disagreed and 50% disagreed (Mean = 2.22). This suggests that teachers know what to do and want to do it, but do not have enough resources, as recorded in the findings of objective one.

Relationship Between PD Participation and Instructional Delivery

Pearson's Product-Moment correlation was employed because, although the individual items were measured on an ordinal Likert scale, the PD participation and instructional delivery composite scores were derived by summing multiple items, which is conventionally treated as yielding approximately interval-level data suitable for parametric analysis. Distributional testing of these composite scores supported the assumption of

approximate normality, further justifying the use of Pearson's correlation over a non-parametric alternative such as Spearman's rho. Pearson's correlation is a parametric statistic appropriate for interval-level data that measures the strength and direction of the linear relationship between two continuous variables, making it the most methodologically appropriate measure for the composite variables examined in this study. Statistical significance was tested at the 0.05 level. Table 3 presents the Pearson correlation results.

Table 3: Correlation Analysis of PD Participation and Instructional Delivery

			PD Participation	Instructional Delivery
Pearson Correlation r	PD Participation	Correlation Coefficient	1.000	.624**
		Sig. (2-tailed)	.	.000
		N	100	100
	Instructional Delivery	Correlation Coefficient	.624**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

** Correlation is significant at the 0.01 level (2-tailed).

Table 3 presents Pearson correlation results. A Pearson product-moment correlation was computed to assess the relationship between teachers' participation in PD and their instructional delivery. The analysis revealed a strong, positive, and statistically significant relationship between the two variables ($r = .624$, $p < .001$, $N = 100$), indicating that schools with higher teacher involvement in PD programmes show improved instructional delivery. According to Cohen's (2013) conventions for interpreting correlation coefficients, this falls within the strong range, suggesting that PD participation and instructional delivery move together in a highly consistent, linear pattern among public Junior School teachers in Turkana East Sub-County.

The correlation coefficient ($r = .624$) suggests a very strong positive relationship, indicating that schools with high teacher involvement in professional development programmes will have improved instructional delivery. This is relevant for policymakers in education because it implies that improved professional development opportunities for teachers could enhance instructional delivery.

The qualitative data from the HOI and the CSO both describe a connection that mirrors the strong positive correlation found in the questionnaire data ($r = .624$, $p < .001$) and the descriptive findings. The HOI felt that teachers had genuinely taken PD on board as something that improves how they deliver the curriculum, which fits the pattern of teachers who reported more PD activity also reporting stronger instructional practice. The CSO brought a supervisory angle, noting that PD had a visible effect on teaching practice and that follow-up supervision helped consolidate what teachers had learned.

They have positively embraced it for effective curriculum delivery. — HOI C, personal communication, May 2026

The observation checklist and document analysis findings help explain both the strength and the limits of the relationship between PD participation and instructional delivery. Observed instructional competencies, including effective questioning techniques, active learner engagement, and clear lesson objectives, were consistent with the strong positive correlation established between PD participation and instructional delivery ($r = .624$, $p < .001$).

Triangulation therefore affirms not simply that PD participation is positively associated with instructional delivery, but specifies the conditions under which that association holds. The strong correlation ($r = .624$, $p < .001$) is reflected in observed questioning techniques and learner engagement, and by CSO and HOI interviews linking PD directly to improved teaching practice.

The findings of this study established a strong, positive, and statistically significant relationship between teachers' PD participation and instructional delivery ($r = .624$, $p < .001$, $N = 100$), indicating that increased PD participation was associated with correspondingly higher levels of instructional delivery. This finding is consistent with the reviewed literature on the subject. Alwaely et al. (2023), using a pre-test and post-test design with 200 educators, similarly established a positive association between structured, evaluation-linked PD and instructional outcomes.

Saúde et al. (2025) reported that Portuguese primary teachers attributed direct improvements in their instructional delivery to their participation in a science-focused PD programme. The convergence of the present quantitative result with these findings reinforces the broader empirical consensus that PD participation and instructional delivery move together in a consistent, positive pattern.

Similarly, in Nigeria, Osiesi et al. (2024) found that PD significantly predicted teaching effectiveness. In Ghana, Susan et al. (2026) similarly reported that teachers with greater PD exposure were better able to adapt instruction to learners' needs. In Kenya, studies by Kariuki et al. (2024) and Echaune (2026) affirm a positive relationship between sustained, job-embedded PD participation and instructional practice.

