Evaluation Of Usage Of National Education Management Information System On Funding Of Public Secondary Schools In Turkana County, Kenya

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Abstract: This study evaluated Usage of National Education Management Information System on Funding of Public Secondary Schools in Turkana County. This was in light of concern that some schools were lacking funding in Turkana County. The study was guided by five evaluation questions: To what extent is NEMIS used in Turkana County? What is the level of funding of public secondary schools in Turkana County? How has NEMIS usage influenced funding in public secondary schools in Turkana County? To what extent has usage of NEMIS influenced accountability of Free Day Secondary Education funds in public secondary schools in Turkana County? and in what ways has usage of NEMIS influenced record keeping in public secondary schools in Turkana County? The evaluation was anchored in program theory. The study adopted explanatory sequential design. The target population were; 68principals, 68 deputy principals and 68 directors of studies. Simple random and critical case purposive sampling were used. The sample size consisted of 63 respondents. Data were collected using questionnaire and interview guide. Cronbach's alpha was used to determine reliability. The face and content validity of instruments was determined by consulting experts and trustworthiness of qualitative instruments was via thick descriptions, triangulations, peer briefing and member checking. Quantitative data were analyzed using mean scores, frequencies, standard deviations and percentages. Hypotheses were tested using Chi-square. Qualitative data were analyzed using themes and presented in form of narrations and direct quotations. The study findings revealed that; NEMIS is not adequately utilized in public secondary schools. Not all students are registered in NEMIS system. Funding is not adequate; hence schools are struggling to operate. The hypotheses findings were that, there is a significant relationship between usage of NEMIS and online enrolment, financial accountability and record keeping in public secondary schools. The study concluded that principals did not adequately utilize NEMIS functions and government funds were not enough to facilitate school activities and operations. The study recommended that the Ministry of Education should organize for capacity building training for NEMIS users and increase capitation to enable principals facilitate school operations.

I. INTRODUCTION

Turkana County being in ASAL area has vulnerable parents who are unable to pay school fees for their children or even support school academic programs. Children from poor families join public secondary schools which can accommodate them. Public schools mostly depend on government funding for all their operations. There is an outcry from school principals in Turkana County that government funds are not adequate and also they receive less funding (Turkana County Principals, 2023). Principals have complained that, Learner data disappears overnight, affecting capitation disbursements, the system is prone to manipulation by cybercafés and untrained staff and schools are missing out capitation. Therefore, the current study evaluated usage of National Education Management Information System on funding of public secondary schools in Turkana County, Kenya. The purpose of this evaluation is to: Uncover operational or technical challenges in the use of NEMIS that may hinder effective funding and propose improvement.

Magrath and Fitzsimons (2019) carried out a study on funding of community education in Ireland. Findings indicated

a disconnect between funders and providers. Akinlolu & Onaolapo (2024) analyzed the implications of the funding structure in Nigerian secondary schools for school managers. It was a qualitative study and results of the study revealed that the lack of a viable funding structure for Nigerian secondary schools poses many challenges for school managers. Kafumbu (2020) conducted an analysis on the status of financing of secondary education in Malawi. The study was a secondary research which adopted the positivist paradigm and it employed a descriptive research design. Samuel & Mokaya (2022) established the influence of level of funding on physical infrastructure implementation: a case of Trans-Nzoia and West Pokot Counties, Kenya. The study adopted the Critical Chain Project Management theory while the descriptive survey design was employed. The findings revealed that,West Pokot County government allocated more funds towards infrastructure compared to Trans Nzoia.

The studies reviewed under funding of secondary schools concentrated on different sources of funding such community, parents and other donors. Most of the studies were on status of financing and majorly on Constituency fund or County government funds for fees or for projects influencing learning or enrolment. Impact of subsidized Free Day Secondary Education, relationship between fund disbursement and the financial sustainability and timely disbursement of Free Secondary Education Tuition Fund and the curriculum implementation were the major ones related with government funding. In all these studies funding was not based on online enrollment or usage of NEMIS.

It is eight years since NEMIS was launched in 2018 by the Ministry of Education to streamline data from schools to the Ministry for planning and decision making. The system has been used for allocation of resources to public schools. Funding of public schools has been a key function of NEMIS system since public schools depend on government to run daily school operations. Despite its continuous use there have been upcoming challenges; lack of funding by some schools, low funding, learners missing from the system, system not accepting some learners because of age or some documents missing. The literature view indicates that, none of the studies has been done on evaluation of NEMIS or use of NEMIS on funding of public schools. It was then the right time a study on use of NEMIS on funding of schools has to be done in Turkana County to inform the stakeholders of the challenges on usage of NEMIS system in Turkana and other parts of Kenya.

EVALUATION QUESTION

The following question guided the evaluation
- ✓ What is the level of funding of public secondary schools in Turkana County, Kenya?

