Jumuga Journal of Education,
Oral Studies, and Human Sciences (JJEOSHS)
editor@jumugajournal.org
http://www.jumugajournal.org
Volume 7, Issue 2, 2024
DOI: https://doi.org/10.35544/jjeoshs.v7i2.88

Learner protection & Teacher's Performance Appraisal in Kenya:
Showcasing Matete Sub-County of Kakamega County

Sasita Musungu
Masinde Muliro University of Science and Technology
https://orcid.org/0009-0006-0674-9583
&
Epari Ejakait, PhD
https://orcid.org/0000-0003-3895-9623
Masinde Muliro University of Science and Technology
&
Pamela Buhere, PhD
https://orcid.org/0000-0002-0017-994X
Masinde Muliro University of Science and Technology

Abstract
Teacher Performance Appraisal and Development (TPAD) was introduced in Kenyan public schools in 2016 to among others, give teachers an opportunity to improve on their performance competencies, provide support for their professional records and protect the rights and safety of learners. We used Zero Inflated Negative Binomial (ZINB) regression on a dataset of 110 secondary teachers in Matete Sub-County of Kakamega County, Kenya, to model capacity building course attendance following TPAD processes. The results suggest that teachers had too few capacity building courses, M=0.17, SD=0.69 with the number of courses ranging between zero and five for the 110 teachers who were sampled. In a nutshell, the policy implications from our results are discussed in this article.

Key words: Teacher performance appraisal and development (TPAD); Learner protection; Teachers Service Commission (TSC); Public schools; Matete Sub County; Kakamega County, Kenya.

Introduction

Learner protection refers to a teacher having knowledge of matters related to sexual, mental/psychological, physical harassment/abuse and the appropriate solutions. Article 53 of the constitution States the rights of the child to be protected from any exploitation, practices that will harm them and all forms of violence. The Children's Act (2022), the Basic Act (2013), as well as School Health and Safety Policy (2018) provide for necessary safeguarding measures as well as implementation guidelines to ensure the health and well-being of children in the schools and the surrounding environment.

According to Teacher performance appraisal and development tool the performance targets in this competency area are teachers to demonstrate understanding of legal provisions in education and the implication of non-compliance and ensure the learning environment is child friendly, safe and conducive by promoting self-awareness through sensitization and use of appropriate teaching /learning aids. In addition, teachers should maintain updated records of learner discipline cases, challenging behaviours and interventions and also maintain

updated records of parental Involvement in management of learner behaviour (TSC, n.d).Nevertheless, learners still encounter different forms of abuse, harmful practices and other forms of risks.

Our children are suffering and facing negligence and recklessness from those responsible for their well-being and security. The safety of learners on school grounds, where they should feel most protected, is now in doubt. The recurring incidents highlight the negligence and carelessness on the part of those entrusted with the welfare and security of our children (Amnesty, 2023). TSC CIRCULAR 3/2010 on protection of learners from sexual abuse State that teachers have a duty to take responsibility as a parent and act the best interest of the learner at all times. It is because of these reasons and power given to teacher to secure learners that why it is important to take this teacher for a learner protection capacity course so that they able to perform this task as expected.

This paper pursues the second objective using Zero Inflated Negative Binomial (ZINB) regression on a dataset of 110 teachers in secondary schools to model the number of times teachers attended capacity building and/or training in areas flagged for improvement after their appraisal schedules. The rest of the paper presents sections for literature review, methodology, results, discussion and conclusion.

Literature Review

While there is substantial writing and publication on the implementation of TPAD in Kenya, literature on capacity building and training for teachers following their appraisal processes is seldom published. Our position on this is buttressed by findings in a consultancy report for the TSC by UNESL that suggest that whereas TPAD processes assisted the appraisees to identify professional development gaps through self-appraisal, identify individual performance gaps, detect training needs and seek solutions through professional development as reported by heads of institutions (67%) and appraises (89.4%), (UNESL, 2021), there is no published evidence or record of those appraises (teachers) attending any capacity building or training sessions and/or programmes. The TSC Chief Executive Officer, Macharia (2020), suggested that the introduction of Performance Contracting (PC) for heads of institutions and TPAD for teachers. This had realized some positives such as a drop in teacher absenteeism, improved feedback, accountability and teaching. However, it does not mention issues of capacity building for areas flagged by the appraisal processes. Several studies have looked at learner protection and academic achievement or implementation of safety programmes in schools. Wanderi (2018) explored the influence of school safety on teaching and learning processes in public secondary schools in Nairobi and Nyeri Counties, Kenya. With a sample of three hundred and eighty-three (383) form 2 & 3 students, forty-four (44) Principals, and forty-four (44) Deputy Principals, Two (2) County Quality Assurance & Standards officers, their results suggest that school safety greatly influences teaching and learning processes in schools.

Wanjiku (2023) explored institutional factors influencing the implementation of child-friendly schools in Kenya. Reviewing Secondary data from a total of twenty (20) studies, ten (10) studies conducted in Kenya and ten (10) others from different parts of the world that used different methods that yielded varying results, her study revealed that few schools have elaborate child protection mechanisms where child abuse incidents are prevented, detected and reported. In addition, Mutiso (2019) exploring the influence of school-based factors on implementation of safety standards in public secondary schools in Matungulu Sub-County, Machakos County – Kenya. Reviewing a sample of 11 school heads, 44 teachers and 264 students was drawn from the 35 public secondary schools, the study revealed that there is a statistical significant relationship between school-based factors and implementation of safety standards.