The qualitative responses from the HOI and CSO in this study, who both described PD as a driver of improved curriculum delivery, are consistent with the study by Nakidien et al. (2022) in South Africa and Tiruneh et al. (2026) in Rwanda, where structured, ongoing PD produced markedly better instructional outcomes than isolated, once-off workshops.

Although the reviewed literature consistently aligns with this study, none of the existing studies had empirically examined this relationship among public Junior School teachers in Turkana East Sub-County, an ASAL context defined by acute resource and infrastructural constraints. This constituted a contextual and empirical gap, as findings from better-resourced settings could not be safely generalised to this remote sub-county. The present study addressed this gap by empirically establishing the strength and direction of the relationship within Turkana East Sub-County, thereby generating localized evidence of how PD participation translates into instructional delivery under conditions of acute resource constraint, an aspect the literature review had identified as largely unaddressed.

This finding aligns closely with Guskey's Theory of Teacher Change (1986, 2002), which posits that professional development is the starting point of a sequential process leading to changes in classroom practice and, ultimately, improved learner outcomes. The strong positive correlation between PD participation and instructional delivery observed in this study provides empirical support for the early stages of Guskey's model, demonstrating that teachers who engage more in PD do progress toward changed instructional practice as the theory predicts.

Overall, the quantitative and qualitative findings consistently indicate that teachers' participation in PD programmes is positively associated with instructional delivery in public Junior Schools within Turkana East Sub-County. The statistically significant relationship established through quantitative analysis was reinforced by interview responses, which revealed that teachers who participated more actively in professional development activities demonstrated greater confidence in lesson preparation, learner-centred instruction, classroom management, and assessment practices. Observation findings further corroborated these improvements in classroom practice. The convergence of evidence from multiple data sources therefore suggests that sustained participation in professional development contributes meaningfully to improved instructional delivery by enhancing teachers' pedagogical competence and their capacity to implement learner-centred approaches effectively.

CONCLUSION

Summary of the Findings

The study revealed that teachers' involvement in professional development had a positive influence on the process of instruction. Teachers who participated in PD programmes demonstrated greater use of learner-centred approaches during instructional practices, prepared their lessons well, and enhanced curriculum delivery. The

qualitative findings from the HOIs and CSOs supported these findings by revealing that PD helped teachers improve their instructional skills. However, the research revealed that resource shortages were still limiting the implementation of some instructional practices despite the positive influence of PD.

Conclusion

Taken together, the quantitative, qualitative, and observational evidence converge to show that sustained participation in professional development meaningfully strengthens instructional delivery among Junior School teachers in Turkana East Sub-County. The strong positive correlation ($r = .624$, $p < .001$) supports Guskey's proposition that sustained engagement with PD moves teachers toward changed classroom practice, while the qualitative and observational data illustrate what that change looks like in practice: more learner-centred teaching, more deliberate lesson preparation, and greater confidence in delivery. However, the persistently low use of teaching and learning materials during assessment, despite teachers' evident willingness and skill, shows that PD participation on its own cannot fully translate into improved instructional delivery where resource constraints remain unaddressed. The study therefore concludes that PD participation is a necessary but not sufficient condition for improved instructional delivery in this ASAL context: its full benefit is contingent on parallel investment in the material and infrastructural conditions that sustain classroom practice.

RECOMMENDATIONS

1. The Teachers Service Commission and Ministry of Education should sustain and expand investment in professional development programmes for JS teachers in Turkana East Sub-County, given the strong, statistically significant relationship established between PD participation and instructional delivery.
2. School administrators and County education stakeholders should pair continued PD investment with adequate provision of teaching and learning materials, so that the resource-related gaps identified in this study no longer constrain the full translation of PD participation into improved instructional delivery.

Suggestions for Further Research

- a. Undertake comparative research across different marginalized Sub-Counties in Kenya to determine whether the relationship between teachers' PD and instructional delivery varies across diverse educational and socio-economic contexts.
- b. Investigate the effectiveness of school-based professional learning communities and peer mentorship in strengthening post-training support as a sustainable model for continuous PD among JS teachers in resource-constrained environments.

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