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Original Article

Influence of Educational Management Information System (EMIS) on the Administration of Public Senior High Schools in the Tamale Metropolis

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ABSTRACT

This research project sets out to examine the influences of the educational management information system (EMIS) on school administration in some selected public senior high schools in the Tamale Metropolis. The study employed quantitative descriptive research designs. A convenient sampling technique was used to select the 241 sample members to participate in the data collection process. Questionnaires in the form of open-ended questions were used to collect quantitative data. Descriptive and inferential statistics were used in the analysis. The descriptive statistics revealed that both teaching and non-teaching staff of secondary schools had been trained in EMIS. It was also revealed that a high percentage of teachers (222, 92.1%) believed attendance at the training on EMIS was encouraging and positive. The study also found that a greater number of the respondents (217, 90.0%) agreed that facilitators had the necessary knowledge of EMIS. The study also revealed that 190 teachers (78.8%) agreed that all the relevant logistics for EMIS training were available. Again, it was found that a greater number of the teachers (189, 78.4%) agreed that after the training, most of the staff in the schools use EMIS for record-keeping. Additionally, the results in Table 5 reveal a significant statistical relationship between training of staff on the Education Management Information System (EMIS) and subsequent usage of EMIS by teachers. The chi-square statistic χ^2 (12, N=241) = 186.02 indicates a strong relationship at the 1% level of significance. Again, there is inadequate data processing and quick decision-making because of the ineffectiveness of EMIS implementations. It is recommended that school heads should work with the Ghana Education Service to create awareness among teachers and administrators about the existence of EMIS through training.

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INTRODUCTION

The application of technology in the educational sector has universally been accepted as the surest way of ensuring quality information delivery to stakeholders in education (Kalolo, 2019). As the world is currently in a technological mad rush, responding to the demand for technological data necessitates ongoing information-gathering (Khan *et al*., 2022). Brown (2019) accepted that any educational institution that must boast of accurate, timely, reliable and usable data must not only adopt but also ensure the roll-out of educational management information systems (EMIS) in their jurisdictions. Andreas (2022) posited that without accurate, time-tested and reliable educational data, one is just another person with an opinion.

The establishment of a well-organized EMIS unit, raising awareness of the importance of EMIS, and providing teachers and staff with EMIS training need to be seriously considered (Eleku *et al*., 2022). Asio (2022) narrated that without the significant roles EMIS play in an educational institution that institution would struggle to compete with other organizations. EMIS is a group of operational systems and procedures, increasingly supported by digital technology, that enables the gathering, aggregation, analysis, and use of data and information in education, including management and administration, planning, policy formulation, monitoring, and evaluation (UNESCO, 2020).

From the perspective of Amanchukwu, & Ololube (2015), technology ultimately facilitates and redefines human behaviour and improves our ability to live, work, and think in ways that most of us never imagined, particularly when there is adequate training for teachers. In recounting the usefulness of EMIS, Liu *et al*. (2020) remarked that analysis, target setting, budget creation, project design and evaluation, textbook distribution, classroom and school building, the opening of new schools, planning teaching and examinations and supply of basic amenities and the vast majority of data consumers across all school administrative levels were pleased with the EMIS data after a series of seminars were attended by the role players.

Bhagat, & Kim (2020) indicated that at the integration stages of EMIS, its worth was understood as a result of routine workshops attended by stakeholders. They added that students who wanted information about financial transactions and academic information had it only with a click, thanks to student information systems. They went further that, students who wanted to know their academic standing and financial transactions sought out the student information system of the Institute of Information Technology, which was created in collaboration with the Student Supreme Council.

Also, a study undertaken by Joo *et al*. (2016) warned that the National Standardized Student

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Enrolment and Status Information Management System was an application created by the Chinese Ministry of Education in 2010 that gave each student an enrolment number that was linked to their identification number. The system then records all of a student's academic data, which has reduced data problems like numerous provincial enrolments, repetitive registration, and inaccurate student statistics by the district. They continued that a comprehensive analysis of the literature revealed that MIS with adequately trained personnel positively impacted school management and administration, resulting in greater information availability, more efficient management, better use of school resources, less workload, better time management, and higher-quality reports. Dovemark, & Arreman (2017) asserted that for much second-cycle education in the Surigao Del Sur Division of the Philippines, regardless of their type, EMIS modules with well-trained staff were implemented.

Although the discussions so far point to a clear manifestation of the successes chalked by EMIS in other parts of the world, the African picture is not bad. The findings of Nampila (2013) show that more than 70 percent of the EMIS types used in secondary schools in Namibia have been locally built either by commercial software providers, staff members with an appreciable level of training in the schools or people who have experience through training in computer programming.

For Amanchukwu, & Ololube (2015), EMIS record-keeping is essential to the whole information cycle of an educational system because of its key role in the effective generation and gathering of information. Amanchukwu and Ololube stated further that EMIS recordings are a crucial tool for accountability. They elaborated further that, accountability is aided by records that reflect income, expenses, and stock levels at a school, such as cash transactions and stock data. Ejimofor, & Okonkwo (2022) intimated that the aid of staff who are well-resourced through EMIS training is required for the headmaster or headmistress to administer the secondary school effectively and efficiently. Riddell, & Niño-Zarazúa (2016) postulated that due to its efficiency and efficacy, the usage of EMIS in school administration has quickly risen since the world is increasingly becoming a global village, thanks to information and communication technology. They admit further that, due to advances in EMIS technology, well-trained secondary school administrators who previously had to spend a lot of time managing difficult allocation issues (such as staffing, resource, and timetabling allocation) and overseeing school operations now have more alternatives.

