

Effectiveness of EMIS for Curriculum and Instruction Management on Management of Public Secondary Schools in Uasin Gishu County, Kenya

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Abstract

The government of Kenya implemented policy that advocates for the adoption of Education Management Information Systems (EMIS) in education. However, the slow extent to which EMIS is being utilized in schools needs to be adequately addressed. Thus, the purpose of this study was to investigate the influence of EMIS on Management of public secondary schools in Uasin Gishu County, Kenya. The study objective was to analyze influence of EMIS for curriculum and instruction on management of public secondary schools in Uasin Gishu County. The study adopted pragmatic philosophical paradigm and employed mixed methods research design. The target population comprised of 1334 respondents which included 183 principals, 189 deputy principals, 955 HODs in public secondary schools, 6 Sub-County Directors and 1 County Director of education in Uasin Gishu County. Kerjcie and Morgan (1970) table was used for determining the sample size of 302 respondents. Closed-ended structured questionnaire were used to collect quantitative data from principals, deputy principals and heads of departments (HODs) while semi-structured interview schedules were used to collect qualitative data from sub-county directors and the County Director of Education. Quantitative data was analyzed using descriptive and inferential statistics while qualitative data was analyzed in narratives and themes. From the findings, the value of adjusted R squared was is 0.489, an indication that there was a variation of 48.9% on the management of public secondary schools in Uasin Gishu County due to effectiveness and efficiency of EMIS for curriculum and instruction. There was a significant association between EMIS for curriculum and instruction and management of public secondary schools with F statistics (248.916). Regression coefficient of curriculum and instruction was 0.596 with $P < 0.05$. This implies that by strengthening EMIS for curriculum and instruction management the supervisory role of the school administration on curriculum implementation is strengthened thus the realization of management effectiveness. Therefore, all the elements of EMIS for curriculum and instruction should be improved on and their implementation strengthened through a policy framework by the ministry of education and public secondary school management to enhance the effectiveness of management of public secondary schools.

Keywords: EMIS, Management, Curriculum and Instruction.

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BACKGROUND TO THE STUDY

Globally, ICT has changed teaching and learning through its potential as a source of knowledge, a medium to transmit content, a means of interaction and dialogue (Jenkins, 1999). ICT under its component EMIS is a prerequisite tool for globally competitive quality education (Waiti, *et al*, 2018). Thus, there is a value attached to ICTs and EMIS utilization in curriculum and instruction for effective management of secondary schools. In curriculum matters like planning future-oriented goals and objectives of the school, decision-making process that incorporates all

stakeholders, controlling, organizing, directing, and other curriculum-oriented processes, EMIS is required (Osodo, Indoshi, & Ongati, 2010). EMIS facilitates decision-making in both structural and unistructural issue situations, which is fundamental in promoting acquisition of knowledge and skills in such a way so as to turn our students into life-long learners in secondary schools. However, the slow extent to which EMIS is being utilized in schools needs to be adequately addressed (Waiti, *et al*, 2018).

Despite this, the use of EMIS in learning institutions has rapidly gained ground worldwide. Gabriel and O'Brien (2018) assert that the use of Information Communication Technology (ICT) in school management can better assist school managers in accomplishing their administrative tasks. In this regard, the integration of ICT in management provides administrators and teachers with information required for informed planning, policy making and evaluation (Visscher, 2016). Therefore effective and efficient utilization of ICT guarantees maximal output from school management. Hence EMIS have provided an opportunity for effective management of secondary despite the constraints of its implementation. EMIS is defined as system of people, technology, models, methods, processes, procedures, rules and regulations that function together to provide education leaders, with information to support them in completion of their responsibilities (Odusanya, 2019). According to Abdul-Hamid (2014) EMIS is a necessary element of an education system that enables policy makers to make critical modifications to the system in order to improve the quality of education. Mugo (2014) states that Education Management Information System is potentially a powerful tool that can contribute to the improvement of management of learning institutions. It can therefore be inferred that integrating EMIS in to school management system guarantee the achievement of educational goals. Gurr (2017) studied the use of EMIS in the management of curriculum and instruction and the study found that the use of ICT by school managers lessened their workload and made the management process to be more effective use of time became more efficient and increased the quality of in-school communication. This in turn led to enhanced supervision of student progress as well as the improvement of school resources management.

From global perspective, EMIS has gained credence in virtually all educational management level. According to Price Waterhouse Coopers (2004) the use of EMIS to address teacher workloads in the United Kingdom, have a significant role to play in improving institutional effectiveness due to its ability to reduce routine administrative duties, improve the effectiveness of support staff, facilitate the transfer of some tasks from teachers to support staff and enable teachers to plan more effectively and deliver teaching and learning (Ejimofor & Okonkwo, 2022). The Price Waterhouse Coopers (2004) study however pointed out that the reduction of workload is only possible if factors such as the confidence of the users are taken into account. Computerization of student attendance can help identify students who are not attending school thus assist the school management to take appropriate measures such as informing the parents (Fashiku, 2018). Different studies have supported the use of ICT in education as an enabler in the process of teaching and learning by assisting the learners to grasp concepts that would otherwise have remained abstract (Kozma, 1991). Other

scholars contend that the use of ICT in education has little benefit because they are merely delivery mechanisms relying on the teacher's pedagogical abilities (Clark, 1983).

