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Influence of Teacher Professional Development on Students' Academic Achievement in Secondary Schools in Seme Subcounty, Kisumu County

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Abstract: *Professional development provides continued effort for the teachers to improve on their skills. However, there have been challenges in terms of developing proper frameworks that influence student academic achievement in connection with teacher professional development. Academic performance of schools in Seme Sub County for the last three years was below the expected pass mark of mean grade of 5.5 in KCSE as compared to other neighboring sub-counties. This study examined the influence of teacher professional development on academic achievement of secondary school students in Seme Sub- County. Descriptive and correlational research designs were applied. Simple random sampling was used to select 217 teachers from 525 and saturated sampling was used to draw 32 principals from 35 for the study. Stratified sampling was used to select three schools for pilot study. Data was collected using questionnaires, interview schedule and document analysis. Experts in the department of Education Psychology determined the content validity of the instruments. Reliability was determined using test re-test method and a coefficient of .70 was established for the instruments. Quantitative data was analyzed using percentages, frequencies and Pearson's r. Qualitative data was transcribed, categorized and then reported thematically. There was a positive correlation between teacher professional development and student academic achievement. The Teachers Service Commission may use the findings of the study to ensure that teachers are given a chance for professional development. KEMI will use the findings to identify the training needs of the teachers and professional development to help in enhancing the performance of the students. The ministry of education can make use of the results of the research to modify the teacher development strategies with the view of improving student achievement.*

Keywords: *Teacher, Student, Professional development, Academic, Achievement, Ministry of Education, KCSE, KEMI*

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1. Introduction

Professional development constitutes the continued effort for the teachers to improve their skills. The teachers service commission (TSC) has developed a plan known as Eight-Point Plan that would help in the teacher professional development. The eight-point plan has specific skills and attributes applicable in both formal and informal settings. The skills include question skills, variation skill, reinforcement skill, explaining skill, opening and close skill, small group discussions skill, class management skills and skill of organizing small group work and individual work. The eight-point plan addresses the Kenya Professional Teaching Standards and the expected overall outcomes of TPD (www.tcs.tpad.com).Teacher Performance Appraisal and Development have a way of

promoting the effectiveness in student learning because it promotes better ways of achieving the objectives of teaching. The development of teachers in their professional work would be more significant in ensuring they have a better understanding of how to impart knowledge on students for better performance at the national examinations (Bowe and Goree 2017). To grow professionally, teachers must have outstanding capability of attaining the expected results in schools. It means that they must be responsible throughout their career so that the schools can benefit from their effective teaching services to the student fraternity, whose performance will be very critical in the development and growth of the school. Schools should also recognize the teachers' desire to develop their profession by providing them with conducive environments for teaching and necessary books with the required explicit content that teachers can use and enable them to facilitate the learning process with ease (Thoonen et al., 2018). Improvement in professionalism tends to promote teachers to relatively higher levels of careers. For instance, teachers who have furthered their studies can be upgraded to higher-level institutions to be entrusted to lecture instead of teaching.

Some schools develop initiatives of training their teachers in various forums to equip them with skills and knowledge deemed better in the teaching fraternity. These teachers would grow professionally and get motivated in their job. Moreover, they would obtain better teaching methods from more experienced personnel in the teaching fields and interact with them and consequently gain the professional experience they desire to get. The overall outcome would be positive. Good grades would be recorded in the respective schools where teachers were motivated in the process and duly trained on the emerging teaching trends, the flow of ideas, and content comprehension.

The application of formal training programs consequently translates to high productivity in learning institutions where productivity is gauged in terms of mean scores attained and the number of students who have been successfully promoted to the subsequent higher academic levels like colleges and universities. These training initiatives inculcate teachers with tenets like spontaneous cooperation, enabling them to develop the work experience required for their career growth and development. They are also taught how to handle indiscipline among the students and transform such characters into adorable students that society can cherish and congratulate for having gone to school to change contemporary societal life. The teachers are also inducted into a system of collaborating in planning on how the school's overall performance can improve through such training, hence attaining professional orientations that teachers desire most (Han & Yin, 2016). This system of collaboration yields positive motivation among the skilled, trained teachers.