Secondary school administrators can overcome administrative issues caused by a lack of timely, accurate, and reliable information by practising effective information management (Dwivedi *et al*., 2020). Findings in Cameroon affirmed a substantial association between the adoption of EMIS and school process planning for a successful administration. The research findings are that the provision of information management specialists to create a situational MIS for each school, along with the integration of ICT facilities into EMIS, considerably improves effective school management as well and the government's distribution of ICT resources to every school could aid in enhancing secondary school information management efficiency (Hakim, 2022).

Any stride made by EMIS in information management in the education sector and particularly secondary education in African countries does not exclude Ghana as the discussions ahead attest to that. Ebenezer Okyere-Dankwa, & Offei (2022), posited that since the beginning of time, there has been a connection between effective data processing and quick decision-making. They elaborated further that with the advent of EMIS, it is now clear that this connection needs to be strengthened and its advantages should be fully realized to ensure advancement in all educational institutions. EMIS

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was created at Ghana's Ministry of Education in 1988 as a part of the time's educational reforms.

For Anapey, & Aheto (2022), when Ghana's government began to implement the concept of free compulsory universal basic education (fCUBE), strenuous efforts to create the EMIS were made. As a consequence, the Ministry of Education established the EMIS Project in January 1997. As for Khalil, & Ebner (2015), although the education management information system provides information to decision-makers in the field of education, it also advances and supports the process as a whole. They added that any staff training inclined toward EMIS implementation also improves worker performance across the board in a school. Anapey and Aheto finally concluded that at the secondary school level, EMIS gives the board and management the facts and information they need to make strategic decisions.

Also, findings made by Tondeur *et al*. (2017) on computer usage by both teachers and students in secondary schools in the Tema enclave of the nation's capital Accra, had the results showed that a significantly high percentage of respondent teachers (92%) had gone through Information Technology training in one way or the other and hence were computer literate. The study further revealed that 78% of respondent students also had basic knowledge of computers.

It is, therefore, very revealing to learn that in all the studies carried out on EMIS, especially in Ghana, only one has centred on senior high schools. Another finding that comes closer to EMIS on senior high schools in Ghana is Aydin (2013) which was even on computer usage in general. This does not only expose literature paucity but also an adoption and usage gap of EMIS in senior high schools in Ghana at large and the Tamale Metropolis in particular. Furthermore, the astonishing numbers the free senior high school policy brought into the classrooms call for a very strong and resilient system of data collection to ensure quality teaching and learning. Speaking on the dynamics of quality and access concerning the free senior high school policy, Opoku Prempeh (2019) remarked that quality without access will result in inequity and exclusion, whereas access without quality will restrict potential and not produce the desired effects. Thus, if the free senior high school policy ensures increased access, EMIS without any shroud of doubt will provide quality data for the various stakeholders.

Again, the roll-out of the educational reforms under the new Standard-Based Curriculum in 2019 by the GES brought a lot of changes to the education sector, particularly in the area of assessment. In the new reforms, there is a frantic effort to disband the mainstream Basic Education Certificate Examination (BECE), only to place more emphasis on the West African Senior Secondary Certificate Examination (WASSCE) at the senior high school level. This will pile more pressure on the already overstretched examination body (WAEC) which is already saddled with chronic examination leakage issues. Therefore, if there is a need to augment the data gathering and processing system at the senior high school level, then the adoption of EMIS is inevitable.

Statement of the Problem

An inefficient management information system has posed a barrier to the worldwide interest in advancing education in underdeveloped nations (Dwivedi *et al*., 2020). To avoid being excluded from the internet and intranet, it is necessary for educational institutions, especially secondary schools in Africa, to sincerely adopt a management information system (MIS) (Ampofo, 2020). Due to the ever-increasing complexity of managing their institutions, educational administrators in Africa must have an efficient information system with adequately equipped staff, (Anderson *et al*., 2022). Maranga (2019) discovered that the Kenyan EMIS has several issues with data capture, gathering, processing, presentation and analysis of user needs. Maranga added that limited financial resources, training opportunities for information users and

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producers, irrational policies, and premature information requests were some of the variables that impacted data quality.

Furthermore, a study conducted by Shahzad *et al*. (2021) concluded that there is minimal use of EMIS-related facilities in teaching and learning among second-cycle school teachers and students in Tema in the Greater Accra Region due to inadequate training. Again, Eleku *et al*. (2022) demonstrated that there was little use of data or EMIS for educational purposes due to inadequate training for role players. The study also found that factors preventing the effective use of EMIS in secondary schools included scanty knowledge by leadership, uncoordinated training, shortage of qualified staff and coordinators, a weak EMIS unit, inadequate resources, and unclear regulations and procedures regarding data usage.

It seems glaring from the discussions so far that almost all the studies carried out on EMIS in Ghana are skewed towards the southern half of the country. This exposes a study gap on EMIS up north and specifically, senior high schools in the Tamale Metropolis. Also, the recent nationwide EMIS data collected by the Ghana Education Service exposed the difference between EMIS training roll-out and EMIS training adaptation (Ghana, 2014). Teachers were running helter-skelter seeking assistance to complete their information just to meet the deadline. Again, the incessant demand for data by the education directorates such as the Metro Education Office, the regional education office and even the national level is far from being a healthy signal for an incident-free EMIS in the country and senior high schools in the Tamale Metropolis in particular.

In examining user awareness and the use of EMIS among stakeholders in education, (Aheto, & Fletcher, 2012) discovered that EMIS lacks a well-coordinated training schedule for stakeholders and a dedicated webpage. They remarked further that EMIS users are often those who are aware of it, therefore understanding of EMIS influences how it is used, and parents are a minority among EMIS users. Mosweu (2022) intimated that some schools struggle to operate with low-quality and insufficient human and material resources due to the rising costs of operating school systems. One study also inferred that if the usage and underutilization of the few resources in schools are not adequately recorded through a properly implemented EMIS regime, they may be wasted (Amanchukwu, & Ololube, 2015). Based on the issues recounted above, an obvious question to answer is – what is the impact of educational management information systems (EMIS) on school administration in the Tamale Metropolis?