Muiruri and Kwasira (2015) in a study on the implementation of health and safety measures in state corporations observed that the role of human resource function is critical. Their study also revealed that health and safety measures when implemented reduce absenteeism and truancy in an organisation.

Mbaruramye (2021) studied an investigation of child rights and safeguarding measures in secondary schools in Dagoretti Sub-County Nairobi County, Kenya. With a sample 3 secondary schools, 3 principals, 18 teachers and 132 students. The results suggest that the documents that advocate for child rights were considered unfamiliar to the respondents. Mubita (2021) the study revealed that some of the benefits of safety and health management include improved academic performance, reduced absenteeism, and better mental and physical health outcomes for learners. The review also suggests a lack of studies that have modelled the link between TPAD's learner protection and outcomes for post appraisal training of teachers in areas flagged during the TPAD appraisal processes in Kenya. This paper seeks to contribute to this gap in literature.

Methods:

The Study Location and Sample

The study was carried out in Matete Sub County which was randomly sampled from the 13 national government county administrative units in Kakamega County (County Government of Kakamega, 2023). According to the 2019 Kenya Population and Housing Census, the Sub county had a population of 66,172 of which 31,749 were male and 34,423 female (Kenya National Bureau of Statistics, 2019).

The Sample

The Sub County had 16 secondary schools as of 2023 but data were collected from 11 that had implemented TPAD after its introduction in 2016. One hundred and ten secondary school teachers were randomly sampled from the target of 151 in the 11 schools using probability proportion to size for male and female teachers.

Study Design and Timing

A correlational research design was used correlated the learner protection variables and entry into teacher capacity building programmes. This was because it measured and assessed the statistical relationship or correlation between performance appraisal and teacher capacity building with little or no effort to control extraneous variables (Suresh & Ankit, 2021). This research was done when schools were on so that teachers could easily be found in the school institutions to give the information and confirm the records available.

Recruitment and Sampling

The researcher sampled 11 schools arrived at by taking the sample size (110 T.S.C teachers) divided by the average number of TSC teachers per school (10 teachers). Schools were stratified into boys boarding, girls boarding, and mixed schools. Stratified random sampling was an appropriate methodology when a random selection of respondents from a sub-group is required (Gall & Borg, 2010).

The Data Collection Process

First, an introductory letter was acquired by the researcher from the Director of Post Graduate Studies (DPS) of Masinde Muliro University of Science and Technology which was necessary before acquiring a research permit from the National Commission for Science and Technology (NACOSTI). The investigator solicited consent from the County Commission of Kakamega, Kakamega County Director of Education, and Matete Sub-County TSC offices. A pilot study was done using 17 teacher to establish the validity of the research questions and where it needed to be corrected the research questions they were rectified. The researcher paid a visit to the sampled schools in order to inform the principal about the intended research and hence booked an appointment. During the day of data collection, the TSC teachers in the institutions were issued with the questionnaires in a hall to respond to the questionnaire. Later on, the research collected the school information from the principal and cross-checked the teacher's questionnaire response with TPAD information at the principal's desk.

The Dataset

Stata version 15.2 was used for analysis while an Epi Info TM programme was used for entering data from teachers, principals, and class prefects' questionnaires. The questionnaires were used to collect information from the teachers and school information from the principals. The teacher's questionnaire was used to collect information such as number of trainings teacher had attended, theme covered in training, reasons why they were trained, performance gap identified among others. On the other hand, principal's questionnaire collected data on school population, type and category of the school, programmes in the school, principal's subject specialization among others.

The Outcome, Explanatory Variables and Covariates

The outcome variable was the number of learner protection training that teachers had attended and measured on a ratio scale. It was a count type of data where even some teacher's in the response were recording a zero. The variables included: the number of lessons missed (r=0.22, p=<.05); number of guiding and counselling sessions Feb 2018 (r=*0*.20, p=<.001); school enrolment (r=0.40, p=<.001); the number of school classes (r=0.39, p=<.001); pupil-teacher ratio (r=0.40, p=<.001) and male principal (r=0.25, p=<.001); (school enrolment (0.40, p=<.001) and streams (0.39, p=<.001). The inflate variables such as number of evaluations in 2017, experience in the current the current school and experience since posted by the Teachers Service Commission were used in the analysis.

The Analytic Approach

The AIC value supports a model with more variables (82.31) over fewer variables (83.80) and the difference in AIC value is -1.59, also supporting the use of more variables. If the AIC and BIC value decreases the better the model fits values. The LR chi-square contrast between the two was substantial, 89.38 for more variables over with fewer variables 82.318 supporting the use of more variables.

Zero-inflated model allowed for analysing a dataset with an excessive number of zeros in the outcome variable. It is adapted to analysing an outcome variable zero resulting from two processes. The first process of a teacher whose performance appraisal found everything right and therefore needed no training and a teacher who the performance appraisal suggested him/her to train but was never taken for a capacity building programmes. These zeros appear to be the same in the outcome response but the Zero inflated negative binomial differentiated the same. Lastly, the variance for the count outcome variable is 0.69 greater than its mean 0.52 by just 0.17. The Zero inflated negative binomial regression was adapted to all the above and that is why it was used in the analysis.

