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Relationship between Principal's Technical Skills and Students' Academic Performance in Public Secondary Schools in Mt Elgon Sub-County

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05 June 2024 Student academic performance in secondary level of education is essential as it is a determinant of their future pathway to tertiary education. The effective performance of students in academics is dependent on the technical leadership skills that their principal applies in leading their schools. Kenya Certificate of Secondary Education (KCSE) examinations by public secondary schools in Mount Elgon Sub County has been below average in recent years. The aim of this paper was to investigate how technical skills of principals affected the academic performance of students in public secondary schools in Mount Elgon Sub County, Bungoma County, Kenya. The study is anchored on descriptive survey research design targeting 17 public secondary schools in Mount Elgon Sub County. A total of 256 teachers formed the study population. A sample size of 152 teachers was selected based on Kathuri and Pals table. The respondents were selected through use of stratified random sampling technique. The research instrument used was a questionnaire. To ensure validity and reliability the questionnaire was sent to an expert in the pilot study and test- retest method was conducted respectively. Analysis of data was performed using descriptive and inferential statistics with the help of SPSS (Version 25.0) for quantitative data. It was established that there was significant weak positive relationship between principals' technical skills ($r=0.248$, $p=0.006$) and academic performance of students in public secondary schools in Mount Elgon Sub County. The study concludes that there was significant weak positive relationship between principal's technical leadership skills and performance by students in secondary schools ($p<0.05$). This meant that the technical leadership skills application by principals influenced academic performance of their schools. The study recommends that principals should undergo training on ICT use, principals to ensure that they provide instructional guidance to teachers and ensure that prudent financial management practices are implemented in their schools.

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INTRODUCTION

The role of education in the advancement of nations cannot be overstated, particularly regarding its pivotal function in developing human capital essential for the socio-economic progress of societies globally (Kimenyi & Thuo, 2011). In the contemporary context, the metric of success for any educational institution is increasingly measured against the academic performance of students in examinations (Gamala & Marpa, 2022; Rini et al., 2023). Academic achievements of students are frequently positioned at the core of educational systems and as a pointer to quality education provision (Melo, 2021). Stakeholders in the secondary school's education level are putting pressure on school management to ensure consistent performance in examinations as it is instrumental in shaping the future human resource for the country (Akporehe & Asiyai, 2023).

Academic performance of schools is increasing deeply from concerns students, parents, teachers and authorities, and principals who are the custodians of schools in ensuring curriculum goals are attained are receiving considerable pressure (Ukoko & Edet, 2024). Although there are many factors influencing academic performance of schools, school leaders play a pivotal role in ensuring the goals of education are achieved. Phiri (2019) highlights the significance of a principal's leadership skills in ensuring achievement of institutional educational goals. Karwanto (2017) indicated that academic achievement of schools is dependent on the action of the principal in motivating, coordinating and harmonising all educational resources. Hence, the school principal is expected to possess leadership

and strong managerial schools which will help him/her implement the curriculum, enhance the learning process in school, manage institution facilities, provide good services to the school community and build relationship with the wider society (Awtseana, 2019). This means that the leadership skills for school principal are essential for him to perform his duties as leader in the school.

In the skills theory, Katz (1955) identified three kinds of skills that principals' institutions need to have so as to become effective managers of their institutions: human, technical, and conceptual skills. This study concentrates on identifying technical skills that influence academic performance of students in secondary schools. In technical skills, Katz (1995) recognised that principal needs to have a thorough understanding and attitude for a specialised activity especially one that involves techniques, procedures, processes, and methods. This is because technical skills involve processes and working with physical objects (Werang et al., 2023). Technical skills assist principals to utilise different tools and machines effectively (Akporehe & Asiyai, 2023). In schools, principals who have technical skills offer professional guidance to teachers to advance to a higher-level self-confidence, enthusiasm, and effectiveness (Olorisade et al., 2023). The outcome of principal's application of technical skills is that there is favourable environment which is key to attainment of better classroom learning (Awtseana, 2019). These are the three critical skills that principals require for them to effectively run schools, hence influencing academic performance. The study, therefore, investigated the relationship between principals'

technical skills and academic performance of students in public secondary schools in Mount Elgon Sub County, Kenya.