Research Objectives

To achieve the main objective, this study specifically sought to:

- Examine the effectiveness of EMIS in keeping staff records in Senior High Schools in the Tamale Metropolis Tamale Metropolis
- Assess the effects of EMIS training on the level of usage of EMIS by teachers in Senior High Schools in the Tamale Metropolis.

LITERATURE REVIEW

Theoretical Review

The Technology Acceptance Model serves as the theoretical foundation for this study. The theory is a development of the Theory of Extended Reasoning, a previous theory. When a user encounters a new technology, two things impact how and when he or she adopts it, according to TAM. These are perceived usefulness, which measures how much a person thinks the system will help him or her perform his or her jobs better, and perceived usability, which measures how much a person thinks the new system will be simple to use or need minimal effort on their part to learn how to use it. This has an impact on the user's decision to accept or reject new technology. Even while the Educational Management Information System is beneficial, its intended users may not readily adopt it if they believe it will not enhance work processes

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or are difficult to use (Kirimi *et al*., 2017). From the Ghanaian perspective, if the school administrators believe it will be more difficult to manipulate data, if they may need to acquire new skills to run EMIS, or if they believe that EMIS may not ease their work, it may prevent the management from providing funding to set up the necessary infrastructure or facilitate the acquisition of necessary skills. Managerial attitudes about these technologies may vary depending on individual traits like age and gender. Users are more likely to accept EMIS in school management if they believe it is simple to use. Users are more inclined to use EMIS if they believe it would make their jobs easier. If not, they might not accept it.

Empirical Review

The Effects of EMIS Training on Secondary School Administration

A study conducted by Eleku *et al*. (2022) concluded that obstacles preventing the efficient use of EMIS in secondary schools included inadequate training, a shortage of trained staff and coordinators, a weak EMIS unit, scanty resources, and unclear regulations and procedures around data usage. They further indicated that to effectively use educational management information systems in the education sector, in general, and secondary schools in particular, it was advised that the establishment of a well-organized EMIS unit, raising awareness of the importance of EMIS, and providing teachers and other staff with EMIS training need to be seriously considered. Thus, EMIS training should cover all aspects as highlighted by The Systems Theory to translate into perceived usability and perceived usefulness as stressed by The Technology Acceptance Module for quick EMIS adoption.

Also, Ali *et al*. (2023) opined that the creation of adequately equipped EMIS cells in every district, in addition to thorough training of data entry operators, concerned officers, and staff, simplifying EMIS data to assist with policy-making and service delivery at institutions are crucial elements in narrating an EMIS success story. They further stated that management training should go beyond computer literacy and be conducted through brief, focused workshops as these are some of the surest ways to attain EMIS success. They added that the training of managers should be through short targeted workshops beyond computer literacy. Another report has it that, the Ministry of Education should seek out more financing to, among other things, enable secondary schools to buy more equipment and receive technical help following the national policy on education (Ejimofor, & Okonkwo, 2022). Recommendations from a study suggested that public secondary schools should keep enhancing how they use EMIS through training for student information management (Wamutoro *et al*., 2022).

The EMIS policy's important goal is to improve collaborations with the corporate sector and modernize manager training programmes to increase educators' ICT literacy (Rieckmann, 2017 as cited by Wamuturo et al., 2022). Akuffu (2020) advocated that to advance the practice of data-based decision-making and planning, educational planners and decision-makers must receive EMIS-inclined training in the use and interpretation of educational statistics. Suleiman *et al*. (2022) suggested among other things that, secondary school administrators should fully integrate educational management information systems into decision-making, that periodic seminars, conferences, and workshops on educational management information systems should be organized for pertinent stakeholders in secondary education, and that stakeholders (such as the government, non-governmental organizations, and philanthropists) in secondary education should intensify their efforts in this direction. A study identified several significant barriers to using EMIS data for successful decision-making in American schools, pointing out insufficient user enlightenment, a deficient data hub, and confidential issues (Forrester, 2019).

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More so, an evaluation of a multimedia training programme for senior high school staff members using a computer-based Management Information System and the subsequent effect on the structure of the school was conducted. The Superhighways Initiative of the Education Departments was the context for the training. The effects of this project on school management practice were studied two years later, and the consequences of staff usage patterns of ICT in management were analyzed. Results showed that reform initiatives should focus on the entirety of the education system and should encourage professional discourse and involvement (Ramakrishnan, 2017).

Asio (2022) intimated that people, particularly principals, who also serve as school administrators, are crucial to a smooth EMIS rollout because they oversee not just the gathering, upkeep, and dissemination of data but also its transformation into statistics that can be used to drive decision-making. Asio (2022) went further that, this, therefore, creates the idea that EMIS is only a database or an IT system. Asio (2022) concludes that as a result, it becomes vital to provide the appropriate skills to individuals charged with handling data, as well as to provide an environment that facilitates the usage of EMIS in terms of ICT infrastructure. EMIS helps improve the administrative performance of secondary school head teachers. The top and middle management should, however, give secondary schools the necessary financial and human resource training to use EMIS data effectively (Hussain, 2021). In sum, all the studies so far recognize the miraculous role played by EMIS training in the adoption and usage of the system.

Effectiveness of EMIS in Keeping Staff Data

Pheonah (2019) declared that instructors' records ought to be stored in a variety of informational sub-sections. Information on instructors, for instance, can mention things like advancements or disciplinary actions. If there is enough room at the school, copies of the material under these headings should ideally be retained by the head of the school as well as in an appropriate storage place. The storage area should also hold the individual teacher files. Also, Asogwa *et al*. (2021) stated that records and data generated during the correct performance of an organization's or school's authorized role should be carefully maintained. Ommundsen (2017) added that the proper technology, the proper personnel, and the proper procedures are necessary for an EMIS to be functional and effective.

