

Application of National Education Management System to Student Enrollment and Secondary School Administration in Bungoma County's, Kenya

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ABSTRACT

National Educational Management Information System (NEMIS) is the Kenyan integrated Education Management Information System. NEMIS is necessary to support overall education management. It is in form of a portal helps the Ministry of Education to gather accurate and real time information on learners, staff and learning institutions. The main objective of the study was to determine the influence of NEMIS students' enrolment on secondary school management. The study was guided by the Technological Acceptance Model. Descriptive survey research design was employed with a target population 553 respondents comprising of managerial teaching staff from Extra County, county and sub county schools. Simple random sampling was used to select 164 respondents from the 30 public secondary schools in Bungoma West Sub County. Questionnaires, and interview schedule were used to collect data from the respondents. Data was analyzed using descriptive statistics. The research findings revealed that NEMIS was well managed in Extra County and County Schools and then in Sub County Schools hence it had a significant influence student enrolment in the system. The study recommends training of all senior management in the utilization of NEMIS and have all school adopt digital record keeping systems that are compatible with NEMIS for easy retrieval of data on enrollment.

KEYWORDS: Application, National Education Management System, School Administration, Student Enrollment

1. INTRODUCTION

Manual way of searching for secondary schools details in Kenya are becoming a forgotten story because of introduction of NEMIS for purposes of students' enrolment. (wanzala, 2019) . Most school policies were customized towards the use of manual ways of collection .students' enrolment information. (Walekhwa, Achoka, & Ndiku, 2016). The schools could access the enrolment through use of students' admission books and class registers. A lot of time could be used to write the students enrollment details in case it was needed by various agencies within the Ministry of education. (Waweru, 2016).

All decisions in the school both within and without are centered about students enrolled in a school. That's why the main reason for the introduction of NEMIS was to ensure that every learner counts at every level of decision making (Ministry of

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Education, 2020). It serves as a single source of truth for Kenyan education system that entails schools, learners and facilities. It was designed to provide data that is reliable, relevant and easily accessible.(Ministry of Education, 2019) . The school are therefore expected to design policies that will facilitate the use of NEMIS to execute its policy decisions.

The core objective of NEMIS is to have all students in schools digitally registered. The online registration is executed by the NEMIS platform which generates a Unique Personal Identifier (UPI): This is one of the hallmark features of the NEMIS. The system was designed to allocate every learner in Kenya a unique 6character Unique Personal Identifier (UPI) of the form AAA-BBB used in their entire life time. The UPI number makes it easy for the students'

information to be availed for a learner's academic life both to the learner and other interested parties... The system generates UPI number for each student by after a birth certificates and parents' details have been availed.

NEMIS enrolment of learners provides Evidenced Based Decision making and planning. Data driven planning is known to be more effective for an education system as resources are allocated effectively (Ministry of education, 2017). Likewise, Governments design and implement data driven policies that are based on facts and reality. NEMIS is expected to generate accurate and reliable data which will promote effective decision making at primary and secondary level because it was customized as a home-grown effective data and information management solution. The NEMIS data on student's enrollment is used in the allocation of resources to schools mainly the allocation of Free Day Secondary School capitation. Each secondary school student is annually allocated KES. 22,244.00. (Ministry of Education, 2020) MOE expects up to date student's enrolment data in the system from schools at the end of November to be used in the disbursement of government subsidy for the following year. Walekhwa et al conducted a study among public secondary schools in Rarieda Sub- County to assess the availability of data on students and other resources. The findings revealed that schools' administrators performed their roles of collecting and storing relevant students' data to a large extent (Walekhwa, Achoka, & Ndiku, 2016). This study pointed out the importance that school administrators attach to keeping of data. However, there was no attention about keeping data in a form where it can be easily retrieved or where it has been simplified for decision making. The findings of the study concurred with a similar study in which 98 percent of the head teachers reported that EMIS-related documents such as admission registers were used by schools. Despite acknowledging the use, the respondents were facing difficulties in maintaining proper records that provide primary data for effective EMIS. The study found that about 40 percent of the school heads were unable to produce school admission registers which are used in school management. Further, 64 percent and 41 percent could not produce fees registers and staff returns respectively. Schools reported that they faced problems when filling the data returns for MOE and other bodies such as TSC and KNEC (MOE, 2008).