Ethical Approval

National Commission for Science, Technology, and Innovation authorized the collection data by giving a research permit required by Kenyan law before doing research. This research adhered to patent rights, copyrights, and other forms of intellectual property by citing the source of information and giving credit where it is due. There was no plagiarism as proper acknowledgement or credit was given to all contributions made to this research. A permission form was signed by the respondents to indicate that they had agreed to partake in the research voluntarily and those who wanted to withdraw from the research at any stage were allowed. Confidentiality and privacy of the respondents was upheld by informing the respondents not to write their name on the questionnaire but given a code that would not reveal their identity.

Description of the Data

This paper utilizes data from filled in teacher's questionnaires and TPAD records for cross checking that were available at the principal's office. In the teachers questionnaire the trainings attended by teachers on learner protection was posted (Q2.1b) and the responses ranged between 0 and 5. If a teacher went for training then the next question will be what was the main theme of that training? (Q2.3). The responses were coded as 1=subject mastery; 2=teaching methods; 3= legal and professional documents governing education; 4=identification of talents; 5=interpersonal skills; 6= innovation and creativity; 7=learner protection, safety, discipline and teacher conduct and 96=others. We posted a question on the main reason a teacher was trained in a particular field (Q2.4). Its responses were coded as 1= appraisal gaps; 2= promotion; 3= monetary returns; 4= school policy; 5=organized annually by the ministry education; 98=I don't know and 96=others. The question on the performance gaps identified was posted (Q3.3). The response were coded as 1=subject mastery; 2=teaching methods; 3=inadequate knowledge of legal and professional documents governing education; 4=identification of talents; 5=interpersonal skills; 6=inadequate skills in innovation and creativity; 98=I don't know and 96=others. We also posted a question on how many times a teacher was observed teaching in 2018 term one (Q 3.1). A question on the recommended support programme was posted (Q3.4). The responses were coded as 1=mentorship; 2=induction; 3=coaching; 4=peer support/team teaching; 5=school based professional development courses, seminars and workshop; 6=subject symposiums; 7=professional support by field officers and other educationist; 98=I don't know and 96=others.

Model Specification and Analysis Techniques

This paper aims at examining the relationship between learner protection and entry into teacher capacity building. The dependent variable is the learner protection trainings attended by teachers. It is a count data and measured on a ratio scale. Our preferred statistical technique is zero inflated negative binomial regression that will help us examine the relationship between the dependent variable and correlated independent variables.

A negative binomial model was created for foretelling the counts for the teachers who are not certain zeros and a zero-inflated model to take care of the excessive zeros. Finally, the two models are combined. When running zero-inflated negative binomial in Stata, both models were specified: first, the count model, and then the model predicting the certain zeros. Our model therefore takes the form of;

$Y_i = \beta_0 + \beta_i x_i + \varepsilon$, where $i=1, 2, 3...n$ and β_i are the independent variable (x_i) coefficients. (1)

We fit the model in steps in order to determine the effects of each group of variables. The second model has our main explanatory variables including: guiding and counselling sessions in February 2018, students guided and counselled, life skills lesson timetabled, ratings of safety of classrooms, kitchen and toilets to safe for learners. It takes the form shown below.

Y_i (Teacher training) $= \beta_0 + \beta_1$ (guiding and counselling sessions in February 2018) $+ \beta_2$ (Students guided and counselled) $+ \beta_3$ (life skills lesson timetabled) $+ \beta 4$ (Classroom safe) $+ \beta_4$ (Kitchen safe) $+ \beta_4$ (Toilets safe) $+ \varepsilon$ (2)

The third model builds on model (2) but now includes school characteristics consisting of total TSC teachers, school enrolment, learner teacher ratio and principal's gender.

Y_i (Teacher training) $= \beta_0 + \beta_1$ (guiding and counselling sessions in February 2018) $+ \beta_2$ (Students guided and counselled) $+ \beta_3$ (life skills lesson timetabled) $+ \beta 4$ (Classroom safe) $+ \beta_4$ (Kitchen safe) $+ \beta_4$ (Toilets safe) $+ \beta_5$ (School enrolment) $+ \beta_4$ (learner teacher ratio) $+ \beta_4$ (Principals gender) $+\varepsilon$ (3)

The overall model (4) builds on model 3 by taking care of the zeros that have inflated using number of evaluations in 2017 (*e*), years since posted to the current school (*c*), years since the first appointment (*a*) and *f* is the inflate.

Y_i (Teacher training) $= f(ace)\ \beta_0 + \beta_1$ (guiding and counselling sessions in February 2018) $+ \beta_2$ (Students guided and counselled) $+ \beta_3$ (life skills lesson timetabled) $+ \beta 4$ (Classroom safe) $+ \beta_4$ (Kitchen safe) $+ \beta_4$ (Toilets safe) $+ \beta_5$ (School enrolment) $+ \beta_4$ (learner teacher ratio) $+ \beta_4$ (Principals gender) $+\varepsilon$ (4)

Table 1 describes the variables used in the analysis and their coding. The outcome variable has a standard deviation of 0.69, which is more than its mean by 0.17. The trainings ranged between 0 and 5.