Amanchukwu, & Ololube (2015) confessed that properly maintained records on human resources help plan and find jobs. The principal will be able to assess the school's human resource needs and assets by looking at the number of employees, their areas of expertise, qualifications, age, gender, and other factors. They continued that personnel performance reviews can also take advantage of consistently stored employee data. EMIS implementation in schools is greatly aided by teachers' EMIS knowledge and access to professional development (Amanchukwu *et al*., 2015).

Ocharo *et al*. (2019) admitted that sufficient staff with the necessary abilities is required for the effective implementation of EMIS in schools. It would be challenging to completely incorporate technology in schools without these abilities.

Also, Ejimofor, & Okonkwo (2022) indicated that the use of EMIS modules in teaching and learning, manpower management, and school-community interactions by the teaching staff positively influenced the management of secondary schools in Anambra State by reducing the time needed to complete routine tasks like preparing for exams and student reports, monitoring students' attendance, conducting staff evaluations, and communicating with parents and other stakeholders. And that staff who manage school records effectively must be knowledgeable, skilled, and experienced in managing various aspects of the educational system.

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Okeke, & Ikediugwu (2021) asserted that to achieve the specified goals of the school system, the school head must be able to set necessary targets, monitor the use of facilities, create purchasing plans, and ensure actual management and supervision of the educational inputs that are now available. They summed it up that as the manager of the school organization, the headmaster, principal, rector or vice-chancellor has the difficult responsibility of mobilizing the available human resources to ensure the proper operation of the school.

METHODOLOGY

Design: The study employed a quantitative research approach and a descriptive research design. The study population size was 651 participants out of which a sample size of 241 was selected based on the Krejcie and Morgan scale determination table. Data were collected using a questionnaire instrument. The reliability and validity of the survey instrument were done through the pre-testing of the instrument. The pre-test was conducted among 20 respondents from four selected public senior high schools in the Tamale Metropolis. The reliability and validity test analysis done on the different sets of questions under each objective showed a reliability result of an average Cronbach's Alpha 0.79, indicating strong reliability of the research instruments used. The data was presented using several statistical calculations. SPSS was used to generate tables, pie charts, bar charts and graphs for data analysis in areas such as demographic characteristics, academic qualification, professional qualification, years of service and so on. Also, chi-square was used to relay the relationship between EMIS training and the adoption of EMIS in senior high schools. Last but not least, Craimer's V statistic was deployed to test the degree or extent of the relationship between EMIS training and the level of EMIS adoption. The respondents' anonymity was assured. The researcher also guaranteed the respondents' confidentiality. In this case, the information submitted by the respondents will not be made public, (Paliwal, & Singh, 2021). Finally, the researcher duly informed participants that they would not have access to the final report.

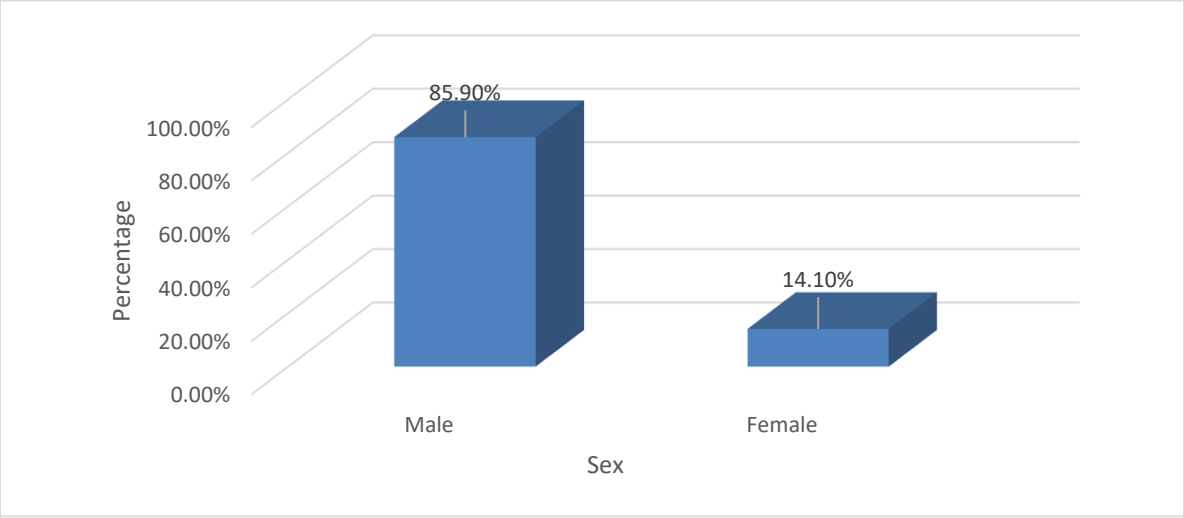
RESULTS AND DISCUSSION

Demographic and Socioeconomic Characteristics of Respondents

Distribution of Sex of Teachers

Figure 1 shows that 207 (85.90%) of the respondents were male while 34 (14.10%) of them were female.