With respect to human resource, the use of EMIS can have a positive influence as evidenced in an Indian study which showed that EMIS could be employed in human resource management by way of biometric attendance system and the study concluded that the problem of absenteeism by teachers and students would be solved thus bringing in more accountability and discipline (Hooda & Malik, 2012). Therefore the use of EMIS in human resource is instrumental in reducing clerical time required to check presence or absence and also enable attendance data to be entered in report forms. In Malaysia there are positive changes on the use of EMIS in school management, including better accessibility of information, more effective administration and higher utilization of school resources (Zain *et al.*, 2013).

In Sub-Saharan Africa, information and Communication Technologies are increasingly present and have been introduced to varying degrees at all educational levels from pre-school to university, and in both formal and informal sectors (Karsenti *et al.*, 2020). However, it is still not utilized in management of schools in other countries. For instance, in South Africa Statistics (2011), only 25.2 per cent of the schools in rural areas had a computer, 7.1 per cent accessed Internet at home, 91.9 per cent had cell phones, and 59.4 per cent had no internet access at all. Township schools are poorly resourced compared to some schools situated in the middle-and-upper class communities (Donohue & Bornman, 2014). Learners from affluent schools are exposed to different types of ICTs both at home and at school. Those from poor townships, farms and rural areas might not be exposed to all the new technologies, hence creating a digital divide among learners.

In Kenya, the Government through various strategies and policy documents has indicated the need to support the use of EMIS in education management. This is evidenced by The Government's commitment to embracing EMIS in education management which can be traced back to the National ICT policy of 2006 whose relevant objective in the education sector was to encourage the use of ICT to improve the quality of education (Musungu, Ogula & Munyua, 2021). Besides, the Kenya Education Sector Support Program featured ICT as one of the investment program with a subcomponent supporting ICT in educational management (Madiha, 2013). Other policy documents which emphasize ICT as a tool for educational management while recommending that educational managers be ICT literate include the Kenya Vision 2030 which is Kenya's development blueprint whose aim is to make Kenya a newly industrialized country

(Republic of Kenya, 2015). The relevant objective in the policy is the modernization of the training of managers and strengthening partnerships with the private sector to develop ICT literacy among educators (Rieckmann, 2017).

Uasin Gishu County has not been an exception of the rise of students' enrolment by 107 percent from 32,570 in 2011 to 67,314 in 2016 and nationally by 54 percent from 1,767,720 in 2011 to 2,723,688 in 2016. This increment is against a teaching work force in secondary schools that has remained around 1,893 in Uasin Gishu County and 88,981 nationally. It is worth noting that such an increase has an implication on management of schools as the data spawned by the increasing number of students need to be carefully managed and analyzed in order to make appropriate management decisions in terms of curriculum and instruction, human resource management, financial resource management and provision of security (Government of Kenya, 2017). According Ocharo and Kennedy (2017) school records such as those of finance, staff and learners attendance and student performance are in most cases not well managed thus bringing about gaps in the Education Management Information System (EMIS) data returns. To address such problems, the Teachers Service Commission (TSC) recently came up with a requirement for head teachers to collect information from their schools using a tool referred to as 'EMIS Secondary Schools Data Returns Form A' which captures variables such as school identification, school characteristics, school enrolment, number of streams, staff establishment and management, examination performance and summary data (Ndiku *et al.*, 2014).

However use of EMIS to support school management varies across schools hence the tendency by schools to keep only those variables needed by the government for reporting (Njoroge *et al.*, 2017). For instance some schools have overestimated student enrolment for purposes of getting more capital grants are considered a criminal act (Republic of Kenya, 2015). Such malpractices have indeed been unearthed by The National Audit office in counties such as Nairobi, Kiambu and Machakos, as those having schools with inflated enrolment figures (Government of Kenya, 2017). In this regard the ineffectiveness of utilization of EMIS remains a common place in secondary school. Therefore the expected impact of EMIS has not noticeable as there were still some management challenges encountered which included poor supervision leading to teacher absenteeism and lateness (Odhiambo, 2017). It is against this background information the study sought to examine influence of the use of EMIS for curriculum and instruction on secondary school management in Uasin Gishu County.

