

The Influence of Teachers' In-service Training on Academic Performance of Secondary School Students with Learning Difficulties in Kakamega North Sub County, Kenya

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Abstract

The academic performance of students with learning difficulties remains a persistent challenge in Kenyan secondary schools, including Kakamega North Sub-County. Although the government promotes inclusive education, many teachers lack sufficient, specialized in-service training (INT) to effectively identify and support these learners. Current professional development tends to cover general teaching methods, neglecting the specific instructional and assessment techniques that students with diverse needs require. The result is continued poor academic outcomes for students with LDs, exacerbated by factors like limited teacher capacity and insufficient individualized attention. This research was therefore conducted to examine how teachers' in-service training influences the academic performance of secondary school students with learning difficulties in Kakamega North Sub-County, Kenya. The study was guided by Herzberg's Two Factor theory. The study adopted a descriptive research design and targeted secondary school teachers in Kakamega North Sub-County. A sample of 103 teachers of English and Mathematics was selected through stratified random sampling. Data were collected using questionnaires and analyzed using descriptive statistics, Pearson correlation, and linear regression with the aid of SPSS version 27. The correlation results showed a statistically significant positive relationship between teachers' in-service training and students' academic performance ($r = 0.315$, $p = 0.001$), indicating that higher teacher participation in professional development is associated with better learner outcomes. Regression analysis further revealed that in-service training significantly predicted students' academic performance ($\beta = 0.456$, $p < 0.001$), accounting for 20.8% of the variance in performance ($R^2 = 0.208$). Teachers who attended regular professional development programs reported improved instructional strategies, better classroom

management and enhanced ability to support learners with special needs. The study concludes that well-structured and continuous in-service training enhances teachers' competence and leads to improved learning outcomes among students with learning difficulties. It recommends that the Ministry of Education and school administrators strengthen specialized in-service programs tailored to the instructional needs of teachers handling diverse learners.

Keywords: Academic performance, in-service training, learning difficulties, professional development, teacher motivation, secondary schools

Journal ISSN: 2960-2602

Journal DOI: <https://doi.org/10.69897/joret.v3i3>

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Funding: The author received no financial support for the research, authorship and/or publication of this article.

Data Availability Statement: The authors confirm that the data supporting the findings of this study are available within the article [and/or] its supplementary materials.

Competing interests: The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Introduction

Students' academic performance is influenced by numerous factors some of which are student related, teacher related or even school related. Good academic performance promotes a sense of satisfaction, accomplishment and love for school among students. An improvement in academic performance is dependent on a combination of teacher, student, school and parental factors. Students' academic performance refers to the extent to which a student attains a certain level of competence required to accomplish a task. Poor learning outcomes may result from a number of factors such as poor teaching and learning environment, insufficient teaching and learning resources, inappropriate motivational strategies as well as students' background

factors among others (HakiElimu, 2016). The success of students in their academic performance is the goal of any educational system (Theofilidis, 2022).

The academic performance of students with learning difficulties has continued to be the centre of focus for by many educational researchers. This is partly because, this group of students continue to face a myriad of challenges in institutions of learning which greatly affects their access and full participation in academic programmes (Maingi, 2016). Teachers' motivation affects the realization of the teaching objectives and academic achievement of students as well as attainment of quality education. Students learning outcomes are highly dependent on the quality of instructions

they receive and the teaching effectiveness (Agnes, 2015; Dornyei & Ushioda, 2011).

A key component influencing teaching effectiveness is professional development, specifically In-Service Training (IST). Defined as structured educational programs and activities, IST is designed to enhance teachers' professional knowledge, refine their skills, and modify their attitudes towards work (Sahamkhadam, 2020; Norwan et al., 2017). This training takes various forms such as workshops, seminars, and capacity-building meetings and is an integral part of professional growth. Studies consistently show that well-designed IST builds teacher competencies and capabilities, which, in turn, translates into improved teaching, evaluation procedures, and overall student performance (Sahamkhadam, 2020; Victoria, 2020).