Table 1: Descriptive Statistics for Objective 2

Variables	Variable Label	Mean	Standard Error(mean)	Standard deviation	Min.	Max.	N
t21d	Number of courses attended on learner protection	0.17	0.06	0.69	0	5	110
t71	Number of G & C sessions 1st 2018	3.62	0.31	3.34	1	20	109
t72	Number of students G & C 1st 2018	23.65	3.04	31.79	0	259	109
t73	A teacher has a life skills lesson on Timetable	0.66	0.05	0.48	0	1	109
t74	Number of times taught life skills lesson 2018	3.78	0.57	5.95	0	32	110
t75	Number of textbooks for life skills	8.18	1.62	16.09	0	1	99
t76	the school has a functional red cross club	0.036	0.02	0.19	0	100	110
t77a	0-10 rating: classroom safe for students	6.78	0.16	1.70	0	1	109
t77b	0-10 rating: Kitchen Safe for students	5.36	0.21	2.21	3	10	107
t77c	0-10 rating: toilets safe for students	6.22	0.20	2.06	1	10	109

t77d	0-10 rating: library safe for students	5.09	0.21	2.09	2	10	97
t77e	0-10 rating: staffroom safe for students	5.05	0.23	2.37	1	10	108
t77f	0-10 rating: adm. block safe for students	6.50	0.23	2.14	1	10	88
t77g	0-10 rating: bus safe for students	6.64	0.69	2.29	1	9	11

*Note.*Obs=Observation; Min=Minimum; Max=Maximum

RESULTS

Male teachers were 67 (60.91%) while 43 (39.09%) were female. Therefore, the male teachers were more than female teachers in the schools where research was conducted.

Pair-wise Correlation

The pairwise correlation was chosen for analysis because it determined the variables to be used for the zero-inflated negative binomial regression models and its output included p-values and the sample size.

Between the Outcome Variable and Learner Protection Variables

Table 2 shows a pairwise correlation between the outcome variable and learner protection variables.

Table 2: Pairwise Correlation Matrix Variables Associated with Learner Protection

Variable	Variable		t21d	t71	t72	t73	t74	t75	t76
t21d	Number of courses attended on learner protection		1						
t71	The number of G & C programmes. Feb 2018	a	0.00	1					
		b	0.96						
t72	Number of students G & C 1st 2018	a	0.02	-0.01	1				
		b	0.85	0.92					
t73	A teacher has a life skills lesson on a timetable	a	-0.16	0.06	-0.12	1			
		b	0.10	0.50	0.20				
t74	Number of times taught life skills lesson 2018	a	0.17	0.29	0.06	0.46	1		
		b	0.07	<.001	0.53	<.001			
t75	Number of textbooks for life skills	a	-0.06	0.39	0.15	0.10	0.50	1	
		b	0.53	<.001	0.14	0.34	<.001		
t76	The school has a functional red cross club	a	-0.05	-0.14	-0.09	0.04	-0.06	-0.08	1
		b	0.61	0.15	0.36	0.70	0.54	0.44	
t77a	0-10 rating: Classroom safe for students	a	0.03	0.09	-0.14	0.08	0.25	0.00	0.11
		b	0.73	0.34	0.15	0.40	<.001	0.98	0.25
t77b	0-10 rating: Kitchen Safe for students	a	0.02	0.07	0.02	-0.09	0.14	-0.13	-0.19
		b	0.88	0.51	0.84	0.34	0.14	0.20	0.05
t77c	0-10 rating: Toilets safe for students	a	0.01	0.23	-0.03	0.02	0.14	0.19	-0.07
		b	0.96	<.001	0.77	0.87	0.16	0.06	0.48
t77d	0-10 rating: Library safe for students	a	-0.17	0.15	-0.06	0.11	0.17	0.12	-0.18
		b	0.10	0.14	0.55	0.29	0.10	0.25	0.07
t77e	0-10 rating: staffroom safe for students	a	-0.02	0.08	-0.09	0.06	0.12	-0.14	-0.17
		b	0.87	0.42	0.38	0.55	0.23	0.17	0.08
t77f	0-10 rating: adm block safe for students	a	0.10	0.20	-0.13	-0.05	-0.04	0.23	-0.03
		b	0.37	0.06	0.24	0.67	0.72	<.001	0.82
t77g	0-10 rating: bus safe for students	a	.	-0.58	0.93	-0.20	-0.18	0.96	.

		b	<.001	0.06	<.001	0.56	0.60	<.001	<.001

Note. Pairwise correlation: ≤0.35 = Weak correlation; 0.36-0.67= Moderate correlation; 0.68-0.89= Strong correlation; ≥0.90=Very strong correlation; Adapted from "Interpretation of Correlation Coefficient," by R. Taylor, 1990, Journal of Diagnostic Medical Sonography, 6(1), P.37

a Pearson correlation coefficient; b p-values (α=.05)

None of the learner protection variables was statistically significant as shown in Table 2.

Between the Outcome Variable and Teacher Level Variables

The correlation coefficient matrix between the outcome variable and teacher variables is as shown in Table 3.