Statement of the Problem

Secondary schools collect, compute and store valuable data to be converted to valuable information for their effective management (Ocharo & Kennedy, 2017). However, it has become clear, over time, that utilization of these data for purposes of decision-making in public secondary schools has been quite difficult despite having EMIS (Tondeur, Krug, Bill, Smulders & Zhu, 2015). Beside the stakeholders in education are still complaining of schools not translating this information to required output hence compromising on the effective management of their schools (Government of Kenya, 2017). If this trend is not addressed then it paints bleak future on accountability issues, management of resources effective supervisory of curriculum implementation therefore adversely affecting students academic progress (Odhiambo, 2018).

Reviewed literature indicates that points out that schools lack IT processes to support sound decision-making based on timely, relevant and concise information (Ministry of Education, (2019). Wangui (2015) did a study on application of educational management information system to task management for cost effectiveness in public secondary schools in Kandara Sub-County, Murang'a County, Kenya. The study revealed that use of EMIS application to task management was cost effective in public secondary schools. (Odhiambo, 2017) examined influence of use of Education Management Information System (EMIS) on management of secondary schools in Nairobi City County, Kenya. The research found out that the use of EMIS module for curriculum and instruction influenced positively the management of secondary schools. However this was only limited to Nairobi County and it was not generalizable in other Counties. Ocharo and Getange (2017) assessed principals' information systems' utilization on management of communication in public secondary schools in Nyamira County, Kenya the study revealed that information systems utilization has a direct relationship with its outcomes on management of public secondary and communication. It is clear from the above studies that there are limited studies on EMIS for curriculum and instruction management to explore the effects of EMIS on effective management of public secondary schools in Uasin Gishu County providing a gap for the study. Filling this literature gap, will also provide recommendation for secondary school stakeholders to enhance implementation of EMIS a through policy framework.

LITERATURE REVIEW

Influence of EMIS for Curriculum and Instruction on Management of Public Secondary Schools in Uasin Gishu County

The Curriculum Management Process (CMP) is fundamentally concerned with effective teaching and learning (Mohale *et al.*, 2020). The process consists of managing what students are expected to learn,

evaluating whether or not it was learned, and seeking ways to improve student learning. Every subject in the school curriculum can only be learned with the help of instructional resources (Chonjo, 2018). They give children the opportunity to interact with words, symbols, and concepts in ways that enhance their reading, listening, problem-solving, viewing, thinking, speaking, writing, and use of media and technology skills. It therefore becomes imperative to have concerted efforts among parents, school and the government to make available important and necessary instructional materials to teachers (Reimers *et al.*, 2020). This is justified by the fact that there is a positive relationship between student's performance and curriculum management as some studies indicated curriculum coverage as one of the important factors contributing to the performance of learners (Mudzanani & Makgato, 2016). Therefore, monitoring of curriculum coverage by school management team (SMT) will give learners more opportunities to pass as supported by Too, Kimutai and Kosgei (2012) who found that head teacher's inspection of work covered had positive relationship with student's performance.

EMIS has now become integral part of teaching and learning in schools. It provides opportunities for both teachers and students to learn how to operate in an information and technology age. EMIS are drastically changing schools syllabus in a number of ways, demanding that teachers focus on new teaching methodologies instead of relying on traditional methodologies. As Hare (2017) puts it, the successful integration of technology in education is not simple, because it depends on such interlinking variables.

EMIS can help students to become independent learners capable of developing critical thinking and problems-solving strategies, collaborative works and inquiry (Manichander, 2020). It allows for information searches, computer modelling, team-work, brain-storming and revision. Teachers can use computers to make learning experiences more effective and to offer students access to a variety of learning tools, expert opinions and alternative viewpoints (Quarshie, 2015). Idihsosa and Ero (2015) states that in computer assisted instruction; lessons production is guided by the learners' knowledge, skills, understanding, expectations as well as motivation. This implies that a computer is not an instructor in itself but rather a mere vehicle of instruction. It is a clear secret that the computer offers powerful features for facilitating learning. Utor and Agbi (2015) identified telecommunication and teleconferencing as another useful development in ICT where students can sit in their respective classrooms or research centers and partake in teaching without necessarily visiting each other.

EMIS can be used in various ways where it helps both teachers and students to learn about their

respective subject areas (Rambrij, 2018). A technology-based teaching and learning offers various interesting ways which includes educational videos, stimulation, storage of data, the usage of databases, mind-mapping, guided discovery, brainstorming, music, World Wide Web(www) that will make the learning process more fulfilling and meaningful (Finger & Trinidad, 2012). On the other hand, students will benefit from EMIS integration where they are not bounded to the limited curriculum and resources, instead hands-on activities in a technology-based course is designed to help them to stimulate their understanding about the subject. It also helps teachers to design their lesson plans in an effective, creative and interesting approach that would result in students' active learning. Previous researches proved that use of EMIS in teaching will enhance the learning process and maximizes the students' abilities in active learning (Jorge *et al.*, 2013).