Statement of the Problem

The effectiveness of a school is dependent on the degree to which its goals and objectives are attained. One of the objectives of secondary education is ensuring that students perform well in their examinations. The principal of a secondary school has the responsibility of ensuring that improved performance is attained by students in their schools. Data from Sub County Education office for the from the year 2016 to 2018 showed that there had been poor performance amongst public secondary schools in Mount Elgon Sub County. The mean score in KCSE examinations has been below average (D+ and below). Research examining the relationship between principal technical leadership skills and academic performance of public secondary schools is inadequate. It is against this background that there was need to investigate on the principals' technical leadership skills and how they can influence the academic performance of students in KCSE. This inquiry is critical in the context of Mount Elgon Sub-County, where there is a pressing need to elevate the standards of educational achievement in KCSE examinations.

Purpose of the Study

The purpose of the study was to establish the academic performance of public secondary schools in Mount Elgon Sub County.

LITERATURE REVIEW

Technical skill is ability of a principal to know and undertake duties effectively using the acquired specific techniques, activities, and processes needed for certain operations in schools (Phiri, 2019). The technical skills consist of the proficiency, knowledge, techniques or processes in a certain specialised profession like manufacturing, computers, or engineering (Kermally, 2013). The skills are significant at the lower levels of administrative because the principals are dealing with members of staff performing their duties. Technical skills comprise

principal's knowledge on the kind of work those under him/her have to undertake. It is also concerned about personal proficiency and knowledge in any form of technique or process. These form of competencies and skills appear to be significant at lower levels of administration, their comparative as part of administrative role decreases as principal moves to higher echelons of leadership (Namgyal, 2022). In schools, heads have to be teachers who understand all that encompasses the teaching profession. The classes of skills in a school demands for principal to understand which curriculum is being implemented, textbooks approved by Ministry of Education, effective methods of teaching, utilisation of computers, computerised budgeting, and operations of facilities in schools like computers.

Empirical Review of Studies

This section discusses the review of empirical studies conducted in relation to principals' technical skills application and performance of schools from different contexts. From each empirical study, a research gap is identified which necessitated this study. One research conducted in USA by Sebastian et al. (2018) used self-ratings by principals to develop typologies of leadership skills effectiveness and their effect on student academic achievement. The study showed that principals saw themselves as either strong or weak in instructional roles and organizational management competencies concurrently. They also found that performance differed significantly across principals based on their competencies and skills. The gap created from this study was qualitative and involved principals as respondents while the present study included teachers as respondents.

In Indonesia, Karwanto (2017) analysed principals' skills in the achievement of learning excellence in schools. A qualitative approach was used and data was collected through observation and interviews. It was found out that principal promoted academic achievement through creating programmes for staff development, computer skills, and adequate foreign language

competencies. These technical skills ensured that excellence in learning was attained. The gap created from this study is that it was qualitative while the present study uses mixed method approach.

In Philippines, Melo (2021) determine the existence of significant relationship between the managerial skills of school heads and work performance of teachers in distance learning. A correlational research design that was collected data from school heads guided the study. Research findings showed that principals had great level of technical schools as they understood their roles and were proficient in offering technical assistance to teachers using various techniques, procedures, and methods to make sure quality education was delivered to students through distance learning mode. The gap created from this study is that the dependent variable was quality of learning while the present study focused on academic performance.

In India, Laghari and Jafri (2022) examined the principals' leadership skills and teachers' performance in public secondary schools in Hyderabad. It was a quantitative study that targeted all teachers and head teachers from public secondary schools in the district. Research established that there was a high significant relationship between principals' technical skills and teachers' performance in public secondary schools. The gap created from this study is that the dependent measure was teacher performance while the present study looks on the academic performance of students.

In Ilorin Metropolis Nigeria, Akinnubi et al. (2023) investigated principals' administrative skills implementation in public senior secondary schools. A total of 100 teachers were randomly selected as respondents and questionnaire administered to them. Results showed that 28.8% of principals had financial skills. Additionally, 45.6% said that principals had physical facilities maintenance skills. The present study sought to establish how principals technical (finance and physical facilities maintenance) skills affected academic performance of schools.

In Zoba Anseba Eritrea, Awtseana (2019) examined the influence of principals' leadership skills on teachers' motivation in public secondary schools. A descriptive survey design was used targeting 226 teachers, 55 HODs, and 18 principals. The study established that majority of the principals were found incompetent to exhibit technical skills at the job thus lowering teachers' motivation. The gap created from this study is that it was conducted on teacher motivation while the present study focused on academic performance.

In Heliwa district, Somalia, Abdirahman (2023) investigated how performance of learners in academics was being influenced by management practices of head teachers in private secondary schools. A population of 8 head teachers and 128 teachers were selected using purposive and systematic sampling technique. The study established that head teachers' competence in managing teaching-learning resources, curriculum supervision and financial management skills had significant influence on students' academic performance. The study by Abdirahman focused on private secondary schools while this study was in public secondary schools.