Figure 1: Distribution of Sex of Teachers



Source: Field survey (2023)

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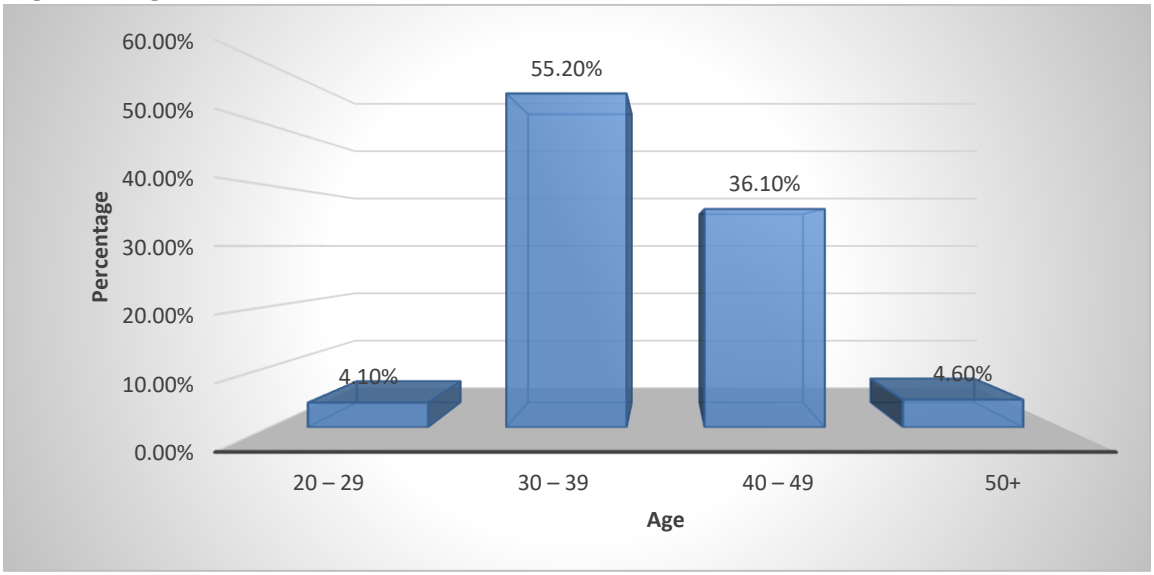
Age Distribution of Teachers

Figure 2 indicates that 10 (4.1%) of the respondents were in the age range of 20-29, 133 (55.20%) of them were in the age range of 30-39, 87 (36.10%) of the respondents were in the age range of 40-49 while 11 (4.60%) were in the age range of 50+.

Figure 2: Age Distribution of Teachers



Source: Field survey (2023)

Distribution of Teachers' Professional Status

Table 1 indicates that 221 (91.70%) of the respondents said YES, they were professional teachers while 20 (8.30%) claimed NO, they were not professional teachers.

Table 1: Distribution of Teachers' Professional Status

Response	Frequency	Per cent
Yes	221	91.7
No	20	8.3
Total	241	100.0

Source: Field survey (2023)

Distribution of Teachers' Highest Educational Qualification

Figure 3 reflects that 60 (25%) of the respondents' highest educational qualification was a Master's degree, 3 (1%) of the respondents hold a Certificate "A" while 154 (64%) of them hold a degree as the highest qualification. Diploma holders were also 24, representing 10% of the respondents.

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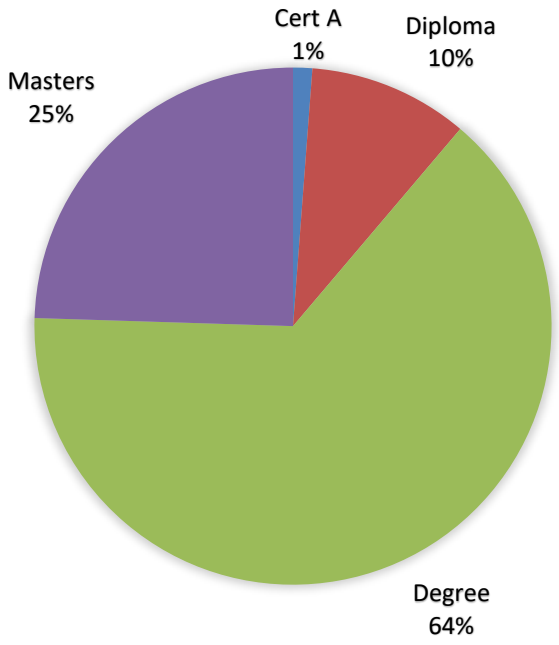
Figure 3: Distribution of Teachers' Highest Educational Qualification



Source: Field survey (2023)

Distribution of Teachers' Experience in Years of Teaching

Table 2 indicates that 20 teachers representing (8.3%) have 1- 4 years of teaching experience, 40 teachers (16.6%) have 5 to 9 teaching experience, 55 teachers (22.8%) have 10 to 14 years of teaching experience and 126 teachers, represents (52.3%) have 15 and more teaching experience.

Table 2: Distribution of Teachers' Experience in Years of Teaching

Years of teaching	Frequency	Percentage
1-4	20	8.3
5-9	40	16.6
10-14	55	22.8
15+	126	52.3
Total	241	100.0

Source: Field survey (2023)

Teachers' Views About Whether They Have Had Training on EMIS

Table 3 shows that 222 respondents (92.1%) agree that the staff of their school has been trained on EMIS, 0 respondents (0%) don't know about this training and 19 respondents (7.9%) disagree with the statement. This suggests that a significant majority of teachers were aware of training on EMIS at their school, and most of them agree that such training had taken place.

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Table 3: Teachers' Views on Whether They Have Had Training on EMIS

Statement	Agree		Don't know		Disagree	
	Freq	%	Freq	%	Freq	%
The staff of our school have been trained in EMIS	222	92.1	0	0	19	7.9
Attendance at the training was encouraging	222	92.1	5	2.1	14	5.8
The training was organized for both parents and teachers	5	2.1	95	39.4	141	58.5
A separate training was organized for parents	5	2.1	25	10.4	211	87.5

Source: Field survey (2023)

Table 3 again shows that 222 respondents (92.1%) agree that attendance to the training on EMIS was encouraging, 5 respondents (2.1%) don't know whether attendance was encouraging while 14 respondents (5.8%) disagree with the statement. This indicates that a high percentage of teachers believe that attendance at the EMIS training was positive and encouraging.