The integration of EMIS in classroom is getting more important as it help student in enhancing their collaborative learning skills as well as developing transversal skills that stimulates social skills, problem solving, self-reliance, responsibility and the capacity for reflection and initiative (Joyner, 2021). All these elements are core values that students need to achieve in an active teaching and learning environment (Ghavifekr *et al.*, 2012). Similarly, in Malaysia the government has implemented the integration of EMIS in learning and teaching process in early 1970's. This is due to the importance of technology literate which produce critical thinking workforce to face and involve the country in the global economy (Hamidi *et al.*, 2011). Accordingly, many schools were upgraded with computer's lab, the internet connection, smart white boards, LCD and other ICT tools and equipment.

Studies carried out in Europe by British Educational Communications and Technology Agency (BECTA) show, that United Kingdom (UK) government invested £1.8 billion in the national grid meant to transform curriculum and instruction in schools by the use of ICT of which 99% of secondary schools were able to acquire network and were connected to internet (Younie & Leask, 2013). On average, however, most secondary schools tend to utilize ICT for class presentations and displays only. Other aspects of curriculum and instruction, for example, lesson planning; updating schemes of work, records of work and evaluation of students seem to be done manually (Salome, 2020). However, teachers increasingly (50%) were using ICT to plan their lessons. Generally, teachers seem to have a positive attitude towards ICT use in curriculum and instruction. This was evident by a number of teachers who stayed behind after school working hours to use ICT facilities available in the school (Albugami & Ahmed, 2015). This could lead to effective curriculum delivery hence enhancing proper management of school activities.

In United Kingdom (UK), teachers who use ICT as a tool for teaching are more confident and consistently use ICT in preparation and delivery of lessons. They perceive ICT as an important tool for teaching. Lessons are perceived to be more fun, interesting and easier to comprehend on the part of the students. Students feel motivated to learn hence the need for integrating ICT in teaching and learning (Goh & Sigala, 2020).

Recent studies carried out in Malaysia on ICT integration in education suggest that teachers need to be competent and possess mastery of ICT skills to enable them deliver instructions effectively. Ghavifekr and Rosdy (2015) note that the MOE in Malaysia needed to integrate ICT into national secondary school curriculum. ICT was included as one of the transformative shifts in Malaysia's Education system. The shift aimed at providing and establishing more accessibility to internet in all national schools by 2013, have a video library for subjects they termed as critical and lastly to maximize distance learning by use of ICT. Through these measures, the Malaysian government intended to upgrade ICT skills in Education.

In Mozambique, Ghana and Philippines, schools were not able to come up with sufficient data to enable school managers monitor students' learning outcomes (Molina, *et al.*, 2018). Ghana for example was found to duplicate educational data because students' marks were entered manually on paper and not by use of ICT. With the use of ICT, it is easy to capture, store and retrieve data for proper decision-making (Bentil, 2018).

Secondary schools in Nigeria utilize ICT in supervision of staff personnel (Jacob, *et al.*, 2020). ICT is used to allocate duties to members of staff, both teaching and non-teaching. It is also used to manage teachers' leave days, appraising teachers and generally in collecting data of all members of staff. Performance appraisal of teachers is important as it makes teachers to be more competent in their duties by reducing teachers' absences, contributing to improved management of schools (Ekundayo *et al.*, 2013). The study found out that, teachers who had taught for considerable period of time used computers and the internet more than those with less than 20 years of teaching. Many schools have acquired enough computers but the school principals and teachers are reluctant to utilize them in their respective roles (Makewa *et al.*, 2011). This is associated with negative attitude and school managers not confident on how data generated would impact on their specific roles.

In Tanzania, ICT is used to develop school timetable and offer library services. However, Tanzania has been experiencing challenges of internet connectivity which has made communication within schools by use of email inefficient. In addition, ICT use

in curriculum and instruction is not in its advanced stage. Further, it has not been clear how ICT has been used in school administration, professional development of teachers and for teachers' personal needs (Mwalongo, 2011). This may lead to limited use of technology in carrying out administrative tasks.

In Kenya's private schools especially in Nairobi, it is revealed that, pedagogical methods of teaching and learning are quickly changing with ICT incorporation in instruction whereby books are being replaced with flash discs and memory cards, blackboards are being replaced by smart boards, while text-based assignments are replaced by ICT presentations and slide shows which are more simulative and creative (Oyier *et al.*, 2015). ICT is considerably reducing teachers' work load of making learners' progressive records and analyzing learners' exam performance. These private schools also utilize ICT to formulate and implement schemes of work, records of work and writing students' academic reports. ICT is also used to schedule classes for teachers.

Haddad and Jurich (2012) asserted that EMIS can assist in management of curriculum and instruction through enhanced supervision of student progress as well as in the improvement of school resources management. The specific ways in which EMIS can be used to in curriculum and instruction were outlined by Strickely (2011) who pointed out that EMIS can be used for a variety of tasks such as planning for lessons and monitoring of students' progress and time table construction. He further emphasized the importance of the head teacher keeping a digital timetable containing detailed records of the academic level and experience of all members of staff so that the school can utilize all the available skills that might enhance management. EMIS networks in large schools can also be used to indicate the rooms to be used for particular subjects within the timetable. Makewa *et al.*, (2013) in a study to establish educators' perceptions of the importance and extent to which administrators use ICT in rural southern Kenya found managers ranking the use of ICT in curriculum and instruction as having a positive influence on school management.