In spite of the fact that the study revealed a workable EMS but not quite effective, it did not go into much details involving the students' enrolment. NEMIS enrolment must be facilitated by school policies.

School management, other than the deputy needs to execute activities like collecting students' details, keying students' details into the system, uploading admission letter, sensitizing parents on procedures of downloading admission letters and transmitting students' enrolment details to Ministry of education through NEMIS platform. There has been a lot of issues that have been reported since inception of NEMIS which includes failure to register all learners in the system (wanzala, 2019). The system was a headache for some principals who were unable to use the system. (Beja, 2019). The challenges in the use of NEMIS have been attributed to low level of preparedness in utilizing the system. (Kasimiri, 2021.). Preparedness included training on the use and availability of infrastructure. School failure to capture all learners has often made schools to get less funds from government capitation. NEMIS is important in schools financial matters and to a large extent affect the school annual budgeting. Many schools have missed out on Government funds because head teachers are unable to use a new system meant to help manage public institutions. The National Education Management Information System (NEMIS) has caused a crisis in schools as their heads fail to use it to provide details of students, which, among other things, determines how much government Free Day Secondary School (FDSE) capitation each school should get. This adversely affected some schools annual budgets implementation.

Eunice Onyango, a principal from Western region, lamented that her school had been receiving zero funding because of challenges they had faced while using NEMIS, and asked the ministry to urgently address the matter. "It has been a nightmare using NEMIS as a result, my school has been missing out on Government funding" she said. Many head teachers also protested against the system they say has seen hundreds of students denied treatment because their details were not captured by National Health Insurance Fund system. KESHA chairman Kahi Indimuli said many schools had been constrained after missing out on State funding. "NEMIS is good, but there are delays in getting the correct data for all students on the system. This has caused a major problem as far as funding is concerned," he said. Teachers called for the abolition of the use of the National Education Management Information System, saying it has failed. NEMIS, a web-based data management system, was designed by the Education Ministry to streamline the data of students for informed decision-making and planning. It is linked to a Unique Identifier that is randomly generated using an algorithm. The ministry has been using the system for capitation. However, the Kenya

National Union of Teachers said the system has been abused by some ministry officials. They said “NEMIS not working. It is being used to punish schools in implementing their budgets. (Nyanchama, 2021).

1.1. Significance of the Study

Information obtained from this study may help the Ministry of Education to formulate policies and strategies to promote effective use of NEMIS

2. RESULTS AND DISCUSSIONS

2.1. Influence of NEMIS Student Enrolment on Secondary School Management

The objective of this study was to determine the influence of NEMIS enrolment on secondary school management in Bungoma County. The study set out to answer the research question: What is the influence of NEMIS students’ enrolment on the secondary school management in Bungoma County?

To determine the extent to which NEMIS enrolment has affected secondary school management, the respondents were required to rate their opinion against eleven statements on a five-point Likert scale with a score of 1 indicating ‘Strongly Disagree’ and 5 indicating ‘Strongly Agree. The ratings were analyzed as frequencies and weighted averages. The results were presented in Table 1. (SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, and SD- Strongly Disagree)

Table 1 Respondents’ opinion ratings on influence of NEMIS enrolment on School management policies

Statement	SA	A	N	D	SD	f _{wt}	f _{wt} /n	$\frac{\sum f_{wt}}{\sum f}$
NEMIS Policy Exist in School	43	44	-	7		94	405	4.31
NEMIS Procedures followed as per school policy	27	43	1	18	5	94	351	3.73
Management has developed a calendar for NEMIS enrolment activities	29	38	5	20	2	94	354	3.77
All students in this school have been enrolled in NEMIS	29	33	9	14	9	94	341	3.63
Class teachers promptly collects students information required for NEMIS enrolment	22	48	8	11	5	94	353	4.18
Class teachers are able to confirm registration of their students in NEMIS	31	26	15	20	2	94	346	3.68
Senior teachers enlighten parents about use of NEMIS	22	33	8	22	9	94	319	3.39
School management helps parents to download NEMIS admission letter	20	35	5	12	22	94	301	3.20
School departments benefit by use of NEMIS enrolment information	19	47	10	15	3	94	346	3.68
All management staff have been trained to use NEMIS in enrolment	19	24	18	24	9	94	302	3.21
School submits correct enrolment returns to MOE	27	46	10	2	9	94	362	3.85