Despite the consensus on the importance of teacher quality, the academic performance of students with specific learning difficulties (LD) remains a critical area of concern. This group continues to face significant systemic and pedagogical challenges that often hinder their full access and participation in academic programs (Maingi, 2016). In environments like Kenya, students with LD frequently experience inadequate support and school failure due to a lack of specialized techniques and insufficient teacher awareness (Kipsangut, 2018). Given that a teacher's specialized experience, values, and expectations regarding learners with LD directly affect their instructional methods (Wafula, 2021), enhancing teacher capacity through targeted IST is essential to serve this vulnerable population. Though substantial research has focused on the general effect of teacher training on student achievement, a critical gap exists concerning its specific influence on

students with LD. Moreover, the majority of existing studies have focused predominantly on learners at the pre-secondary and early schooling levels (Uwezo, 2012 & 2014). This leaves a significant void in understanding how IST impacts the academic outcomes of students with learning difficulties at the secondary school level. This study, therefore, sought to determine the specific influence of teachers' in-service training on the academic performance of students with learning difficulties in secondary schools in Kakamega North Sub-County. The study posed the null hypothesis H_{01} which stated that there is no statistically significant influence of teachers' in-service training on the academic performance of students with learning difficulties in secondary schools in Kakamega North Sub-County.

Theoretical Framework

The study is fundamentally guided by Herzberg's Two-Factor Theory (1965), also known as the Motivation-Hygiene Theory. This framework posits that an employee's job satisfaction and motivation are influenced by two distinct sets of factors: Hygiene factors (extrinsic) and Motivator factors (intrinsic). Hygiene factors, which include elements like job status, security, salary, and working conditions, operate on the periphery of the job itself. Herzberg argued that meeting these lower-level needs would not actively motivate individuals to exert extra effort but would only prevent them from being dissatisfied (Ghazi, Shahzadi & Khan, 2013). In the workplace, these are the dissatisfiers whose absence leads to discontent, but whose presence does not significantly boost performance. Motivator factors relate directly to the content and nature of the work, encompassing opportunities for achievement, recognition, challenging work, responsibility, advancement, and professional growth. The fulfillment of

these intrinsic, higher-level needs is what leads to genuine job satisfaction and increased productivity. In the context of this study, In-Service Training (INT) especially when designed to enhance core professional skills functions as a critical Motivator factor. Hence, offering teachers access to new knowledge, specialized pedagogical techniques (such as those needed for students with learning difficulties) and opportunities for skill refinement, INT directly contributes to a teacher's sense of professional growth and achievement. This professional enrichment boosts a teacher's self-efficacy and confidence in handling complex classroom situations. Access to training and workshops enhances teacher skills and confidence, thus re-igniting their passion for teaching. This increased intrinsic motivation is expected to translate into higher levels of job satisfaction and, critically, improved instructional output specifically, a greater willingness to apply the specialized strategies that benefit students with various needs. Therefore, the Herzberg model provides the theoretical foundation for this study by suggesting a clear mechanism: The professional competencies and confidence gained through INT (a Motivator factor) enhance teacher performance, which is hypothesized to directly and positively influence the ultimate outcome: the improved academic performance of students with learning difficulties.

Methodology

The study adopted a cross-sectional survey design to determine the influence of teachers' In-Service Training (INT) on the academic performance of students with learning difficulties. The research was carried out in Kakamega North Sub-County within Kakamega County, Western Kenya. located between latitude 34045'E to 34055'E and longitude 0019'N to

0033'N. This sub-county, which covers approximately 427.3 km², have 50 registered public secondary schools (KNBS, 2019).

The target population for the study was the 132 English and Mathematics teachers across the 50 registered secondary schools in Kakamega North Sub- County. These specific subjects were targeted as they form foundational areas of learning often critically impacted by learning difficulties. A sample size of 103 teachers was selected, a figure determined using Yamane's formula for sample size calculation with a 5% level of precision ($n=N/[1+N(e^2)]$). To ensure proportional representation of teachers across the varying levels of institutional performance and resources, a stratified random sampling method was employed. The 50 schools were first stratified by category (Extra County, County, and Sub-County), and then random samples of teachers were drawn from each stratum in proportion to their size in the overall population.