A study carried out in Nairobi County on ICT in management of private schools reveal that, ICT was used effectively in curriculum and instruction, supervision of personnel and in control of finances (Kimuya *et al.*, 2021). Private schools in Nairobi have websites, use ICT in co-curricular activities, managing infrastructure and in school personnel. Use of ICT has made management of schools less demanding. In supervision of personnel, ICT is used in directing and controlling teachers' and students. In curriculum and instruction, ICT is used in timetabling, in managing exams, academic records and generally in teaching and learning processes. This shows ICT has been utilized successfully by most private schools in Nairobi.

Olayinka (2016) studied the contribution of instructional materials to the academic achievement of secondary school students in Social Studies in Ekiti State. The population for the study comprised of all Junior Secondary School Class II students from among which 180 were sampled. The instrument for the study was a 30 multiple-choice self-designed Social Studies Achievement Test (SSAT). The study generated four hypotheses that were tested at the significance level of 0.05. ANOVA and ANCOVA statistical tools were used to analyse the data collected. The study concluded that students who were taught with instructional materials performed better than those taught without. However, the study was conducted in a non-Kenyan context focused on performance of students in social studies and not other subjects and education management as a whole.

Mudzanani and Makgato (2016) quantitatively studied the school manager's role on the curriculum delivery in teaching and learning practices: a perspective from poorly and well performing schools in Vhembe District of Limpopo Province. Participants were purposefully selected from 10 secondary schools which were information rich to the purpose of the study. Questionnaires were administered to 300 learners from the five poorly- performing schools and also from the five well performing schools in Vhembe District of Limpopo Province. Data from questionnaires were analyzed using SPSS (Statistical Package for Social Sciences) and were reported in graphs, mean (M) and standard deviation (SD) tables. The study findings indicated that school managers from well- performing schools had strong monitoring system to effect frequent testing of learners, content coverage earlier than end of June, and high lesson attendance by educators whereas poorly- performing schools had weak monitoring system only specializing on monitoring written work, non – completion of content coverage if not late than end of June, and very low rate of lesson attendance by educators. However the study was quantitative and bereft of triangulation with qualitative data providing a gap for the current study.

Agayo *et al.*, (2018) investigated the influence of instructional plan delivery strategy on student learning in county secondary schools in Uasin Gishu County. This study utilized the teacher behavior continuum theory as espoused by Wolfgang and Glickman. The study focused on 21 county secondary schools targeting 21 principals, 390 teachers and 8400 students in all the County Secondary schools in Uasin Gishu. All the 21 principals of the county schools were purposively included in the study. Simple random sampling was used to select 30 % (117) of the teachers in the schools where the study was done. The researcher used questionnaires and interview schedules to gather the relevant information under the area of the study. Data was analyzed using both quantitative and qualitative techniques.

The findings indicated that teachers try to prepare lesson plans that cater for all the different needs of the students and that time distribution in lesson plan was done such that all the planned activities were delivered in class as planned. Further, the study established that less than half of the teachers were familiar with dramatization, schemes of work and demonstrations. The study established that there was a significant relationship between instructional plan delivery strategy and student learning in county secondary schools in Uasin Gishu County. However, the study did not focus on the curriculum and instructional system and management of secondary schools but student learning which is just one of the components of effective management of schools. Besides the study was limited to only county's secondary schools.

Too *et al.*, (2012) examined the influence of supervision of teachers by head teachers on students' academic performance in secondary schools in Bureti District, Kenya. Average mean scores of secondary schools in Kenya Certificate of Secondary Examinations (KCSE) results for the years 2004, 2005 and 2006 were used to create three categories of schools in the District: Highly Performing (HPS), Averagely Performing (APS) and Low Performing (LPS) Schools. All the schools whose head teachers had served in their stations for a period of three or more years up to 2006 were chosen. Simple random sampling was used to select teachers in every school and descriptive survey design was used to show the nature of relationships between supervision of teachers and students' academic performance. Questionnaires were used to collect data. The data were analyzed using Chi-square and Pearson's Coefficient of Correlation. Results revealed that supervision had positive relationship with the schools' overall mean scores in KCSE examinations. However the study was quantitative which requires for corroboration using qualitative data.