Source: Field Data, 2022

When required to rate the statement that NEMIS Policy Exist in School, majority of the respondents represented by 87(92.6%) indicated that they agreed with the statement while only 7(7.4%) indicated that they disagreed. That implies majority generally agree that there was a NEMIS policy in the school. This was confirmed by the weighted average for the statement at 4.31 which implies there was a NEMIS policy in majority of schools under study. From time-to-time school policies are dynamic. In response to introduction of NEMIS, according to interview of principal e5, the school principals were keen to formulate guidelines to ensure that they actualize the NEMIS processes in their schools. Most of their policy guidelines were derived from the Ministry of education policies, their school ICT policies, and NEMIS user manuals. Through their policies they had identified internal personnel and have structures in place to coordinate all NEMIS related functions. This is in agreement with studies that concluded that NEMIS is used in students’ enrolment through generation of UPI. (Kasimiri, 2021.) The few schools that lacked a clear policy is attributed to low level of infrastructure to support NEMIS. The interview of

respondent principal e4 was that the school had only one computer that in most of the time was used by the principal's secretary and that the school therefore hires the services of a cyber-personnel to register students in NEMIS. To sum up, NEMIS enrolment is done promptly with proper management policy guideline that guide the process of enrolment.

Another statement sought to find out whether the NEMIS procedures were followed as per school policy and a larger proportion of respondents, 70 (74.5%) indicated that they agreed with the statement while only 23(24.5%) disagreed with the statement and only 1(1.1%) was undecided. The weighted average for the statement was at 3.73 which indicate that the respondents generally agree that NEMIS procedures were followed in majority of the school.

This study agrees with the findings that NEMIS needs clear and easy to follow procedures. Some respondents indicated that well organized school policy procedures made it easier for NEMIS enrolment activities to be undertaken within the stipulated timeframe. Interviews conducted on respondents' e3, e8, d9, d12, e5, e7, s1, s2, s5, found out that the schools had policies and clear procedures that facilitated the functioning of NEMIS. This agrees with the findings of Walekhwa (2016) where he argued that an effective NEMIS requires proper procedures to be followed for proper functionality in management activities

The respondents were also required to rate their opinion on whether management had developed a calendar for NEMIS enrolment activities. Majority of the respondents represented by 57(71.3%) agreed with the statement while a lower proportion of 22(23.4%) disagreed and 5(5.3%) indicating that they were uncertain. The statement had a weighted average of 3.77 which implies that there was certainty that management had developed a calendar for NEMIS enrolment activities. Principals' c2, c8 and deputies ed1, ed 2 supported the need to have a calendar of NEMIS activities but their schools relied on Ministry of education calendar to be able to work within the set deadlines. The beginning of the year NEMIS enrolment activities included fresh registration of learners by generating UPI numbers, admission of form ones, transfers and promotion of students.

The respondents were also required to give opinion on whether all students had been enrolled in NEMIS. A majority of the respondents represented by 62(66%) agreed with the statement while 23(24.5%) disagreed and only 9(9.6%) were undecided. The statement had a weighted average of 3.63 which implies that most schools had enrolled all students in NEMIS. From the interview respondents, the reason for enrolment of learners was attributed to availability of adequate NEMIS facilities, adequate NEMIS personnel, efficient class teachers who collects students birth certificates, availability of strong internet and a well-developed school ICT culture. This is in line with the findings by Paul, (2016) whose research revealed that adequate infrastructure promotes effective implementation of EMIS. Thus effective enrolment of students requires not only the infrastructure but also well trained personnel with the right attitude (Muyesu, 2016) . From interview with the principals it was indicated that only few members had been trained on NEMIS formally. Others relied on the manual and Sub County offices to help them to fix NEMIS registration process. They appreciated the effectiveness, efficiency and availability of real time data from NEMIS for use in school internal activities. Duplication of information has been reduced since the same data from NEMIS is shared with other software like that of Zeraki and KNEC KCSE examination registration.