II. METHODOLOGY AND DESIGN

EVALUATION DESIGN

Sileyew (2020) defined a research design as a framework that guides how research is conducted. It is a blue print for data collection, analysis and interpretation to gain answers to evaluation questions. Mixed methods evaluation paradigm was adopted. The evaluation utilized explanatory sequential design. 'QUAN' and 'QUAL' explanatory sequential design was used in which 'QUAN strand was major while 'QUAL' strand was minor. The quantitative data collection and analysis was followed by qualitative data collection and analysis to explain the quantitative findings. Qualitative data helped interpret and provided context to quantitative results. The evaluator gained a more comprehensive understanding of evaluation problem. Mixed design was used to gain a more complete understanding of a problem and to validate the findings.

TARGET POPULATION

The evaluation targeted 68 public secondary schools. This in turn gave 68 principals, 68 deputy principals and 68directors of studies. Principals, deputy principals and directors of studies were key respondents since they are key users of NEMIS portal. The school principal is registered by the ministry of education to the NEMIS portal for the school. He/she has the users' number and password of the school. As a supervisor he/she has a lot of responsibilities hence he/she delegates the responsibility of NEMIS usage to the deputy principal and director of studies. The deputy principal and director of studies admit new learners using the learner biodata (parents' details, learner KCPE index and birth certificate entry number numbers).

SAMPLING PROCEDURE AND SAMPLE SIZE

The evaluator adopted both probability and non-probability sampling methods to get a representative sample from the population. Simple random and critical case purposive sampling techniques were used to select schools, principals, deputy principals and director of studies.

Simple random and critical case purposive samplings were used in the evaluation. Based on Israel 1992, who suggested that for small populations of like 500 people, a percentage of 20-30% of the target population can be used to form the sample size. From the target population of 68 schools, 21(30%) schools formed the sample size from which three participants were selected from each school to form 63-samplesize. The sample consisted of three participants from each selected public secondary school that is one principal, one deputy principal and one director of studies. Simple random sampling was used to select 21 secondary school since schools are heterogeneous, while critical case purposive sampling was used to select 8 specific principals from already sampled schools which are older in terms of establishment and have been funded for a longer period of time.

The principals are the key participants since they are accounting officers of their schools in respect to Ministry of Education funding. The principals' details are registered in NEMIS portal for rights of usage. The deputy principals are the second in command in schools administration. In most cases, the principals delegate their responsibilities to them. They are the managers of students hence they have students details including admission numbers and UPI/NHIF numbers.

The directors of studies do admission of learners in NEMIS when students report to form one. The school administration has given them rights to use NEMIS to ensure that learners are captured in NEMIS portal.

EVALUATION INSTRUMENTS

The study utilized questionnaire and interview guide to collect the data. The questionnaire with 5 point likert scale ratings were used to collect quantitative data from the principals, deputy principals and director of studies. Interview guide with open questions were used to collect qualitative data from the eight principals. To determine the validity of the questionnaires and interview guides, the evaluator presented the drafts to experts to assess the questions for face and content validity. Through face validity the experts assessed the degree to which the instruments appear to measure the usage of NEMIS on funding of public secondary schools. The experts using the draft systematically examined items in the questionnaire and interview guide to ensure they represent the aspects of NEMIS being evaluated. The input of the experts helped the evaluator to make necessary adjustments and modifications to the instrument which was incorporated into the final draft of the questionnaire for data collection. This aligns with Okaforcha's 2022, that determination of face and content validity is reaffirmation of the importance of validating research instruments before administration.

To determine internal consistency of questionnaire using Cronbach's alpha, 10 items measuring each construct from the five evaluation questions were selected. The items were given to the pilot schools then Cronbach's alpha was determined for the pre-test. After two weeks the same respondents were given the same items to give responses on. Cronbach's alpha for a post-test was also determined. The Cronbach's alpha obtained was 0.72, which was within the acceptable range.

DATA ANALYSIS PROCEDURES

During quantitative data analysis, the questionnaires were screened to ensure there were no errors. The total number was confirmed as same as it was issued to the respondents. The responses were organized in respect to the evaluation questions and coded. The data was keyed in SPSS 25 version. Using descriptive statistics the data was summarized using means, standard deviations, frequency distributions and percentages. The data were displayed in tables according to evaluation questions. Inferential statistics of Chi-square tests for categorical data was used to test for the null hypothesis. Significance level (p-value) was set at 0.05 to determine if findings are statistically meaningful. The findings were related to evaluation questions and hypotheses.