Again, from Table 3, 5 respondents (2.1%) agree that the training was organized for both parents and teachers, 95 respondents (39.4%) don't know if the training was for both parents and teachers while 141 respondents (58.5%) disagree with the statement. Here, the majority of teachers disagree with the idea that the training was organized for both parents and teachers, suggesting that they perceive the training as primarily for teachers rather than parents.

Furthermore, Table 3 shows that 5 respondents (2.1%) agree that a separate training was organized for parents, 25 respondents (10.4%) don't know if a separate training was organized for parents while 211 respondents (87.5%) disagree with the statement. The vast majority of teachers disagree with the notion that separate training was organized for parents, indicating that they perceive the training as primarily directed at teachers and not specifically for parents. Table 3 provides insights into teachers' perceptions and awareness of training on EMIS at their schools. It suggests that teachers generally acknowledge the training for school staff and find it encouraging, but they don't believe that the training was intended for both parents and teachers or that a separate training was organized specifically for parents.

Teachers' Views on the Effectiveness of EMIS Training

Table 4 indicates that 217 respondents (90.0%) agree that the facilitators had the necessary knowledge of EMIS, 14 respondents (5.8%) don't know if the facilitators had the requisite knowledge while 10 respondents (4.2%) disagree with the statement. This suggests that a significant majority of teachers believe that the facilitators who conducted the EMIS training possessed the required knowledge on the subject.

Table 4: Teachers' Views on the Effectiveness of EMIS Training

Statement	Agree		Don't know		Disagree	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**
The facilitators had the requisite knowledge of EMIS	217	90.0	14	5.8	10	4.2
All the relevant logistics for the training were available	190	78.8	27	11.2	24	10.0
After the training, most of the staff in our school use EMIS to keep records	189	78.4	36	14.9	16	6.7

Source: Field survey (2023)

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Table 4 also shows that 190 respondents (78.8%) agree that all the relevant logistics for the training were available, 27 respondents (11.2%) don't know if the logistics were available and 24 respondents (10.0%) disagree with the statement. Here, a majority of teachers agree that the necessary logistics for the training were in place, but a notable portion either don't know or disagree.

Table 4 reflects 189 respondents representing 78.4% agree that after the training, most of the staff in their school use EMIS for record-keeping, 36 respondents (14.9%) don't know if most of the staff use EMIS for record-keeping, while 16 respondents (6.7%) disagree with the statement. This statement suggests that a substantial number of teachers believe that the training has positively impacted the use of EMIS for record-keeping among the staff at their school.

Table 4 provides insights into teachers' views regarding the effectiveness of the EMIS training they received. The data suggests that most teachers believe that the facilitators had the necessary knowledge, and a significant proportion believe that the training had a positive impact on the use of EMIS for record-keeping. However, there is some uncertainty and disagreement regarding the availability of relevant logistics for the training. These perceptions are based on the responses of teachers surveyed, and they indicate the general sentiment among the respondents regarding the training programme.

Table 5: Relationship Between Staff Training on EMIS and Their Usage of EMIS

Chi square Statistic:	$\chi^2(12, N = 241) = 186.02^{***}$
Cramer's V	$= 0.507^{***}$

Source: Field survey (2023)

The findings in Table 5 reveal a significant statistical relationship between training of staff on the Education Management Information System (EMIS) and subsequent usage of EMIS by teachers. The chi-square statistic $\chi^2(12, N=241) = 186.02$ is notable here, as it indicates a strong relationship at the 1% level of significance. That is to say, the probability we would observe such a strong relationship by chance is very low. Therefore, we can conclude that there is a significant statistical relationship. In addition, Cramer's V statistic of 0.507 indicates a reasonably strong association between the levels of agreement regarding the effectiveness of EMIS training and the actual usage of EMIS. A Cramer's V value that is closer to one indicates a stronger association but in this case, 0.507 indicates a strong association. In practical terms, these findings suggest that teachers who indicated an agreement or a strong agreement on appropriate EMIS training will also likely report that most staff at their schools use EMIS after training is completed. This association shows how effective training programs promote the use of educational management systems, and that by improving training we could raise the use of the system among staff.

DISCUSSIONS OF THE FINDINGS

To Assess the Effects of EMIS Training on the Level of Adoption of EMIS in Senior High Schools in the Tamale Metropolis

Concerning this first objective, the study revealed a significant number of teachers (222, 92.1%) agreed that the staff of secondary schools have been trained on EMIS while (19, 7.9%) teachers disagreed that staff of secondary schools have been trained on EMIS. This is in line with the recommendations from a study by Eleku *et al*. (2022) which conclude that to effectively use educational management information systems in the education sector in general and secondary schools in particular, the establishment of a well-organized EMIS unit, raising awareness of the importance of EMIS, and

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providing teachers and other staff with EMIS training need to be seriously considered.

It was also revealed that a high percentage of teachers (222, 92.1%) believed attendance to the training on EMIS was encouraging and positive while an insignificant number of the teachers (5, 2.1%) did not know whether attendance was encouraging or not and another insignificant number of teachers (14, 5.8%) disagreed that attendance to the training on EMIS was not encouraging. It was also revealed that an insignificant number of teachers (5, 2.1%) agreed that the training was organized for both parents and teachers, a somehow great number of teachers and non-teaching staff (95, 39.4%) did not know if the training was for both parents and teachers while a significant number of the teachers (141, 58.5%) disagreed that the training was organized for both parents and teachers, suggesting that they perceive the training as primarily for teachers rather than parents.

Furthermore, the study found out that an insignificant number of the teachers (5, 2.1%) agreed that separate training was organized for parents, (25, 10.4%) of them did not know if separate training was organized for parents while greater number of the teacher (211, 87.5%) disagreed that a separate training was organized for parents. The vast majority of teachers disagreed with the notion that separate training was organized for parents, indicating that they perceive the training as primarily directed at teachers and not specifically for parents.