Data were primarily collected using a validated structured questionnaire administered to the sampled teachers. The instrument was designed to operationalize and measure the two key variables of the study. The independent variable, teachers' in-service training, was measured using an 8-item, five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). This scale assessed the teachers' perceptions of the regularity, content, and utility of any professional development activities (workshops, seminars) attended over the preceding 24 months, with specific focus on training related to pedagogical, assessment, and behavior management strategies for diverse learners. The Dependent variable, academic performance of students with learning difficulties, was measured using the aggregated mean achievement scores of students identified with learning

difficulties (LDs) across the participating schools for the immediately preceding academic year. For this study, students with learning difficulties were operationally defined as learners who consistently demonstrated a significant discrepancy between their expected ability and their actual performance in foundational subjects.

The research instrument was pre-tested in two schools in a neighboring sub-county (Kakamega East). The results of this pilot test were used to identify and refine any ambiguous items in the questionnaire. The instrument's internal consistency (reliability) was confirmed using Cronbach's Alpha, yielding a coefficient of 0.76, which is considered good reliability (Ayadole, 2012). Data analysis was performed using SPSS version 27.0. Descriptive statistics (Mean and

Standard Deviation) summarized teacher responses. Inferential statistics, including Pearson's correlation coefficient and Linear Regression analysis, were used to test the study's hypothesis and determine the nature, strength, and predictive influence of teachers' INT on the academic performance of students with LDs.

Results

Demographic Characteristics of the Sample

The study involved 103 teachers of English and Mathematics drawn from different school categories. The demographic characteristics considered were gender, teaching experience, and school category. The distribution is summarized in Table 1.

Table 1: Demographic Characteristics of the Respondents (N = 103)

Variable	Category	Frequency	Percentage (%)
Gender	Male	66	64.1
	Female	37	35.9
Teaching Experience (Years)	1–5	17	16.5
	6–10	62	60.2
	11–15	13	12.6
	16–20	4	3.9
	21–25	6	5.8
	Above 25	1	1.0
School Category	Extra County	6	5.9
	County	26	25.2
	Sub-County	71	68.9

Source: Research Findings (2023)

The results show that most respondents were male (64.1%), while females accounted for 35.9%. The majority (60.2%) had between 6–10 years of teaching experience, indicating that most respondents had adequate experience to provide informed responses. In terms of school category, most teachers (68.9%) taught in sub-county schools, followed by county

(25.2%) and extra-county schools (5.9%). This distribution indicates the prevalence of sub-county schools, which typically enroll a larger proportion of learners with learning difficulties.

Descriptive Results for Academic Performance

The dependent variable, academic performance, was measured using the aggregated mean achievement

score of students with learning difficulties in the preceding year. The results are summarized in Table 2.

Table 2: Descriptive Statistics for Academic Performance of Students with Learning Difficulties

Academic Variable	Performance	N	Minimum Score	Maximum Score	Mean (\bar{x})	Standard Deviation (SD)
Aggregated Achievement (Percentage)	Mean Score	103	28.50	54.20	41.35	6.82

Source: *Research Findings (2023)*

The average aggregated achievement score for students with learning difficulties across the 50 schools was 41.35% (SD=6.82). This finding confirms the low academic attainment of students with LDs in the region, establishing the empirical necessity for investigating the influence of teacher factors like INT. The standard deviation indicates a moderate level of variance in performance across schools.

Descriptive Results for Teachers' In-service Training

Table 3 presents the descriptive statistics for teachers' perceptions of In-service Training (INT) using a 5-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4 = Agree, and 5 = Strongly Agree).

Table 3: Descriptive Statistics for Teachers' Perceptions of In-service Training (INT)

Statements	Mean (\bar{x})	SD
1. There is a regular In service training for teachers	2.76	1.01
2. I can be in a better position to help students if I regularly attend in service training	3.98	0.90
3. In service training has helped to increases my knowledge of teaching methods	4.07	1.00
4. I am usually facilitated by the school administration to attend seminars, conferences, and workshops...	3.90	1.11
5. In service training has helped me increase knowledge on how to teach students	3.90	1.18
6. In service training improves knowledge of several behaviour management strategies of students	3.04	1.13
7. In service training helps me improve my lesson presentation for improved students learning	3.03	1.11
8. In service training has helped me to learn best practices in assessing and monitoring students' performance	4.02	1.01