During qualitative data analysis from interviews were transcribed, the data were cleaned and formatted for analysis. The evaluator read through the data multiple times to familiarize with it taking memos and initial notes down. The evaluator identified potential patterns and stand out quotes. The themes were created based on interview guide questions. Manual highlighting key ideas was done. Systematically the evaluator went through the data and assigned codes to relevant segments. After grouping similar codes into categories,

recurring ideas were identified taking into consideration relationships between codes. Thematic matrices were used to organize findings. Themes were analyzed to answer evaluation questions. Braun and Clarke (2019) opined that thematic analysis is an approach or systematic method to identify, analyze and report generated patterns within the collected data. The results were presented using narrative explanations reinforcing quantitative findings.

III. FINDINGS

LEVEL OF FUNDING OF PUBLIC SECONDARY SCHOOLS

The level of funding of public secondary schools was determined using ratings on a five-point scale. The evaluation statements were based on how schools were spending funds received from the government. Table 1 shows the responses presented in percentages, Means and standard deviation on level of funding of public secondary schools.

Statements	N	Not Very Adequate	Not Adequate at All	Not Adequate	Adequate	Very Adequate	Mean	Std. Deviation
We pay support staff's salaries using personal emolument money received from the government	63	0	6(10%)	16(25%)	24(38%)	17(27%)	3.83	.943
Funding received from the government and money paid by parents as fees are used by the school administration to pay suppliers who supply stationeries and food stuffs	63	0	4(6%)	19(30%)	17(27%)	23(37%)	3.94	.965
Government funds have been used by the school administration in construction of Maintenance and improvement projects such as classrooms, laboratories and latrines	63	3(5%)	1(2%)	15(24%)	20(32%)	24(38%)	3.97	1.062
Government funds are not enough to purchase teaching and learning materials such as toners, printers, whiteboards and markers	63	3(5%)	6(10%)	28(44%)	16(25%)	10(16%)	3.38	1.023
We use capitation received from government to facilitate co-curricular activities for example ballgames/Music/Drama	63	4(6%)	6(10%)	9(14%)	27(43%)	17(27%)	3.75	1.150
The government funds enable the school administration carry out school operations eg local running, water bills, electricity	63	1(2%)	9(14%)	22(35%)	14(22%)	17(27%)	3.59	1.087
Government funds received in school are not enough to facilitate administrative functions eg BOM meetings, workshops for principals, HODs Bursars and teachers	63	4(6%)	6(10%)	29(46%)	10(16%)	14(22%)	3.38	1.128
Government funding is not enough to support new programs such as remedial lesson and academic trips	63	15(24%)	8(13%)	20(32%)	3(5%)	17(27%)	2.98	1.497
The government funds are used for servicing and maintaining school vehicles	63	12(19%)	6(10%)	20(32%)	11(17%)	14(22%)	3.14	1.390
We use government funds to insure school vehicles and buildings	63	5(8%)	11(17%)	22(35%)	12(19%)	13(21%)	3.27	1.208

Table 1: Percentages, Means and Standard Deviation on Level of Funding of Schools

According to the data displayed in Table 1, most of the respondents remarked that they use government funds to pay support staff salaries adequately(38%) while some denoted very adequate (27%). Funds received from government and parents fees to some respondents it is very adequate (37%) and others not adequate (30%). To most participants government funds are adequately (32%) or very adequately, (38%) used for maintenance and improvement projects such as classrooms, laboratories and latrines. The principal in one of secondary schools observed that:

School infrastructure has improved to 40% extent since NEMIS inception. Some schools have constructed classrooms, toilets, administration blocks, dormitories and laboratories but they are not adequate. (*Principal 3, Interviewed on 18th October 2024*)

Another principal said that:

School infrastructure has improved since NEMIS inception. It has enhanced learning environment and working environment for workers. There is safety of the school assets. Such improved infrastructure includes furniture, classrooms, dormitories and watersystem. (*Principal 2, Interviewed on 16th October 2024*)

Simiyu (2021) supports this observation since it established that funding practices had a positive association with physical infrastructure provision. It also found out that there was a positive association between the funding practices and the teaching learning materials. The concluded study found out that funding of MI projects improved infrastructure and learning environment as reported by the interviewed principals.44% of respondents said government funds are not adequate to purchase teaching and learning materials. 43% admitted that capitation is adequate to facilitate co-curricular activities. Among the participants 35% pointed out that, government funds are not adequate to enable the school administration carry out school operations. 46% of the respondents had opinion that funds received are not adequate to facilitate administrative functions for example BOM meetings, HODs, principals and teachers workshops.

To some participants government funds are no adequate to support new programs such as academic trips, remedial lessons (32%). The data also shows that government funds are not adequate to service and maintain school vehicles (32%) and not adequate to insure school vehicles and buildings (35%). Omae (2019) concluded that there is inadequate financing which in turn affect students' performance in KCSE in secondary schools. The review study finding agree with the concluded evaluation that funding is inadequate.