The study also sought to find out whether all the students had been enrolled in the NEMIS and respondents' c2, c3, d2, d3, s1, s5, s49, s60, gave various reasons for failure to be enrolled which included lack of enough computers, manpower and failure to get birth certificates for registration of NEMIS as reasons why some students are not enrolled in NEMIS. In some cases, incorrect data was captured due to lack of enough manpower, typing and other human errors. This agrees with the findings of (Walekhwa, Achoka, & Ndiku, 2016)) who found out that trained personnel are very key in successful implementation of effective NEMIS

The respondents were also required to rate opinion on whether Class teachers promptly collect students' information required for NEMIS enrolment. A very large proportion of represented 70 (74.5%) agreed with the statement and only 16(17%) disagreed while 8(8.5%) were uncertain. With a weighted average for the responses was high at 4.18, which confirms that generally class teachers promptly collects students information required for NEMIS in the schools sampled. From the interviews on class teacher role in NEMIS enrolment data collection, it was found that the class teachers who liaised with parents to collect the birth certificates and other parents' details had clear knowledge on how the system helps in school management. Most students joining form one brought along their UPI numbers from their former primary

schools. In some cases, as e8 observed, the school management took the initiative to facilitate students' acquisition of birth certificates. The biggest challenge that hindered full enrolment from the respondents was lack of birth certificates. Others included poor network connectivity, low computer literacy and lack of bundles.

The respondents were also required to rate their opinion on the statement that class teachers are able to confirm registration of their students in NEMIS. A larger proportion of 57(60.6%) indicated they agreed with the statement while 22(23.4%) disagreed with the statement and 15(16%) indicated being uncertain. The weighted average was at 3.68 implying that the respondents were generally of the opinion that class teachers were able to confirm registration of their students in NEMIS. From the interviews, class teachers with ICT skills were the ones who were keen in confirming students' enrolment as compared to those who did not have sufficient ICT skills.

When required to rate their opinion on the statement that senior teachers enlightened parents about use of NEMIS; there was a divided opinion with a larger proportion of 55(58.5%) indicated they agreed with the statement while 22(33%) disagreed with the statement and 8(8.5%) indicated being not sure. The weighted average was at 3.39 implying that there was a divided opinion about whether senior teachers enlightened parents about NEMIS. From the interview schedule, the reason for a divided opinion is that the school heads and their deputies were the key agents of disseminating the information. They did this awareness in school education days, through newsletters, text messages and by verbal communication through class teachers. When required to rate their opinion on the statement that School management helped parents to download NEMIS admission letter. There was a divided opinion with a larger proportion of 55(58.5%) indicated they agreed with the statement while 34(36.2%) disagreed with the statement and 5(5.3%) indicated being undecided. The weighted average was low at 3.39 implying that there was a divided opinion about whether School management helps parents to download NEMIS admission letter. However, this is attributed to the fact that Sub- County schools don't upload their admission letters on NEMIS.

On whether school departments benefited by use of NEMIS enrolment information, a large proportion of the respondents represented by 66 (70.2%) agreed with the statement while only 18 (19.1%) disagreed and 10(10.6%) were undecided. The weighted average was 3.68 implying that on average majority of the respondents had the opinion that school departments benefit by use of NEMIS information. From the interviews, most respondents appreciate gains achieved from use of real time student NEMIS information. The games department used NEMIS to verify bona fide games participants as well as preparation of the students Identity documents during games. The academic department uses the NEMIS information to transfer learners for KCSE registration. Similarly, the boarding department utilizes it for NHIF medical manage activities. The Deputies can also utilize it to track the movement of their students. It makes it easier for the schools to account for all their students.