Wekesa and Kisilu (2022) assessed how the planning for instructional resources influences academic performance. The study adopted descriptive survey research design with the target population consisting of 8 principals and 295 teachers from 8 upgraded extra county schools to national status in Western Kenya. A sample of 170 teachers was selected through simple random technique to be involved in the study. The instruments used to collect data consisted of questionnaire and interview schedule. Data analysis was performed using quantitative and qualitative forms. The study found that aside many instructional materials required in schools, only text-books for students were supplied in adequate quantity. However, learning resources for teachers (including reference books) were not adequately provided to these schools. ICT resources like computers were not adequately provided after the Extra County Schools in the region were upgraded to national status in Western Kenya. Correlation statistics

showed that there existed no significant relationship ($p > 0.05$) between instructional material planning dynamics and performance of Extra County Schools after they were upgraded in Western Kenya. However, the study was limited to extra county secondary schools only.

RESEARCH DESIGN AND METHODOLOGY

Research methodology is essentially the "how" a certain piece of research is conducted in practice (Brooks & Normore, 2015). Methodology is the framework which is associated with a particular set of paradigmatic assumptions that are used in conducting research. More specifically, it deals with the methods a researcher employs when designing a study to guarantee accurate outcomes that meet the goals and objectives of the investigation (Dawadi & Giri, 2021). The study adopted a mixed-method methodology. A mixed-method methodology combines qualitative and quantitative methodologies to integrate both their strengths and obtain rich results (Creswell & Clark, 2018). This approach is beneficial because it allows each methodology to counteract the weaknesses of the other (Dawson, 2019).

Target Population

According to Gupta and Gupta (2022) population is a set of all objects that have some common set of predetermined characteristics with respect to some research problem. The target population for the study was principals, deputy principals, HODs in public secondary schools, County Directors and Sub-

County Directors of education. The accessible population for the study was 1334 respondents which included 183 principals, 189 deputy principals, 955 HODs in public secondary schools, 1 County Director and 6 Sub-County Directors of education in Uasin Gishu County as presented in table 1 below.

Sample size

Sample size is the number of observations used for determining the estimations of a given population (Kumar, 2018). Kerjcie and Morgan (1970) table was used for determining the sample size. Thus, the sample size of principals, deputy principals, HODs in public secondary schools was calculated while complete enumeration was used for County Director and Sub-County Directors for education. Thus, from a target population of 1327 respondents a sample of 302 respondents was arrived and distributed proportionally according to Neyman's allocation formula Singh and Micah (2013) to maximize survey precision, given a fixed sample size. With Neyman's allocation, the best sample size for cluster h was:

$$n_h = \left(\frac{N_h}{N} \right) n$$

Where,

n_h - The sample size for cluster h ,

n - Total sample size,

N_h - The population size for cluster h ,

N - The total population

Hence, distribution was as follows; the respondents were selected using simple random sampling.

Table 1: Sample size by Sub County

Sub County	Tot no. of Ps	Sample size for Ps	No. of D/Ps	Sample size for D/Ps	No. of HODs	Sample size for HODs	Total sample size
Ainabkoi	22	5	22	5	150	34	44
Kapseret	17	3	18	4	85	20	27
Kesses	39	9	40	9	195	45	63
Moiben	32	7	34	8	160	36	51
Turbo	30	7	32	7	150	34	48
Soy	43	10	43	10	215	49	69
TOTAL	183	41	189	43	955	218	302

Data Collection Instruments

According to Burns and Grove (2005) data collection is defined as the precise, systematic gathering of information relevant to the research purpose or the specific objectives, questions, or hypotheses of a study. Data was collected by use of a questionnaire and an interview schedule.

Data Analysis

Reponses to the survey items were coded 1-5 depending on the importance of each as the statements were summed together for a composite score per category and eventually used for statistical analysis.

Inferential statistics was used to reach conclusions and make generalizations about the characteristics of populations based on data collected from the sample with 95% as the level of confidence with the aid of SPSS software version 25.0. Simple linear regression analysis was used to determine the influence of EMIS for curriculum and instruction management on the management of schools. Analysis of Variance (ANOVA) was used to test the significant amount of variance in the dependent variable. Regression analysis was used to test the hypothesis for this study. This explains the relationship between the independent or predictor variable and the dependent or criterion

variable. In this case it explains the relationship between public secondary schools management and its predictor variable as indicated in the equation.

The simple linear regression model:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon \dots \dots \dots (i)$$

While ε is an error term at 95% confidence level

The researcher used data condensation mode of analysis to extract important themes from qualitative data from the county and sub county directors. The researcher interrogated themes in light of the objectives of the study. The study highlighted subtle variations within the themes by summarizing the information pertaining to each theme, and capturing the similarities and differences in respondents' responses within each category. To show the categories, which appear more important, the analysis counted the number of unique

respondents who referred to certain themes. The occurrence of two or more themes together consistently, indicates connections and suggests a cause-and-effect relationship.

4.0 Data Presentation Analysis, Interpretation and Discussion

4.1 Influence of EMIS for Curriculum and Instruction Management on Management of Public Secondary Schools in Uasin Gishu County

The study established the nature and level of EMIS for curriculum and instruction management from the administrators' perspectives. This aimed at gaining an understanding of the current state of EMIS for curriculum and instruction management and how it affects management of public secondary schools in Uasin Gishu county. The results are presented in table 4.1 below.