It was also revealed that teachers generally acknowledge the training for school staff and find it encouraging, but they do not believe that the training was intended for both parents and teachers or that a separate training was organized specifically for parents. The perception of teachers here is in sharp contrast with Suleiman *et al*. (2022) who suggested among other things that, secondary school administrators should fully integrate educational management information systems into decision-making, that periodic seminars, conferences, and workshops on EMIS should be organized for pertinent stakeholders in secondary education including parents.

Based on the objective one, it was found that a greater number of the teachers and non-teaching staff (217, 90.0%) agreed that facilitators had the necessary knowledge on EMIS, an insignificant number of the teachers (14, 5.8%) did not know if the facilitators had the requisite knowledge or not while another smaller number of the teachers (10, 4.2%) disagreed that facilitators had the necessary knowledge on EMIS. This suggests that a significant majority of teachers believe that the facilitators who conducted the EMIS training possessed the required knowledge on the subject.

The study also revealed that 190 teachers (78.8%) agreed that all the relevant logistics for EMIS training were available, a few of the teachers (27, 11.2%) did not know if the logistics were available or not while another insignificant number of the teachers (24, 10.0%) disagreed that the relevant logistics for EMIS training were available. Here, a majority of teachers and non-teaching staff agreed that the necessary logistics for the training were in place, but a notable portion either did not know or disagreed. The overwhelming agreement by the teachers on the availability of adequate logistics adds to the assertion of Ali *et al*. (2023) who opined that the creation of adequately equipped EMIS cells in every district, in addition to thorough training of data entry operators, concerned officers, and staff, simplifying EMIS data to assist with policy-making and service delivery at institutions, are crucial elements in narrating an EMIS success story.

Also, it was found that a greater number of the teachers (189, 78.4%) agreed that after the training, most of the staff in the schools use EMIS for record-keeping. A few of the teachers, (35, 14.9%) did not know if most of the staff use EMIS for record-keeping or not, while an insignificant number of the teachers (16, 6.7%) disagreed that after the training, most of the staff in the schools use EMIS for record-

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keeping. This suggests that a substantial number of teachers believe that the training has positively impacted the use of EMIS for record-keeping among the staff at their school. The agreement by the majority of the teachers is affirmed by Liu *et al*. (2020) who remarked that analysis, target setting, budget creation, project design and evaluation, textbook distribution, classroom and school building, the opening of new schools, and supply of basic amenities and the vast majority of data consumers across all school administrative levels were pleased with the EMIS data.

It was also revealed that most staff use EMIS after training, and they also agree that the staff were trained on EMIS and they use EMIS after training, and they also agree that the staff were trained on EMIS. This indicates that there is a positive correlation between those who agree with the effectiveness of training and those who believe in the adoption of EMIS, while a negative correlation exists between those who disagree with training effectiveness and EMIS adoption. It provides valuable insights into how perceptions of training relate to the use of EMIS within the school. Maybe this endorses the stands of Wamutoro *et al*. (2022) that periodic and effective training is a sufficient condition for secondary school staff to embrace and adopt EMIS in performing their duties.

Also, the findings in Table 5 reveal a significant statistical relationship between training of staff on the Education Management Information System (EMIS) and subsequent usage of EMIS by teachers. The chi-square statistic $\chi^2(12, N=241) = 186.02$ is notable here, as it indicates a strong relationship at the 1% level of significance. Besides, the Cramer's V statistic of 0.507 confirms that there is a strong association between the levels of agreement for the two statements. This implies that most of the teachers who agreed or strongly agreed that there was EMIS training for staff of their schools also agreed or strongly agreed that most staff of their schools use EMIS after the training. Thus, the results in Table 5 indicate that adoption of EMIS is directly associated with or influenced by training on EMIS. This highlights Riddell, & Nino-Zarazua (2016), that the adoption of EMIS by secondary schools depends on the effectiveness of EMIS training.

The study again found a greater number of the teachers (80.5%) to have agreed that EMIS has been accepted and embraced by all in their schools. A few of the teachers (27, 11.2%) did not know whether EMIS has been accepted or not while (20, 8.3%) disagreed that EMIS has been accepted and embraced by all in their school. This indicates that the majority of respondents believe that EMIS has been well-received and embraced by all in their schools. This again endorses Riddell, & Nino-Zarazua (2016) as they postulate that due to its efficiency and efficacy, the usage of EMIS in school administration has quickly risen since the world is increasingly becoming a global village, thanks to information and communication technology.

The study further found a significant number of teachers (156, 64.7%) agreed that they have accurate and reliable data due to the adaptation and implementation of EMIS. Amanchukwu *et al*. (2015) confirm that EMIS record-keeping is essential to the whole information cycle of an educational system because of its key role in the effective generation and gathering of accurate and reliable data. Fifty-six (56, 23.2%) of the teachers did not know if the data is accurate and reliable due to EMIS or not while an insignificant number of teachers (29, 12.0%) disagreed that they have accurate and reliable data due to the adaptation and implementation of EMIS. This suggests that a majority of respondents believe that EMIS has positively impacted the accuracy and reliability of data in their schools.

It was also found that a greater number of the teachers (206, 85.5%) agreed that EMIS has a favourable influence on resource utilization and time management. This goes in tandem with Riddell, & Nino-Zarazua (2016) that due to advances in EMIS technology, secondary school

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administrators who previously had to spend a lot of time managing difficult allocation issues (such as staffing, resource, and timetabling allocation) and overseeing school operations now have more alternatives. An insignificant number (18, 7.5%) did not know if EMIS has had this influence or not while a smaller number of the teachers (17,7.1%) disagreed that EMIS has a favourable influence on resource utilization and time management.