Rasheed, Humayon, &Awan (2016) mentioned professional development as a key factor in the development of teachers. The researchers explained that some education institutions get better grades than others because they train their teachers to be effective deliverers of detailed academic content and instructors to all students in their schools. Institutions that do not provide their teachers with the freedom to use their knowledge without giving them direction often obtain poor results, and their teachers' future gets ruined because they are denied platforms that can dig deep into the information and improve their experience in the education field. When teaching methods quickly change, there will be low pressures in schools. Such teachers would already be aware of such changes and would have adapted to them and still thrive in stiff competition with other schools whose performance is also recommendable. Learning institutions that value the welfare of their teachers who also have a dire desire to be among the few teachers who have grown in their careers tend to register credible results annually since constant training per term or yearly provides the teachers with adequate skills of dealing with the students or pupils and ensuring that they benefit from the fruits of their teaching that owes their tributes to the training received

In contrast, some recent studies have considered the approach that depends on the students' initiative to pass or fail. Such an approach explains that the ability of a student to register high grades entirely depends on the students, not teacher motivation or teachers' extent of professionalism that might have arisen from prior training or seminars attended. Still, on the same lane, some researchers claim that some teachers emanating from wealthy backgrounds can fund their further studies to gain the professional skills they need instead of using the school motivation techniques to heighten their career prowess and professionalism.

The quality of teachers cannot be surpassed by the quality of the system of education in action. This statement means that there is a need to channel funds that shall increase the competency of teachers through meetings organized for training purposes. Through such teacher support initiatives, forums would achieve the teachers' aspirations because they will be able to garner and retain the necessary experience in the teaching field that would ultimately attract credible academic institutions and motivate teachers.

1.2 Research Question

The study was directed by the following research question:

What is the influence of teacher professional development and training on the student academic achievement?

2. Literature Review

Research studies around the globe have demonstrated the role of teacher motivation in achieving academic excellence among the students. Comighud and Arevalo's case study (2020), focus on teacher motivation and its impact on student learning, primarily found a strong positive correlation between teacher motivation and student performance. Their research, likely conducted in the Philippines, showed that when teachers received professional development opportunities and financial incentives, their commitment and engagement with students increased, ultimately leading to improved academic outcomes for students.

Olubunmi Kayode (2023) in Nigeria conducted a study on effects of teacher professional development on student academic achievement. The study applied a pretest-posttest, control group, quasi –experimental design of ex-post facto type design. Teachers who participated in the study had attended a mathematic workshop that was offered by the Nigerian government. Results of the research were that there was improvement in the pupils' performance who were taught by those teachers who took part in the workshop than pupils of the teachers who didn't attend the workshop. It proved that exposing teachers to more knowledge on pedagogical skills is good since it makes academic performance of the pupils increase. This current study applied descriptive research design to be able to collect data as it exists without manipulation and correlational research design to determine the relationship between professional development of teachers and academic achievement of secondary students in Saeme sub-county.

A study by Byaruhanga (2018) on motivation of teachers in Uganda established that in-service training and teacher workshops improved teaching effectiveness and student performance. This research used cross-sectional survey design and it was done in elementary schools whereas this current study used descriptive research design and correlational research design in secondary schools in Seme sub-county.

Kariuki (2019) conducted a study on effect of teacher professional development in Kenya Certificate of Primary Education in Kirinyaga County. The study used convergent parallel mixed methods design where teachers and head teachers had the same questionnaires and interviews. It depended on KCPE average with 197 public primary schools and 144 private primary schools. Data was collected using questionnaires and focused group discussions. The study found out that there is a statistically significant effect of teacher participation in collaborative professional development activities and KCPE achievement in Kirinyaga County. This current study used questionnaires for teachers only while the interview schedule was for school principals and it was conducted in public secondary schools in the Seme subcounty with KCSE as the dependent variable.