Table 3: Pairwise Correlation Matrix for Variables Associated with Teachers

Variable	Variable		t21d	t81	t82	t83a	t84c	t84d	t85
t21d	Number of courses attended on learner protection		1						
t81	Teacher is male	a	0.01	1					
		b	0.90						
t82	Teacher's religion	a	-0.08	0.04	1				
		b	0.43	0.71					
t83a	Teacher major subject	a	0.00	-0.08	0.14	1			
		b	0.29	0.38	0.15				
t84c	Number of years since posted to the current school	a	-0.12	0.00	-0.16	-0.17	1		
		b	0.23	0.97	0.09	0.07			
t84d	Number of years since first appointed by TSC	a	0.08	0.97	-0.12	0.04	0.64	1	
		b	0.42	0.07	0.20	0.65	<.001		
t85	Number of years of schooling	a	0.10	0.49	-0.12	-0.17	-0.07	-0.18	1
		b	0.29	0.42	0.21	0.07	0.44	0.05	
t86a	Teacher's age in years	a	0.13	0.06	-0.09	0.15	0.55	0.94	-0.22
		b	0.16	0.57	0.36	0.13	<.001	<.001	<.001

Note. Pairwise correlation: ≤0.35 = Weak correlation; 0.36-0.67= Moderate correlation; 0.68-0.89= Strong correlation; ≥0.90=Very strong correlation; Adapted from "Interpretation of Correlation Coefficient," by R. Taylor, 1990, Journal of Diagnostic Medical Sonography, 6(1), P.37

a Pearson correlation coefficient; b p-values (α=.05)

Teacher variables are not statistically significant to the number of trainings attended on learner protection.

A pair wise correlation was done between the outcome variable and school variables and the results are as shown Table 4.

Table 4: Pairwise Correlation Matrix for Variables Associated with School-Level Variables

Table 4: Pairwise Correlation Matrix for Variables Associated with School-Level Variables

Variable	Variable		t21d	p2t1	p2t3	p22	p23	p25	p26
t21d	Number of courses attended on learner protection		1						
p2t1	Mean teacher absence T1-2017	a	-0.02	1					
		b	0.86						
p2t3	Mean teacher absence T2-2017	a	-0.07	0.81	1				
		b	0.46	<.001					
p22	Number of G & C sessions	a	0.20	0.43	-0.55	1			
		b	<.001	<.001	<.001	-0.06			
p23	Number of Indiscipline case guided T1-2018	a	-0.11	-0.14	0.21	0.54	1		
		b	0.24	0.15	<.001	-0.28			
p25	Number of times taught life skills lesson 2018	a	0.06	0.22	0.58	<.001	0.39	1	
		b	0.56	<.001	<.001	-0.19	<.001		
p26	Number of textbooks for life skills	a	-0.12	0.02	-0.13	<.001	-0.28	-0.33	1
		b	0.22	0.86	0.18	-0.42	<.001	<.001	
p31a	School enrolment	a	0.40	-0.09	-0.13	<.001	-0.32	0.26	-0.14
		b	<.001	0.36	0.17	-0.29	<.001	<.001	0.15
p31b	Number of school classes	a	0.39	-0.06	-0.09	<.001	-0.10	0.35	-0.20
		b	<.001	0.50	0.33	-0.82	0.28	<.001	<.001
p32	school category	a	0.11	0.37	0.36	<.001	-0.22	0.00	0.32
		b	0.27	<.001	<.001	0.45	<.001	0.98	<.001
p33	School type	a	-0.18	0.08	-0.23	<.001	-0.27	-0.12	0.19
		b	0.06	0.40	<.001	0.87	<.001	0.20	<.001
p35a	Pupil-teacher ratio	a	0.40	-0.21	-0.09	-0.43	-0.16	0.17	-0.40
		b	<.001	<.001	0.34	<.001	0.10	0.08	<.001
p41	1=Male principal	a	0.24	0.46	0.48	-0.20	0.15	0.21	0.36
		b	<.001	<.001	<.001	<.001	0.13	<.001	<.001
p46	Principal's years of schooling	a	-0.08	-0.12	0.00	0.10	0.48	0.34	0.02
		b	0.40	0.20	0.97	0.32	<.001	<.001	0.84

Note. Pairwise correlation: ≤0.35 = Weak correlation; 0.36-0.67= Moderate correlation; 0.68-0.89= Strong correlation; ≥0.90=Very strong correlation; Adapted from "Interpretation of Correlation Coefficient," by R. Taylor, 1990, Journal of Diagnostic Medical Sonography, 6(1), P.37

a Pearson correlation coefficient; b p-values (α=.05)

The statistically significant school-level variables are the number of guiding and counselling sessions Feb 2018 (*r=0*.20, *p*=.001), school enrolment (*r*=0.40, *p*=.001), the number of school classes (*r*=0.39, *p*=<.001), pupil-teacher ratio (*r*=0.40, *p*=<.001) and male principal (*r*=0.25, *p*=.001).

T-Test

A two-tailed independent t-test was carried out to determine whether the means of female teachers and male teachers differed significantly. A two-sample independent t-test did not return any statistically significant difference between the number of courses attended by male and female teachers, α=.05: t (75.307) =-0.1149, *p*=0.9088.

A one-way Anova

Similarly, a one-way ANOVA was done to find out if trainings attended on learner protection were different for the three groups of schools. Participants were 110 teachers and classified into three groups; Boys schools only (*n*=9), Girl schools only (*n*=29), and Mixed schools only (*n*=72). It did not return any statistically significant difference between

the training attended by teachers in girls only (Mean=0.10), boys only (Mean=0), and mixed schools (Mean=0.22), *p*=0.5446.Another one-way ANOVA was conducted to determine if trainings attended on learner protection was different for school types group. Participants were 110 teachers and classified into three groups: day school (*n* = 70), boarding schools (*n* = 10), and day and boarding schools (*n* = 30). It did not return any statistically significant difference between the training attended by teachers in day schools only (Mean=0.27), boarding school (Mean=0) and day and boarding schools (Mean=0), *p*=0.1386.