The research also sort to establish whether all management staff had been trained to use NEMIS in enrolment and the responses indicated that there was a fairly divided opinion from respondents with a larger proportion represented by 43 (45.7%) who agreed with the statement while 33 (35.1%) disagreed and a fairly large proportion of 18(19.1%) were neutral. The weighted average was low at 3.21 implying that there was a very slight agreement among the respondents that management staff have been trained to use NEMIS. From the interviews, it was confirmed that the Principals and one ICT teacher had been trained. The study also highlighted that the principals without adequate ICT training found it difficult to upload data on the system and that they had to utilize the few experts within the schools of seek for services of experts out of school. On the other hand, it was ease for them to access NEMIS, retrieve information and print some information of interest and even get to know the colleges and universities their students have joined. Most deputies and senior masters relied on available user manuals for self-training.

According to the interviews conducted, respondents' e3, e8, d9, d12, e5, e7, s1, s2, s5, findings indicated that schools benefited from NEMIS since it was easier to access records despite the occasional user traffic that could cause the system to slow down. Most respondents agreed that correct NEMIS students' enrolment led to more funds and resource for the school management. It saved time on duplication of the same information for school activities each term. This agreed with the findings of Cuartero &Role (2018) that NEMIS was effective in school management where policies have been streamlined to suit the system requirements.

2.2. Aggregation of the Variables on NEMIS student Enrolment

The ratings by each respondent were summed up in order to develop indices that measured the levels of influence of NEMIS enrolment on secondary school management policies. The indices had values ranging from 11 to 55. Values above 33 imply that the factor was highly rated by majority of the respondents while values lower than 33 imply the NEMIS enrolment was rated less important in influencing school management policies. The descriptive statistics for the variables are presented in Table 2

Table 2: Descriptive Statistics for Variable of Pupils' family background

	N	Minimum	Maximum	Mean	Std. Deviation
NEMERLMT2	94	18.00	55.00	40.2128	10.07912
Valid N (list wise)	94				

Source: SPSS Output

Table 2 shows that the mean rating for the variable NEMIS Enrolment was high ($m = 40.2128, sd = 10.07912$) with a value above 33.00. This implies that the NEMIS students' enrolment was rated highly as a factor influencing school management and this was in agreement with the findings of Cuartero & Role (2018) that NEMIS was effective in school management. This now implies that NEMIS has caused a shift from policies of relying of Manual data to digital ones which results into effective school management decision making.

2.3. NEMIS Enrolment Rating for School Categories.

The study further sought to determine the relative ratings for the NEMIS enrolment as a factor influencing school management policies across the three categories of Extra County, County and Sub County schools. The descriptive statistics for the categories are shown in table 3.

Table 3: Mean ratings for influence of NEMIS enrolment on School Management policies across school categories

School Category	Mean	N	Std. Deviation
Extra County	47.3571	14	4.36079
County	46.8750	32	5.81849
Sub County	33.6875	48	9.19333
Total	40.2128	94	10.07912

Table 3 shows that the ratings for NEMIS enrolment as a factor that influence School Management Policies was highest for Extra County Schools ($M=47.3571, Sd=4.36079$), while the least rating was in the Sub County Schools ($M=33.6875, Sd=9.19333$) and County Schools rating was similar to Extra County ratings ($M=46.8750, sd=5.81849$). From the above findings, the study concludes that NEMIS enrolment influences school management with more influence experienced in Extra County and County Schools, while Sub County Schools experienced little influence this. Is due to availability of well-developed ICT infrastructure that, makes NEMIS work done with a lot of ease. They have enough laptops and computers with faster Wi-Fi connectivity. They also have fairly more trained personnel to handle NEMIS and its related technologies in schools. The younger teachers who are majority in the schools work with computers with a lot of ease coupled with more experience and expose to use of smart phones for other online activities.

3. CONCLUSION

The study concludes that the use of NEMIS school student enrolment have a significant influence on management of secondary schools in terms of accuracy and ease of retrieval of information and records.

4. RECOMMENDATION.

It is recommended that computers, printers, Wi-Fi and other ICT infrastructure be increased to schools since most schools lacked the needed ICT

infrastructure to support NEMIS. This made it harder to implement NEMIS.

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