In Narok County, Kenya, Koskei et al. (2019) examined headteachers' technical competencies and financial performance in public primary schools. A convergent mixed method design was used targeting county auditor, 15 curriculum support officers, and 665 head teachers. Data was collected using observation checklist, interviews, and questionnaires. It was found out that headteachers technical skills had significant negative influence on financial performance of public primary schools. The dependent measure in Koskei et al. study was financial performance of primary schools while the present study focused on academic performance of secondary schools in Mt. Elgon Sub County.

In Langata Sub County, Cakir (2019) examined administrative skills of principals on students' academic performance in public secondary schools. A cross-sectional and phenomenology designs were used. The target involved principals, teachers, and BOM members. Data was collected

through use of interview guide and questionnaires. It was found out that principals' administrative role was important for students' academic achievement and since they performed important roles in the school, especially through challenging lack of enough resources. The researcher failed to show the linkage of administrative skills and academic performance of students an issue that this study dwells on.

MATERIALS AND METHODS

The research design selected for this investigation was descriptive survey. Because the target population for this investigation was large, the descriptive survey research design assisted in collection of primary data through use of questionnaire. Mount Elgon Sub-County has 17 public secondary schools out of which 3 are girls' boarding, 2 boys' boarding schools, and 12 are mixed day/boarding schools. From 17 schools, the target population involved 256 teachers employed by TSC teaching in those schools. Kathuri and Pals (1993) proposed a sample size determination table. When the population of respondents is 256, the corresponding sample size is 152 with a confidence level of 95%. Therefore, the total number of teachers selected as the sample was 152. Teachers were selected using stratified random sampling method. This is a probability sampling technique that combines stratified and simple random sampling. The research used questionnaire to collect data from respondents.

Teachers' questionnaires developed were in close and open-ended form. The questionnaires were designed based on the study objective; the independent variable (principal's technical skills) and dependent variable (students KCSE performance). The research instrument was tested for validity through content validation method and reliability through test-retest approach. The research instruments were analysed using descriptive and inferential statistics with the help of SPSS.

RESULTS AND DISCUSSIONS

Academic Performance of Secondary Schools in Mount Elgon Sub County

The dependent variable for this investigation was student academic performance. Therefore, the researcher collected KCSE mean scores from the schools that researcher collected data from in a three-year period; 2021, 2022 and 2023. The outcomes are given in *Table 1*.

Results in *Table 1* show that the performance of public secondary schools in the year 2021 was 3.5 (D+), which reduced to 3.3, and 3.2 (D) in the year 2022 and later improved to 3.6 (D+) in the year 2023. The result shows that the performance is below average (less than C-) which provides the evidence to investigate if this trend has been because of technical leadership skills that principals apply in their institutions.

Table 1: Secondary schools means score from 2021 – 2023

KCSE year	N	Min	Max	Mean	SD
2021	123	1.78	7.21	3.5289	1.13949
2022	123	2.01	5	3.3429	0.74633
2023	123	2.2	5.4	3.6409	0.81359

Source: Field Data (2023)

Principals Technical Skills Application in Secondary Schools

The study sought to investigate the relationship between principals' technical skills application and academic performance. The study collected data by administering questionnaires to teachers to give their views with regard to their principal's level of technical skills competency on the following scale: Very Low (1), Low (2), Moderate

(3), High (4), and Very High (5). The descriptive analysis of the responses from teachers is given in *Table 2*.

Results show that teachers agreed that their principals had the ability to guide them in preparation of professional documents in their schools ($M = 3.86$, $SD = 0.78$). This means that most principals competent in providing guidance to teachers on the preparation of lesson plans,

lesson notes, and schemes of work. Secondly, study results shows that teachers highly rated the capacity of their school principals to actively provide guidance on instructional methods to be used in curriculum implementation ($M = 3.86$, $SD = 0.79$). Through their guidance, teachers will be able to change their teaching methods which

would transform classroom learning experience for their learners. The finding agrees with Mutunga (2023) who found out that most principals were familiar with instructional methods the teachers in their schools used during classroom learning.