The funding statements with mean scores 3.83 and 3.94 with standard deviation of 0.943 and 0.965 are too close. These mean scores and standard deviation indicates that most of the participants adequately agree with use of the funds as read in the respective statements as shown in Table 7. It therefore implies that capitation funds received from the government are mostly used by most of the schools as personal emolument to pay salaries for support staff and pay suppliers of teaching and learning material. Other schools also used the funds for construction of maintenance and improvement projects such as classrooms and laboratories. Other mean scores with high standard deviation rarely or sometimes use government funds for facilitating co-curricular activities, carry out other school operations, facilitate administrative functions like BOM meetings and workshops for staffs, support new programs, service and maintain school vehicles and provide insurance for the school vehicles and buildings.

The data provided in Table 1 indicates that public secondary schools receive funding from government in form of capitation. The funds received are not adequate to facilitate the school operations. Most funded operations in most schools are payment of support staff salaries, suppliers and construction of MI projects. It is clear that most schools run into debts to ensure they facilitate school activities. There is need for increased funding in public secondary schools. This is supported by the principal who reported that:

Yes, NEMIS is reliable. Data capture is prompt and capitation relies on online enrolment. Not all learners are fully registered in NEMIS; others have not been approved hence less funding of schools. The money a school receives is not normally enough to meet the school needs. *(Principal 5, interviewed on 23rd October 2024)*

The government subsidy is still below expectation in curbing the challenge of low teacher-student ratio. The management of government subsidy is still faced with a serious challenge of having all students access relevant textbooks. This suggested that government subsidy still faces obstacles in its critical role in the provision of teaching and learning materials in secondary schools and that parents are still burdened with the responsibility of purchasing text books (Ngasura, Nyakundi, & Koros, 2023).

The Pearson Chi-square test revealed a statistically significant association between online enrolment and funding in public secondary schools, χ^2 (12) = 100.910, p < .001. This result suggests that online enrolment rates vary significantly across different levels of school funding, indicating a dependency between the two variables. The association implies that funding levels may influence a school's ability to support or implement online enrolment systems. Better-funded schools might have more resources to facilitate online enrolment, while underfunded schools may rely on manual or in-person processes.

IV. DISCUSSION

The level of funding of public secondary schools was testing how schools were spending funds received from the government and whether it was enough. The findings indicates that capitation funds received from the government are mostly used by most of the schools as personal emolument to pay salaries for support staff and pay suppliers of teaching and learning material. Other schools also used the funds for construction of maintenance and improvement projects such as classrooms and laboratories. Some schools use government funds for facilitating co-curricular activities, carry out other school operations, facilitate administrative functions like BOM meetings and workshops for staffs, support new programs, service and maintain school vehicles and provide insurance for the school vehicles and buildings. Participants observed that government funds are not adequate to enable the school administration carry out school operations. To some

participants government funds are not adequate to support new programs such as academic trips and remedial lessons. School infrastructure has improved since NEMIS inception. It has enhanced learning environment and working environment for workers. There is safety of the school assets. Such improved infrastructure includes furniture, classrooms, dormitories and water system.

In essence the government funding is not adequate. Not all learners are registered in NEMIS hence low online enrolment leading to low funding. The funds received are not enough to facilitate school activities and operations. Government funds are mostly used for payment of staff salaries as personal emolument, suppliers of teaching and learning material, and construction of Maintenance and Improvement (MI) projects.

V. CONCLUSION

The capitation funds received from the government are mostly used for personal emolument to pay salaries for support staff, suppliers of teaching and learning material and construction of maintenance and improvement projects. The government funding is not adequate. The funds received are not enough to facilitate school activities and operations. Not all learners are registered in NEMIS hence low online enrolment leading to low funding. The school physical enrolment is higher than the online enrolment. The government is not aware because those extra learners have not been captured online. Over aged students above 19 years' are not recognized by the system instead they are rejected. NEMIS can malfunction deleting some learners from the system. Some institutions do not release learners who have transferred from their schools for fear of underfunding. The early shut down of the system stops further registration. There is a relationship between online enrolment and funding of public secondary schools. This is because the government disburses funds to school based on online enrolment. Over aged students above 19 years' are not recognized by the system instead they are not counted as part of the funded learners. This remains a draw back in ASAL schools where learners join school at an older age.

Based on the conclusions of the evaluation, the following recommendations were made to various education stakeholders. To streamline student registration, the Cabinet Secretary, Ministry of Education should simplify birth certificate requirements or offer alternative verification methods to allow the NEMIS portal to accept details of learners above 19 years of age. The Cabinet Secretary, Ministry of Education should adjust capitation rates to reflect current economic realities and school needs. Effectiveness of NEMIS system in Funding of Schools can be studied and the same study can be conducted in public primary schools.

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