Results:

Zero Inflated Negative Binomial Regression

The zero-inflated negative binomial (ZINB) regression coefficients are interpreted as the log of rate ratio, which explains the likelihood of teachers attending learner protection trainings. It is determined by the use of the correlate variables from the Pair-Wise correlation to find the rate at which an outcome variable happens. This is the rate of change of training on the application of professional knowledge concerning a particular variable. The rate ratio at which events occur is calculated by exponentiation of the ZINB regression coefficient. The results of the ZINB regression analysis is in Table 5.

Table 5: Zero Inflated Negative Binomial Regression Analysis

			Model 2 (t21d)			Model 1 (t21d)		
Variable		Variable label	IRR Coef	Std. Err.	p>|z|	IRR Coef	Std. Err.	p>|z|
	t71	The number of G & C programmes. Feb 2018	0.74	0.49	0.645	1.01	0.11	0.911
	t72	Number of students Guiding & Counselling 1st term 2018	1.10	0.08	0.194	1.01	0.01	0.313
	t73	A teacher has a Life skills lesson on the timetable	0.40	0.82	0.656	2.63	6.58	0.700
	t74	Number of times taught Life Skills Lesson 2018	1.00	0.21	0.992	0.97	0.10	0.781
	t77a	0-10 rating: Classroom safe for students	1.05	0.92	0.960	0.93	0.30	0.817
	t77b	0-10 rating: Kitchen safe for students	1.24	0.23	0.248	0.80	0.16	0.255
	t77c	0-10 rating: Toilets safe for students	1.03	0.35	0.930	0.89	0.19	0.577
	p22	Number of G & C sessions Feb 2018				0.87	0.45	0.781
	p31a	School enrolment				0.98	0.01	0.000
	p35a	Pupil-teacher ratio				1.59	0.20	0.000
	p41	1=Male				2.39	3.82	0.587
	_cons		0.09	0.46	0.640	0.00	0.00	0.077
inflate	t31	Number of evaluations in 2017	-1.39	2.31	0.546	0.20	0.69	0.766
	t84c	Number of years since posted to the current sch	0.34	0.47	0.459	0.16	0.21	0.442
	t84d	Number of years since the first appointment	-0.18	0.23	0.440	-0.46	0.18	0.009
	_cons		5.94	6.50	0.360	3.24	2.76	0.241
	in alpha		-15.57	1.43	0.000	-992.43	0.19	
	Alpha		0.00	0.00		0.00(Omitted)		
N				105			105	
prob>chi2				0.00			0.00	

Note. Coef=Coeffiecient; Std. Err.=Standard Error

The inflate option was used, to adjust the ZINB estimates and avoid bias from total evaluations in 2017, years since a teacher was posted to the current school and experience. Cameron and Trivedi (2009) recommended robust standard errors for Poisson models, so we ran the model with the vce. (robust) option.

Guiding and counselling programmes. Feb 2018 (*p*=.91), students Guided and Counselled (*p*=.31), Life skills timetable (*p*=.70), Life skills taught (*p=.78*), classroom safe (*p*=.82), kitchen safe (*p*=.26), toilet safe (*p*=.58), school enrolment (*p*=.00), teacher learner ratio (p=.00) and principals gender (*p*=.58) are statistically insignificant. Therefore, there is no statistically significant relationship between learner protection practices in schools and teacher capacity building.

However, the Zero inflated Negative Binomial regression show that an extra enrolment of a student in a school increases the teacher incidence rate ratio courses attended on learner protection by a multiplier of 0.98 when other variables are held constant, although only significant at the 10% level. In other words, bigger/larger schools are likely to have their teachers attend courses on learner protection.

An extra pupil-teacher ratio unit increases the incidence rate ratio for attended on learner protection by a multiplier of 1.59 when other variables are unchanging in the model. An increase in the pupil-teacher ratio means more students and fewer teachers.

An extra year since the first appointment by TSC decreases the rate ratio of membership in the "certain zero" group by a multiplier of -0.46 when other variables are unchanging in the model.

Discussion

Teacher capacity building is an important component in TPAD especially in solving teacher's performance gaps. TSC has been charged with the responsibility of managing teacher and to perform this functions they introduced TPAD to assist them in improving the quality of education in Kenya. This paper contributes to the understanding the relationship between teacher appraisal and capacity building.

We anticipated that because of the introduction of TPAD, more secondary school teachers would be taken for capacity building but that was not the case. This is because in order for the performance gaps identified in the teacher appraisal process to be solved some teachers will require capacity building programmes. Our results suggest the opposite; that teachers have not been trained following the introduction of teacher performance appraisal from 2016. Therefore the question is why is it that TPAD is not providing ground for teacher's professional development as shown in the TSC evaluation report (TSC TPAD, 2018).

We suggest that there is need for TSC and other educational planners to source funds and ensure that capacity-building programmes are provided to teachers so that the quality of education improves. This is because in other organization the cost of trainings workers is shouldered by their employer. Finally yet important, capacity-building programmes for teachers should be matched with the performance gaps identified during teacher appraisal to ensure that teachers get the appropriate capacity building programmes.