Table 2: Responses on technical skills of principals

Technical skills of principals	Mean	SD
Ability to guide teachers on preparation of professional documents like lesson plans and notes	3.8699	0.7889
Ability to actively provide guidance on instructional methods to be used in curriculum implementation	3.8699	0.7992
Capacity in understanding and implementing the curricula	4.0732	0.7910
Ability to purchase the recommended instructional resources	4.0569	0.8618
Ability to manage school finances well	4.2683	0.8206
Vastness with MOE & TSC code regulations in management of school	4.2195	0.8448
Ability to develop and implement school rules and regulations	3.9512	0.9906
Ability to provide instructional supervision in school	3.9024	0.9869
Level of competency in using ICT	3.4146	1.0076
Ability to mobilise additional infrastructural and instructional facilities	3.9675	0.9576
Valid N (Listwise)	3.9593	0.8849

Source: Field Data (2023)

Thirdly, findings of the study shows that teachers highly rated ($M = 4.07$, $SD = 0.79$) their school head understanding and implementing the curriculum. Considering their role as main school internal curriculum supervision, it can be seen that most principals in secondary schools in Mount Elgon Sub County are up to the task and therefore effective implementation of curriculum would be achieved. The result is consistent with Karwanto (2017) research in Indonesia found out that most principals possessed technical skills in ensuring there was adequate learning in schools. Through this, they were versed with the curriculum and understood what was required to ensure it is properly implemented. Findings also reveal that teachers agreed ($M = 4.05$, $SD = 0.86$) that their school heads had the capacity to purchase the recommended instructional resources. Considering that they are administrators of the school, principals need to ensure that the resources they procure on behalf of the school meets the teachers and students desires and this would ensure effective curriculum is implemented.

Results also show that most teachers ranked highly principal leadership skills in financial management ($M = 4.26$, $SD = 0.82$) by ensuring that all finances in the schools are accounted for and no issue of embezzlement of funds occur in their schools. The results concur with Akinnubi et al. (2023) who found out that most school heads in Nigeria possessed financial management skills. Further, teachers they said that their school principals were highly versed ($M = 4.21$, $SD = 0.84$) versed with Ministry of Education and TSC code of regulations on management of schools. This means that majority of principals actually implement the MOE code of regulations in school management to help them run their schools. When principals do not know the MOE regulations, quality education is compromised hence affecting academic performance of their schools. This means that majority of principals of secondary schools in Mount Elgon Sub County are aware of the responsibilities and duties that they have to undertake on behalf of the TSC to ensure teachers operate under their employers' regulations and professionally to ensure curriculum is implemented properly.

Findings also reveal that most teachers rated highly ($M = 3.95$, $SD = 0.99$) their principals' capacity to develop and implement school rules and regulations. This means that by working with other stakeholders, principals ensure that all schools rules and regulations are dutifully followed to ensure there is safe, calm and secure environment for learning by students and teachers to undertake their duties. This finding coincides with Awtseana (2019) who established that most teachers (93.7%) in Eritrea reported that their school principals actively participated in discipline management. This created a good atmosphere for learning and healthy environment for teachers in teaching. Keeping of discipline also helps students to focus on their education and prevent them from committing mistakes that can hinder their education progress.

With their role as internal curriculum supervisor, the teachers rated highly ($M = 3.90$, $SD = 0.98$) their school principals' ability to offer instructional supervision in schools. The results suggest that principals do regularly conduct classroom observation to oversee teachers' instruction in order to ensure that lessons are undertaken as prescribed by MOE resulting to quality education provision. The finding concurs with Karwanto (2017) who established that most principals in Indonesia had the capacity to supervise and monitor teaching and learning process implementation very well. Most teachers said that their principals' level of ICT competency was moderate ($M = 3.41$ and $SD = 1.00$). This means that not all principals are competent in using ICT. This means that ICT is one area that principals of public secondary schools need to acquaint with themselves. Considering the

revolution brought about by technology, principals are expected to be at the forefront in advocating for ICT-learning and management process but in Mount Elgon the situation is quite different.

Lastly, the research findings shows that most teachers rated highly ($M = 3.96$, $SD = 0.95$) their principals' capacity to mobilise additional infrastructural and instructional facilities. This means that most principals from Mount Elgon secondary schools are able to mobilise efforts to ensure that the facilities and resources of the schools are up to the standard to ensure quality education provision. The findings are contrary to Awtseana (2019) research in Eritrea that showed that most school principals were not adequately skilled in ensuring that instructional resources were availed to teachers in schools. When educational resources (facilities and materials) are not mobilised, it diminishes teacher motivation in undertaking their duties which affects learning progress in schools. Composite scores shows that most teachers highly rated ($M = 3.95$, $SD = 0.88$) their principals' technical skills in public secondary schools in Mount Elgon Sub County. This means that most schools heads in the area are able to undertake various technical tasks aimed at ensuring that curriculum is properly implemented in schools under their jurisdiction.