A case study of Coast Girls Secondary in Mombasa by Thuo, D.N (2019) on relationship between teacher professional development and student academic achievement established that there was relationship between the two variables. The study used ex-post facto research design with Biology KCSE results as the dependent variable. The study included 116 form four Biology students and 4 Biology teachers who had taught since form 1 and have been exposed to different professional development programmes. This current study used all teachers that are handling KCSE candidates in all subjects. School principals were also part of the students.

2.1 Conceptual Framework

It is conceptualized that student's academic achievement is dependent variable while teacher professional development is the independent variable. It is hypothesized that teacher professional development will either result into good or poor academic achievement of students. Teacher professional development increases the teachers' skills in teaching hence influences academic achievement by driving students' attitude towards learning. These attitudes may determine their achievement in academics. There are other factors that may intervene in the existing relationship between teacher professional development and academic achievement among students. These include school administrative support, government support and teacher characteristics. This relationship is presented in a conceptual framework shown in figure1

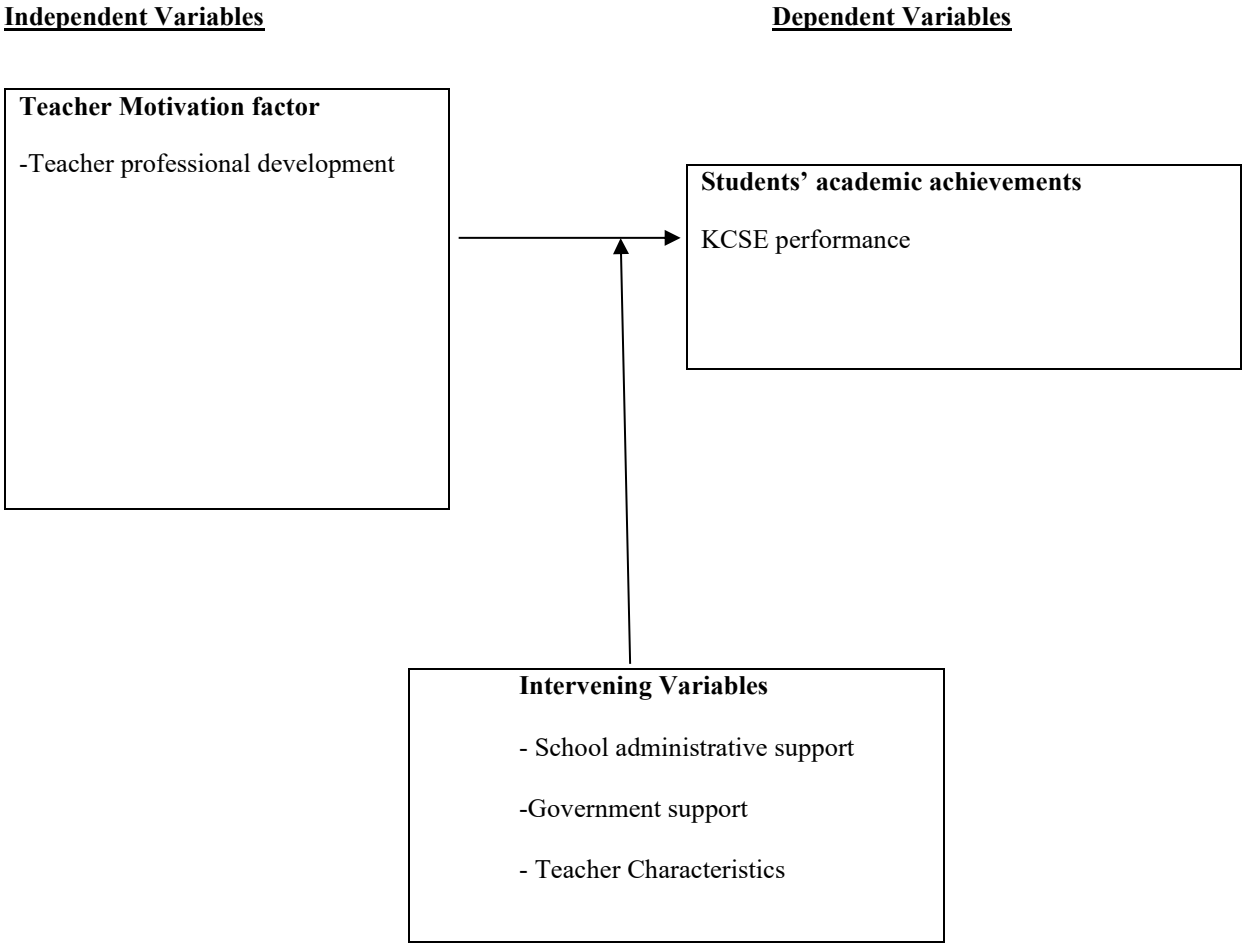

Figure 1: Conceptual Framework showing the relationship between Teacher professional development and student academic performance

3. Methodology

3.1 Research Design

This research adopted a descriptive research design. The descriptive research design was used in this study to enable the researcher to collect and analyze the data as it exists within the field without manipulation of any result (Edmonds & Kennedy, 2016). Additionally, the design allowed the researcher to collect data on the existing situations on teacher motivation and student performance. The research also used correalational research design to determine the relationship between motivation of teachers and academic achievement of students in Seme Sub County secondary schools.

3.2 Area of Study