Source: *Research Findings (2023)*

The respondents were asked on whether there is a regular in service training for teachers majority were undecided in their responses (\bar{x} =2.76, SD=1.01). Majority of the respondents agreed that they can be in a better position to help their students if they

regularly attend in service training (\bar{x} =3.98, SD=0.90). Furthermore, a reasonable number of the respondents agreed that they are usually facilitated by their school administration to attend seminars, conferences and workshops on teaching and learning strategies (\bar{x} =3.90,

SD=1.11). On whether in service training helps to increase respondents' knowledge of teaching methods, majority of the respondents agreed that in-service training increases their knowledge of teaching methods (\bar{x} =4.07, SD=1.00). Similarly, a proportionate number of respondents agreed that in service training increases knowledge on how to teach students (\bar{x} =3.90, SD=1.18). When asked whether in service training improves knowledge on several behavioural management strategies of students, majority of the respondents were undecided or neutral about it (\bar{x} =3.04, SD=1.13). A fairly proportionate number of the respondents remained neutral about whether in service training can help improve their lesson presentation for improved students learning (\bar{x} =3.03, SD=1.11) However,

majority of the respondents agreed that in service training helps to in learning best practices in assessing and monitoring students' performance (\bar{x} =4.02, SD=1.01). On average, it was noticed that majority of the respondents were unsure whether in service training for teachers can influence academic performance of students with learning disabilities (\bar{x} =3.21, SD=1.01).

Inferential Results

Pearson's Correlation Analysis

Pearson's correlation analysis was performed to determine the nature and strength of the relationship between teachers' In-service Training (INT) and the Academic Performance (AcadPerf) of students with learning difficulties. The results are presented in Table 6.

Table 4: Pearson's Correlation Analysis Results for Teachers' In-service Training and Academic Performance

		Academic Performance	INT
AcadPerf	Pearson Correlation	1	.315**
	Sig. (2-tailed)		.001
	N	103	103
INT	Pearson Correlation	.315**	1
	Sig. (2-tailed)	.001	
	N	103	103

Source: Research Findings (2023)

The analysis established a statistically significant moderate positive correlation between teachers' in-service training and academic performance ($r=0.315$, $p=0.001$). Since the p-value (0.001) is less than the significance level ($\alpha=0.05$), the relationship is confirmed to be significant. This finding indicates that as teachers' perceptions of INT increase (i.e., they value and utilize it more), the academic performance of students with LDs tends to improve.

Linear Regression Analysis

To determine the extent to which in-service training (INT) predicts students' academic performance, a simple linear regression analysis was conducted. The analysis assessed the strength and direction of the relationship between teachers' participation in in-service training and the academic performance of students with learning difficulties. The findings are presented in three parts: model summary, ANOVA results and regression coefficients.

A. Model Summary

Table 5: Summary of Linear Regression Model for INT Predicting Academic Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.456	0.208	0.200	0.654

Source: Research Findings (2023)

The model summary indicates that the independent variable (INT) accounts for 20.8% ($R^2=0.208$) of the variance observed in the Academic Performance of students with LDs. This demonstrates that while INT

is an important factor, a substantial portion of the variance in performance is explained by other variables not included in this study.

B. ANOVA

Table 6: Analysis of Variance (ANOVA) for the Regression Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	11.34	1	11.34	26.503	0.000
Residual	43.25	101	0.428		
Total	54.59	102			

Source: Research Findings (2023)

The ANOVA results show that the overall regression model is statistically significant ($F(1,101)=26.503$, $p=0.000$). Since the p-value is below the 0.05 threshold, the null

hypothesis (H_0 : INT has no influence on AcadPerf) is rejected, confirming that INT significantly predicts academic performance.

C. Regression Coefficients

Table 7: Regression Coefficients for the Influence of INT on Academic Performance

Variable	B	β	SE	P-Value
Constant	1.080***		0.474	0.025
INT	0.701*	0.456	0.136	0.000

Source: Research Findings (2023)

The regression coefficient for INT ($\beta=0.456$) is statistically significant ($p<0.001$). The positive standardized beta coefficient confirms that INT has a significant positive influence on the academic performance of students with learning difficulties. Specifically, for every one standard deviation increase in teachers' perception of INT, the academic performance of students with LDs is predicted to increase by 0.456 standard deviations. This provides strong empirical evidence that investment in teacher training is associated with improved outcomes for these students.