References

Amnesty (2023). Children Safety in School. Available on https://www.amnestykenya.org/children-safety-in-school

Cameron, & Trivedi, P. K. (2010). Microeconometrics using Stata / A. Colin Cameron, Pravin K. Trivedi. (Rev. ed.). Stata Press.

County Government of Kakamega. (2023). *Kakamega County Integrated Development Plan: County Government of Kakamega.*

Erdman, D., Jackson, L., & Sinko, A. (n.d.). *Zero-Inflated Poisson and Zero-Inflated Negative Binomial Models Using the COUNTREG Procedure*. NCSS Statistical Software. Retrieved August 14, 2023, from https://support.sas.com/resources/papers/sgf2008/countreg.pdf

Gatemi, M. W. (2004). The impact of appraisal on teachers' performance in Kenya: a case study of girls' secondary school teachers in Nairobi Province. MBA thesis. Kenyatta University.

Hayes, A. (2021, March 16). What is a Performance Appraisal? Investopedia. https://www.investopedia.com/what-is-a-performance-appraisal-4586834

Jonyo, D. O., & Jonyo, B. O. (2017). Performance Management in Kenyan Public Schools: Implications and Challenges. *The European Journal of Educational Sciences*, *04*(04), 19–35. https://doi.org/10.19044/ejes.v4no3a3

Juneja, P. (2015). *Performance Appraisal - Meaning, Objectives, and Advantages*. Management study guide.com. https://www.managementstudyguide.com/performance-appraisal.htm

Kenya National Bureau of Statistics. (2019). *2019 Kenya Population and Housing Census Volume 1: Population by County and Sub-County*: Kenya National Bureau of Statistics.

Kenya: The Constitution of Kenya [Kenya], 27 August 2010, available at: https://www.refworld.org/docid/4c8508822.html

[accessed 7 October 2023]

KissFlow. (2022, February 1). *6 Performance Appraisal Methods that Boost Employee Performance*. Kissflow. https://kissflow.com/hr/performance-management/employee-performance-appraisal-method/

Kumari, S. (2022). Teacher's Views on Training and Capacity Building in Education. *N International Journal of Advanced Research in Science Communication and Technology*, *2*(1), 278-285. https://doi.org/10.48175/IJARSCT-2545.

London Premier Centre. (2022, February 27). *Performance Appraisal in HRM: What You Need to Know in 2022*. Www.lpcentre.com. https://www.lpcentre.com/articles/performance-appraisal-in-hrm:-what-you-need-to-know-in-2022

Mbabu, J. M. (2022). *Teacher Performance Appraisal and its Contributions to Teaching in Selected Public Primary Schools in Nairobi City County, Kenya* [Master's Thesis, Kenyatta University].

Mito, E. A., Aloka, P. O., & Ajowi, J. O. (2021). Teacher Training and Implementation of Teacher Performance Appraisal and Development Policy in Public Secondary Schools in Kenya. *Asian Basic and Applied Research Journal*, *3*(1), 6-16. https://doi.org/ABAARJ.355

Mucharia, N. (2017, March 24). Teachers' appraisal system has improved curriculum delivery. Nation Media Group. Retrieved from http://www.nation.co.ke/authors/1959272-3902508-view-asauthor-aqn305/index.html

Muhoi, B. W. (2013). *Use of Performance Appraisal in Staff Training and Development at The Teachers Service Commission* [Master's Thesis, University of Nairobi]. http://erepository.uonbi.ac.ke/handle/11295/59133

Mungai, N.D., (2018) Effective Management of Secondary School in Kenya Through Teacher Performance Appraisal and Development (TPAD) in Kenya. *International Journal of Social Science and Humanities* 6 (4): (157-162). Available at: www.researchpublish.com

Njuguna, B. C., & Kisilu, K. (2023). Influence of Procedural Fairness on Implementation of Performance Appraisal Practices in Public Secondary Schools in Cherangany Sub-County. *VII*(V), 1642-1659. https://dx.doi.org/1610.47772/IJRISS.42023.70627.

Nyongesa, P. (2018). *Impact of Performance Appraisal on Teacher Performance in Public Secondary Schools in Kisumu West Sub-County, Kenya.* [Master's Thesis, Maseno University]. https://repository.maseno.ac.ke/bitstream/handle/123456789/1262/project%202%20final%20maseno.pdf?sequence=3&isAllowed=y#:~:text=In%20Kisumu%20west%20Sub%2Dcounty%2C%20the%20major%20aim%20of%20teacher,risks%20of%20teacher%20burn%20out.