The study was conducted in secondary schools in Seme Sub County in Kisumu County. The Sub County is situated in Kisumu County which borders Siaya County to the West, Kericho County to the east and Kakamega to the North. Seme sub-county is found near Lake Victoria the largest water body in East Africa. Latitude -0.08333 South and Longitude 34.51667East. There are also tourist attraction sites like Kit Mikayi among others. The main economic activity taking place there is fishing and crop farming. Kit Mikayi also serves as a prayer center for some people. There are also small hills and forests found in Seme area. Seme Sub County has 35 public schools of which none of them is a national school.

3.3 Population of the Study

The population for this research consisted of 35 principals, 525 teachers from all the public secondary schools in Seme Sub County. The numbers represent the enrollment of the principals and teachers in the schools within Seme Sub County in 2019.

3.4 Sample and Sampling Techniques

Since the population was large and would take time and resources to collect data from the entire research population, the study adopted Krejcie and Morgan Table to determine the sample population. According to Krejcie and Morgan, a sample of 217 is appropriate in representing a population of 525. The researcher used simple random sampling techniques to select 217 teachers from 32 schools since 3 schools were used for pilot study. The schools were selected using stratified sampling technique. To ensure fair representation from all types of schools, data was collected from both day and boarding public schools. All school principals were selected through saturated sampling technique. Below is Krejcie and Morgan's formula for deriving samples from populations.

Krejcie and Morgan formula

$$n = \frac{x^2 Np\,(1-p)}{e^2\,(N-1) + x^2\,p(1-p)}$$

n = sample size
N = population size
e = acceptable sampling error
X^2=chi-square of freedom 1 and confidence 95%= 3.841
P =Promotion of population (if unkown,0.5)

3.5 Research Instruments

This research used questionnaires and interview schedules to collect data. The questionnaire was useful for this research study because it enabled for the collection of data over a large sample of the population (Rowley, 2014). Additionally, the questionnaire research instrument was the most ideal in the survey study (Patten, 2016). The questionnaire consisted of multiple-choice responses and open-ended options to have an exhaustive data collection analysis. The questionnaire had three sections: section one contained biographical information of the respondents; section two examined factors influencing teacher motivation, and section three investigated the effects of teacher motivation on student learning. The researcher also used an interview schedule to gather more data from the respondents.