Table 4.1: Descriptive Statistics for EMIS for Curriculum and Instruction Management

Statement	SD	D	N	A	SA	M	SD
	%	%	%	%	%		
Digital platform provides data for teaching and learning materials	0.8	6.5	11.1	42.7	38.9	4.13	.903
There is effective workload allocation with respect to subject combination	0.0	2.7	11.8	52.3	33.2	4.16	.730
School timetable is well prepared using digital platforms	0.0	6.5	10.3	50.3	33.2	4.10	.829
Teachers have enough time to cover syllabus	0.0	0.4	9.5	44.3	45.8	4.35	.667
Preparation of schemes of work is easily done	0.0	0.8	10.7	51.1	37.4	4.25	.671
There is effective training on school co-curricular activities	0.0	0.8	2.7	55.3	41.2	4.37	.578
The learners are motivated to participate in co-curricular activities	0.0	3.1	9.2	46.2	41.6	4.26	.750
There is ease of compilation of student reports	9.9	17.2	5.7	39.7	27.5	3.58	1.319
There are proper records of students' test results	0.8	7.3	16.0	41.6	34.4	4.02	.930
Retrieval of evaluated learning materials is easy	16.0	6.9	6.9	35.5	34.7	3.66	1.423
Moderation and storage of learning materials is easy	16.0	7.3	11.5	30.9	34.4	3.60	1.429
Curriculum and Instruction Management						4.04	.470

Key: SD= strongly disagree; D= disagree; N= Neutral; A= agree; SA= strongly agree M=Mean SD= Standard deviation
Source : (Research Study, 2022)

According to the findings 81.6% of the respondents were in agreement that digital platforms provided data for teaching and learning materials while 7.3% were in disagreement and 11.1% were neutral (M=4.13, SD=.903). Besides one of the respondents to the interview noted that;

"There has been provision of learning materials by the government coupled with availability of digital platforms for curriculum implementation. However, there are still challenges in terms of adequacy of print learning materials and low accessibility of digital platforms" (ED, 2)

There is effective workload allocation with respect to subject combination according to 85.5% of respondents who agreed and strongly agreed while 2.7% disagreed (M=4.16, SD=.730). From the findings, 33.2% and 50% agreed and strongly agreed that school timetable is well prepared using digital platforms while 6.5% disagreed and 10.3% were undecided (M=4.10,

SD=.829). Besides, majority of respondents at 90.1% agreed that teachers have enough time to cover syllabus while 0.4% were in disagreement and 9.5% were neutral (M=4.35, SD=.667). According to the findings 88.5% of the respondents were of the view that preparation of schemes of work was easily done (M=4.25, SD=.671), 0.8% were in disagreement while 10.7% were neutral. One of the respondents who was interviewed noted that;

"Preparation and curriculum implementation has been more efficiently done owing to EMIS" (ED, 4)

According to 96.5% of the respondents there was effective training school co-curricular activities (M=4.37, SD=.578), 0.8% were in a disagreement while 2.7% were neutral. In addition the respondents agreed and strongly agreed at 87.8% that the learners were motivated to participate in co-curricular activities, 3.1% disagreed while 9.2% were neutral (M=4.26, SD=.750). There is also ease of compilation of student reports as

revealed by 67.2% who were in agreement while 27.1% disagreed and 5.7% neutral ($M=3.58$, $SD=1.319$). The findings further revealed that 76% of respondents concurred that there are proper records of student test results ($M=4.02$, $SD=.930$) while 8.1% were in disagreement and 16.0% were neutral. Majority of the respondents at 70.2% were in agreement with the statement that retrieval of evaluated learning materials was easy while 22.9% were in disagreement and 6.9% being neutral. Out of (70.2%), 35.5% agreed, 34.7% strongly agreed while 6.9% were neutral and 22.9% disagreed ($M=3.66$, $SD=1.423$) that retrieval of evaluated learning materials was easy. Based on the mean of 3.60 and standard deviation of 1.429 respondents were in agreement that moderation and storage of learning materials was easy. The study suggested that respondents were also in agreement with the effectiveness of curriculum and instruction management in secondary schools with an overall Mean= 4.04, $SD=.470$. The study sought the opinion of the directors on changes in curriculum implementation in public secondary schools in the county owing to

introduction of EMIS. One of the interviewees noted that;

“With all the strengths of curriculum and instructional management as an element of EMIS, it is still embraced as a matter of course thus there is need for more motivation amongst the curriculum implementers for more satisfactory outcomes” (ED, 5)

Hypothesis Testing

The study hypothesized that:

H₀₁: There is no statistically significant influence of EMIS for curriculum and instruction management on management of public secondary schools in Uasin Gishu County

The explanatory behavior of EMIS for curriculum and instruction management on management of public secondary schools was analyzed using regression analysis model summary, F statistics and regression coefficients of management of public secondary schools as presented below.