Ondari, J.R., Dawo, J.I., and Gogo, J.O. (2022) Effectiveness of Teacher Performance Appraisal and Development (TPAD) Implementation for Monitoring Teacher Lesson Attendance In Secondary Schools In Gucha Sub-County, Kenya. *International Journal of Current Research,* 14(3):21094-21098. Available on DOI: https://doi.org/10.24941/ijcr.43302.03.2022

Otieno, T. A. (2022). *Influence of Teacher Appraisal on Teacher's Performance in Public Secondary Schools in Migori, Kenya* [Master's Thesis, University of Nairobi]. http://erepository.uonbi.ac.ke/handle/11295/162081

Ouma, W. (2015) *Teachers to be promoted based on Performance, Says New TSC Code.* The Nation. Retrieved from http://www.nation.co.ke/authors/1959173 -3902509-view-as author-aqn305/index.html

Philip, R. M. (2019). The Cradle of Knowledge: African Journal of Educational and Social Science Research. *Society of Educational Research and Evaluation in Kenya*, *7*(1), 16-28. https://doi.org/ISSN 2304-2885-p

Republic of Kenya. Ministry of Education. (2012, February). Task Force on the Re-Alignment of the Education Sector to the Constitution of Kenya 2010: Towards A Globally Competitive Quality Education for Sustainable Development. Available on https://vision2030.go.ke/wp-content/uploads/2018/05/Re-Alignment-Education-Sector.pdf

Seo. (2023). *What is Performance Appraisal? Meaning, Definition, Types, Objectives*. @HRhelpboard. https://www.hrhelpboard.com/performance-management/performance-appraisal-its-purpose.html

Teachers Service Commission (2021) Final Evaluation Report for Consultancy for Teacher Performance Appraisal and Development (TPAD) Evaluation. University of Nairobi Enterprises and Services Limited, Nairobi: Kenya..

Team, N. B. D. (2023, August 13). *TSC customizes the TPAD online system; reduces the number of TPAD teaching standards*. Newsblaze.co.ke. https://newsblaze.co.ke/tsc-customizes-the-tpad-online-system-reduces-number-of-tpad-teaching-standards/

University of Nairobi Enterprises and Services Limited [UNESL]. (2021). *Consultancy for Teacher Performance Appraisal and Development (TPAD) Evaluation*. Nairobi: Teachers Service Commision.

Terra, J. (2023, February 7). *What is a Performance Appraisal? Types, Methods, Objectives & Benefits*. Simplilearn. Retrieved December 8, 2023, from https://www.simplilearn.com/what-is-performance-appraisal-methods-process-article

TSC. (2018). Retrieved October 7th, 2023, from http://www.tpad.tsc.go.ke:83

TSC. (2021). Retrieved October 7th, 2023, from https://www.tsc.go.ke/index.php/downloads-b/file/967-tpad-evaluation-report

Zero-Inflated Negative Binomial Regression | R Data Analysis Examples. UCLA: Statistical Consulting Group. From

https://stats.oarc.ucla.edu/r/dae/zinb/#:~:text=Zero%2Dinflated%20negative%20binomial%20regression%20is%20for%20modeling%20count%20variables,over%2Ddispersed%20count%20outcome%20variables. (Accessed August 14, 2023).

Mubita, K., Milupi, I. & Kalimaposo, K. (2023). Management of Safety and Health in Schools: Benefits, Challenges and Prospects. 3. 582-587. 10.55677/ijssers/V03I4Y2023-07.

Muiruri, J., and W. Kwasira, J. (2015). Effect of occupational health safety planning in the implementation of occupational health and safety programs in state corporations in Nakuru town, Kenya. International Journal of Management & Information Technology, 10(9), 2470-2478

Mutiso, P, (2019). A thesis on school-based factors influencing implementation of safety standards in public secondary schools in Matungulu Sub-County, Machakos County – Kenya. Available on https://repository.seku.ac.ke/bitstream/handle/123456789/4474/Mutiso_School-based%20factors%20influencing%20implementation%20of%20safety%20standards%20in%20public%20secondary%20schools%20in%20Matungulu%20sub-county,%20Machakos%20county%20-%20Kenya.pdf?sequence=1/Mbaruramye, I,. (2021). An investigation of child rights and safeguarding measures in secondary schools in Dagoretti Sub-County Nairobi County, Kenya. https://thesis.miuc.ac.ke/downloadnotes.php?dow=teacheradmin/images/pdf/AN%20INVESTIGATION%20OF%20CHILD%20RIGHTS%20AND%20SAFEGUARDING%20MEASURES%20by%20Ignace.pdf

Wanderi, A., N. (2018). School safety and its influence on teaching and learning processes in public secondary schools in Nairobi and Nyeri Counties, Kenya. https://ir-library.ku.ac.ke/items/305b0136-961c-4d10-9eb8-f33975a2cbde

Wanjiku, M., (2023). Institutional Factors Influencing the Implementation of Child-Friendly Schools in Kenya. *Journal of the Kenya National Commission UNESCO,* 3 (*1*). Available on journals.UNESCO.go.ke>article>downloads

Acknowledgements

Authors acknowledge the peer reviewer's reports, the editorial input and their sources of funding. This paper uses data collected from TSC teachers in Matete Sub-County. We wish to thank them for their co-operation. We also wish to thank Ivy Murunga, Ephie Musungu, Siana and Avayah for providing University and publication fee and may the Almighty God provide the wishes of your hearts.

Ethical Pledge

All data collected were handled responsibly, and any findings have been presented accurately, without manipulation or bias.

Competing Interests

There were no competing interests that could have influenced the outcomes of this research. The research was conducted impartially, with no financial, professional, or personal interests that may have biased the results or interpretation.

Author Contributions

The researchers are the sole author of this article

Disclaimer

The views expressed in this research article are those of the author and do not necessarily reflect the official policy or position of any affiliated agency of the authors or the journal itself.

Ethical Consideration Statement

This article adhered to all ethical guidelines for research involving human or animal subjects. Approval was given by Masinde Muliro University of Science and Technology and the National Commission for Science, Technology and Innovation.