3.6 Reliability and Validity of the Instruments

Test re-test method was used to test reliability of the research instruments. A reliability coefficient index was established using Pearson's r. A reliability coefficient of 0.70 was obtained and was considered adequate to measure the consistency of the data obtained (Creswell 2021). As part of the validation process, the instruments used in this study were subjected to an evaluation of content validity, in which expert feedback was obtained from two experienced educators in the field. These experts were chosen for their extensive knowledge of the subject matter and experience in questionnaire development and validation.

3.7 Data Analysis

The responses from the respondents were collected, sealed, and kept safely for analysis. The responses were also coded and entered into Statistical Package for Social Sciences software (SPSS) for analysis. The analysis was done using percentages, frequencies, mean and standard deviations. In addition, the Linear Regression and the Pearson Correlation Coefficient was useful in establishing the influence of teacher professional development on the academic achievement of the students in Seme sub-county. Qualitative data was transcribed, categorized and reported thematically. In the data analysis section, the likert scale was used and then translated into percentages, frequencies, mean and standard deviations as follows:

- Teacher professional development was on a five-point Likert scale which measures the extent a teacher is likely to develop professionally with five being the highest point and one being the lowest point as follows:

5-very high extent
4-high extent
3-some extent
2-little extent
1-no extent

4. Results and Discussion

4.1 Influence of Teacher professional development on student academic achievement

Teachers were requested to state whether they had been exposed to teacher professional development and the results are presented in Table1

Table 1: Exposure to Teacher Professional Development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High extent	49	22.58	22.58	22.58
	Little extent	61	28.11	28.11	28.11
	No extent	30	13.82	13.82	13.82
	Some extent	35	16.13	16.13	16.13
	Very high extent	42	19.35	19.35	19.35
	Total	247	100.0	100.0	

49 teachers stated that they had teacher professional development at a high extent representing 22.58% while 61 teachers stated that they had a little extent, accounting for 28.11%. 30 teachers stated that they had professional teacher development at no extent hence accounting 13.82% of the teachers sampled. 35 teachers who were had some extent of teacher professional development who accounted for 16.13 % and 42 teachers stated that they had some extent of teacher professional development representing 19.53%.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.389[a]	.151	.147	1.158	2.042

a. Predictors: (Constant), Teacher Professional Development
b. Dependent Variable: Student Academic Achievement

Table 3: Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)		3.229	0.168	19.220	.000
	Teacher Professional Development		0.312	0.048	6.500	.000

R square, which represents the proportion of the variance in the dependent variable explained by the independent variable, is 0.151. This means approximately 15.1% of the variance in student academic achievement can be explained by teacher professional development. The Durbin-Watson statistic is 2.042, indicating no significant autocorrelation in the model.

The constant (intercept) in the model is 3.229, representing the expected value of student academic achievement when teacher professional development is zero. The coefficient for teacher professional development is 0.312, indicating that for every one-unit increase in teacher professional development; student academic achievement is expected to increase by 0.312 units. The standardized coefficient (Beta) of 0.389 suggests a moderate positive effect of teacher professional development on student academic achievement.

The t-statistic for teacher professional development is 6.500, with a p-value of 0.000, which indicates that the relationship between teacher professional development and student academic achievement is statistically significant. Future research may explore other intervening variables such as teacher workload and curriculum implementation to further understand the extent of this influence.

Responses from some school principals on the influence of teacher professional development on student academic achievement:

"Personally, it is good for teacher to develop professionally. I usually encourage my staff to use every

single opportunity to progress professionally. I usually give permission to those who want to go for further studies. This I know encourages them to be teachers of value to their students."

"When teachers are given enough time to go back for professional development, they become well encouraged. This is translated in their students' performance."

5. Conclusion and Recommendations

5.1 Conclusion

The study established that improved professional development and training of teachers will motivate the teachers to work positively for this will subsequently lead to better academic performance of students. This is indicated by the positive correlation between teacher professional development and student academic achievement achieved by the study.

5.2 Recommendations

This study recommendations that the government, through the Ministry of Education, should ensure that teachers are given chance for professional development and that their job promotion is based on their academic qualifications.

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