Discussion

The study examined the influence of teachers' in-service training on the academic performance of students with learning difficulties in Kakamega North Sub-County. The regression results revealed a statistically significant positive relationship between in-service training and students' academic performance ($\beta = 0.456$, $p < 0.001$). This implies that teachers who frequently participate in professional development activities such as seminars, workshops, and refresher courses are better equipped with

instructional and behavioral management skills, which translate into improved learning outcomes among students with learning difficulties. The findings indicate that in-service training accounts for 20.8% of the variation in students' academic performance, suggesting that while teacher training is influential, other contextual factors such as school resources, learner characteristics, and administrative support may also affect academic achievement.

These findings align with earlier research demonstrating the importance of teacher professional development in enhancing instructional quality and learner outcomes. Adika (2018) reported that teachers' in-service training significantly improved their instructional performance, which in turn enhanced student learning. Similarly, Victoria (2020) and Sahamkhadam (2020) found that in-service training had a measurable positive effect on student academic performance, supporting the current study's results. Norwan et al. (2017) also observed that in-service training strengthens teachers' pedagogical skills, leading to improved teaching quality and better student achievement. In Nigeria, Essien, Akpan and Obot (2016) established a positive correlation between teachers' participation in seminars and workshops and students' performance in social studies, further reinforcing the link between professional development and academic outcomes.

The consistent evidence across these studies points out the role of in-service training as a mechanism for improving teacher competence and effectiveness. Teachers who undergo regular training are exposed to new pedagogical methods, classroom management strategies, and inclusive education techniques, which are essential for addressing the needs of students with learning difficulties. Such training not only

enhances teachers' content mastery but also boosts their confidence and job satisfaction, leading to greater motivation and productivity. Consequently, schools that invest in ongoing professional development tend to experience better student performance outcomes.

However, the findings also suggest that the effectiveness of in-service training depends on how well it is structured and aligned with teachers' professional needs. Training programs must be tailored to address specific skill gaps, especially in inclusive education, where teachers face diverse learner needs. Designing specialized in-service training modules for teachers handling students with learning difficulties could help strengthen their instructional capacity and promote more equitable learning outcomes.

Conclusion

This study concludes that Teachers' In-Service Training (INT) has a statistically significant moderate positive influence on the academic performance of secondary school students with learning difficulties (LDs) in Kakamega North Sub-County. These findings confirm that investing in the professional development of teachers directly contributes to improved learning outcomes for students facing academic challenges. INT acts as a critical motivator, boosting teachers' confidence, specialized knowledge, and pedagogical skills, which are fundamental to effective curriculum delivery and differentiated instruction. Therefore, the provision of robust INT is essential for enhancing teacher capacity and closing the achievement gap for students with LDs.

Recommendations

The empirical findings confirmed that while In-Service Training (INT) has a statistically significant positive influence on the academic performance of students with learning difficulties (LDs), current

provision exhibits critical gaps in regularity and specialization. To maximize the impact of teacher professional development in Kakamega North Sub-County, the following actions are recommended for education stakeholders:

The Ministry of Education and the Teachers Service Commission (TSC) should prioritize ensuring regular and consistent access to INT for all secondary school teachers. The finding that teachers were largely uncertain about the regularity of training suggests a systemic inconsistency in provision. Continuous, predictable professional development is essential to maintain high teacher motivation and continually update their skill sets, which aligns with the motivator factors identified in Herzberg's theory. Furthermore, the structuring and content of INT must be immediately re-evaluated to mandate specialization in inclusive education. Current training is perceived as insufficient in improving high-leverage skills like specialized behaviour management strategies and differentiated lesson presentation techniques. Future INT programs must explicitly focus on equipping teachers with diagnostic and instructional strategies specific to meeting the diverse needs of students with LDs.

School Administrations and Management Boards must play a more active role in facilitating teacher professional growth. This includes allocating resources and time to proactively ensure that teachers, particularly those teaching core subjects like English and Mathematics, are able to attend specialized external seminars and workshops focused on special needs education.

Building upon the findings of this study, future research should be directed towards investigating the specific structural and contextual elements that are crucial for maximizing the

effectiveness of In-Service Training (INT) programs. Given the significant role of INT as a motivator and its positive correlation with student outcomes, comparative studies are needed to determine the most impactful delivery methods. Furthermore, future investigations should focus on how the school environment mediates the success of INT.

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