To establish the effect of principals' technical skills on students' academic achievement in KCSE, a Karl Pearson correlation analysis was computed involving composite mean score of principals' technical skills (*Table 2*) against the KCSE mean scores (*Table 1*) at 95.0% confidence level. The outcomes are presented in *Table 3*.

Table 3: Relationship between principals' technical skills and students' academic performance

	Teachers	Technical Skills	KCSE
Technical Skills	Pearson Correlation	1	.248**
	Sig. (2-tailed)		0.006
	N	123	123
KCSE	Pearson Correlation	.248**	1
	Sig. (2-tailed)	0.006	
	N	123	123

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

Source: Field Data (2023)

Results indicate that there exists significant weak positive relationship ($r=0.248, p=0.006$) between technical skills that principals possess and academic achievement of students in public secondary schools in Mount Elgon Sub County. The relationship also appears to be weak suggesting that the poor performance of public secondary schools in the sub county could be because of principals not applying technical skills that they possess that are critical to attainment of improved performance. The results are different from what Awtseana (2019) in Eritrea found out that there was average degree of correlation between principal technical skills and teacher motivation in performing their jobs. This means that an increase in principal's technical skills, there is corresponding increase in academic

performance of students in KCSE and vice versa is true. The findings concur with Akporehe and Asiyai (2023) who found existence of significant relationship between technical skills of principals and performance of public secondary schools in Nigeria. In conclusion, the researcher concludes that continuous application and use of technical skills by principals would result to improved academic performance of students in public secondary schools in Mount Elgon Sub County, Kenya.

Through open-ended questions, teachers were asked to state their views on contribution of principals' technical skills towards academic performance improvement in schools. Their responses are summarised in *Table 4*.

Table 4: Contribution of Principals Technical Skills to Academic Performance

Views	Frequency	Percent
Involvement has led to improved performance	27	22.0
Technical skills are high reflected through ability to implement curricula through follow up on various departments	8	6.5
Technical skills have not affected academic performance	6	4.9
Slightly above average	11	8.9
Performance satisfactory	42	34.1
Average	2	1.6
Low	4	3.3
Non-response	23	18.7
Total	123	100.0

Source: Field Data (2023)

According to teachers' responses in *Table 4*, 42 (34.1%) indicated that technical skills that their school principals possess are satisfactory and if applied it would lead to improvement in academic performance of students in their schools. The results further show that only 4.9% of teachers believed that technical skills did not influence performance. The result therefore shows that schoolteachers agree that application of technical skills by principals is an ingredient of positive academic improvement in public secondary schools in Mount Elgon Sub County, Kenya. This finding agrees with Omolo and Simatwa (2019) who found out that principal's skill on teachers and students monitoring had high influence on academic performance of secondary schools in Migori County.

CONCLUSIONS AND RECOMMENDATIONS

Principals in secondary schools are supposed to apply technical skills in order to manage school affairs (academic and non-academic). Therefore, it is expected that the principals demonstrate that they know and apply the technical skills to facilitate academic performance in the schools. The study discovered that teachers highly rated ($M = 3.95, SD = 0.88$) principals' application of technical skills in public secondary schools in the study area. The study results showed that most principals were highly skilled in knowing the TSC and MOE regulations to enable effective handling and implementation of the curriculum in their schools. This ensured that all affairs of the school were performed according to ministerial guidelines. However, the study found out that the

level of competency by principals in operating and utilising various ICT equipment was found to be low. Considering the importance of ICT in curriculum and management process in the school, most schools heads did not possess adequate skills to use. Computed correlation statistics showed that there existed a significant weak positive relationship between principal technical skills and academic performance of secondary schools in KCSE ($p < 0.05$). Despite the weak correlations (below 0.5), the statistics suggested that improved application of principal technical skills by principals would result to improved academic performance of students in KCSE examinations in Mount Elgon Sub County. Through application of these skills, principals in secondary schools were in a good position to facilitate and enhance effective instructional supervision.

To address principals' technical skills implementation in schools, the study recommends for them to undergo training in the use of current technological resources in management of schools. This will help in their administrative and instructional tasks, as it will replace the paper and conventional methods that are expensive in terms of wastage of resources and time. This can also be enhanced by government ensuring that they provide adequate ICT resources to all public secondary schools as part of ensuring their full utilisation and maximization of opportunities brought about by them.

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