Table 4.2: Regression model summary of EMIS for Curriculum and Instruction Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.699 ^a	.489	.487	.287	1.735
Predictors: (Constant), EMIS for Curriculum and Instruction Management					
b. Dependent Variable: Management of Public Secondary Schools					

The model summary presented in table 4.2 above involves EMIS for curriculum and instruction management (X_1) as the only independent variable. The coefficient of determination (R square) was .489. This indicated that the model explained a variation or change in the dependent variable of 48.9%. This means that when deliberate effort is put to have EMIS for curriculum and instruction management in place, it drives effective management of public secondary

schools. The remaining proportion of 51.1% can be explained by other factors other than EMIS for curriculum and instruction management. Adjustment of the R square did not change the results substantially, having reduced the explanatory behavior of the predictor from 48.9% to 48.7%. This means that the model is fit to be used to generalize the findings. The statistical significance of this value was reported in the ANOVA table 4.3 below where the results were;

Table 4.3: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.528	1	20.528	248.916	.000 ^b
	Residual	21.442	260	.082		
	Total	41.969	261			
a. Dependent Variable: Management of Public Secondary Schools						
b. Predictors: (Constant), Curriculum and Instruction Management						

Results in table 4.3 above revealed a significance of F statistics (248.916) is 0.000 which is less than 0.05. This implies that there is a significant influence of EMIS for curriculum and instruction management on management of public secondary schools. This tested the null hypothesis and indicated that there is a statistically significant influence of curriculum and instruction management on management of public secondary schools in Uasin Gishu County. Thus, the rejection of the null hypothesis. These findings were supported by Agayo *et al.*, (2018); Mudzanani and Makgato (2016) and Too *et*

al., (2012) who also found significant influence of curriculum and instruction management on effectiveness of management of secondary schools. This implies that by strengthening EMIS for curriculum and instruction management the supervisory role of the school administration on curriculum implementation is strengthened thus the realization of management effectiveness.

The regression coefficients Table 4.4 below showed the contribution of the independent variable to the dependent variable.

Table 4.4: Regression Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.		Model	
		B	Std. Error	Beta				Tolerance	VIF
1	(Constant)	1.628	.154			10.584	.000		
	Curriculum and instruction	.596	.038	.699		15.777	.000	1.000	1.000

Dependent Variable: Management of Public Secondary Schools

Finally, from the data in Table 4.5, the study established regression equation was $Y = 1.628 + .596X_1$.

Therefore, management of public secondary schools in Uasin Gishu county = $1.628 + .596$ EMIS for curriculum and instruction management.

From the above regression equation it was revealed that holding EMIS for curriculum and instruction management to a constant zero, effectiveness of management of secondary schools in Uasin Gishu County would be at 1.628 units. A unit increase in effectiveness of curriculum and instruction management by use of EMIS would lead to an increase in effectiveness of management of public secondary schools by a factor of 0.596 ($B=0.596$, $P<0.05$).

The core business of every secondary school administrator is curriculum and instructional management whose outcome is effective management of the school. This has been underpinned by the pragmatic rejection of the null hypothesis and utilization of Unified Theory of Acceptance and Use of Technology by Davis (2016) which eulogizes the use of technology in curriculum and instructional management. The overall mean of the status of curriculum and instruction management was (Mean=4.04, SD=.470) an indication that public secondary schools administrators in Uasin Gishu County effectively managed curriculum and instruction through EMIS. However, there is room for further improvement for enhancing the management effectiveness of the schools. Thus secondary schools are under obligation to strengthen and improve on their usage of EMIS for curriculum and instruction management. The respondents agreed that digital platforms provided data for teaching and learning materials, easy preparation of school timetables, effective training on co-curricular activities and teachers having enough time to cover syllabus an index of effective curriculum management.

4.2. CONCLUSION

EMIS for Curriculum and instruction management was found to have a positive and significant influence on effectiveness of management of public secondary schools in Uasin Gishu County. This led to the rejection of the null hypothesis. Though there is room for further improvement for enhancing effectiveness in the management of public secondary schools. Thus, public secondary schools are under

obligation to strengthen and improve on their curriculum and instruction management through EMIS. The respondents agreed that digital platform provided data for teaching and learning materials, preparation of school timetables, training of co-curricular activities and providing adequate time for syllabus coverage as an index of effective curriculum management. Thus, public secondary schools are under obligation to strengthen the use of EMIS for curriculum and instruction management to enhance effectiveness of management of public secondary schools. For instance, there is need for enhancing ease of compilation of student reports, proper records of test results, moderation, storage and retrieval of evaluated learning materials among others. The implication of this result is that effective implementation of EMIS for curriculum and instruction guarantees effective management of public secondary schools.

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