Again, it was revealed that (171, 71.0%) of the teachers agreed that senior high school heads use EMIS effectively and efficiently, 52 teachers (21.6%) did not know if senior high school heads use EMIS effectively or not while an insignificant number of the teachers (18, 7.5%) disagreed that senior high school heads use EMIS effectively and efficiently. This suggests that a majority of respondents believe that senior high school heads effectively use EMIS for school administration. This goes in line with Joo *et al*. (2016) who postulate that EMIS positively impacted school management and administration, resulting in greater information availability, more efficient management, better use of school resources, less workload, better time management, and higher-quality reports.

The study again revealed that (94, 39.0%) of the teachers agreed that the school struggles to compete with other schools because they are unable to understand the very important roles played by EMIS in an educational institution, this cements the position held by Eleku *et al*. (2022) that without the significant roles EMIS play in an educational institution, that institution would struggle to compete with other organizations. But, (72, 29.9%) of them did not know if the school struggles to compete with other schools because they are unable to understand the very important roles played by EMIS in an educational institution or not while (75, 31.1%) of the teachers disagreed that the school struggles to compete with other schools because they are unable to understand the very important roles played by EMIS in an educational institution.

Again, it was found that a greater number of the teachers (127, 52.7%) agreed that there is lack of effective data processing and quick decision-making because of ineffectiveness in EMIS implementations, (69, 28.6%) of the teachers did not know if there is lack of effective data processing and quick decision-making because of ineffectiveness in EMIS implementations or not while an insignificant number of the teachers (45, 18.7%) disagreed that there is lack of effective data processing and quick decision-making because of ineffectiveness in EMIS implementations.

This means that a majority of respondents (52.7%) agree that there is a lack of effective data processing and quick decision-making due to ineffective EMIS implementations. A smaller percentage either do not know (28.6%) or disagree (18.7%) with this statement.

Also, the study found a significant number of the teachers (176, 73.0%) agreed that understanding EMIS influences how it is used, (56, 23.2%) of the teachers did not know if understanding of EMIS influences how it is used or not while an insignificant number of (9, 3.7%) disagree that in this school, understanding of EMIS influences how it is used.

It was also revealed that a greater number of the teachers (195, 80.9%) agreed that Senior High school teachers and administrators in the Metropolis have not yet had enough exposure to EMIS knowledge and skills, just only (23, 9.5%) did not know if senior high school teachers and administrators in the Tamale Metropolis have not yet had enough exposure to EMIS knowledge and skills or not while (23, 9.5%) of the teachers and non-teaching staff disagreed that senior high school teachers and administrators in the Metropolis have not yet had enough exposure to EMIS knowledge and skills.

Finally, under objective one, it was found that a greater number of the teachers (174, 72.2%) agreed that EMIS is used to manage teachers as resources

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in SHS, just a few (34, 14.1%) of teachers did not know if EMIS is used to manage teachers as resources in SHS or not while (33, 13.7%) of them disagreed that EMIS is not used to manage teachers as resources in SHS. This means that a significant majority of respondents (72.2%) agree that EMIS is a valuable tool for managing teachers as a resource in senior high schools. A smaller percentage of respondents either do not know (14.1%) or disagree (13.7%) with this statement. This indicates a generally positive perception of the role of EMIS in teacher management within SHSs, as indicated by the majority of respondents who agree with the statement. This is why Pheonah (2019) postulated that with EMIS, the teacher constitutes an indispensable resource and that every teacher's file must contain professional qualifications, rank, years of service and the rest.

Examine the Effectiveness of EMIS in Keeping Staff Records in Senior High Schools in the Tamale Metropolis

Concerning objective two, the study revealed a greater number of teachers (172, 71.4%) agreed that secondary schools employ management information systems (MIS) to support staff allocation, a smaller number of teachers (28, 11.6%) did not know if secondary schools do employ management information systems (MIS) to support staff allocation or not while another smaller number of the teachers (41, 17.0%) disagreed that secondary schools do not employ management information systems (MIS) to support staff allocation. The general agreement by staff in this objective testifies to Okeke, & Ikediugwu (2021) as they asserted that as the manager of the school organization, the headmaster, principal, rector or vice-chancellor has the difficult responsibility of mobilizing the available human resources to ensure the proper operation of the school by using EMIS data.

It was also revealed that a smaller number of the teachers (66, 27.4%) agreed that there has never been the use of EMIS to provide data on the hiring and promotion of staff in this school, a greater number of (110, 45.6%) did not know if there has never been the use of EMIS to provide data on hiring and promotion of staff in this school or not while another smaller number of the teachers (65, 27.0%) disagreed that there has never been the use of EMIS to provide data on hiring and promotion of staff in this school. Zurita *et al*. (2022) insinuated that schools employ management information systems (MIS) to support a variety of administrative tasks such as staff and resource allocation and attendance tracking. For Ibrahim *et al*. (2020), EMIS information-gathering techniques could be used to enhance administrative choices in the educational system in areas like managing resources; hiring and promoting staff; and appointing school principals and other school officers to make decisions regarding student enrolment, allocation of hostels, offices, and staff quarters among other things.

Furthermore, it was found that a smaller number of the teachers (91, 37.8%) agreed that school heads always make use of EMIS in looking at teachers' qualifications and areas of expertise, another smaller number (96, 39.8%) did not know if school heads always make use of EMIS in looking at teachers' qualifications and areas of expertise or not while an insignificant number of the teachers (54, 22.4%) disagreed that school heads always make use of EMIS in looking at teachers' qualifications and areas of expertise.

It was also found that a greater number of the teachers (65, 68.5%) agreed that EMIS assists heads of schools to track teacher training and development, a smaller number (53, 22.0%) of the teachers did not know if EMIS assists heads of schools to track teacher training and development while an insignificant number of the teachers (23, 9.5%) disagreed that EMIS assists heads of schools to track teacher training and development. Ali *et al*. (2023) stated that management training should go beyond computer literacy and be conducted through brief, focused workshops as these are some of the surest ways to attain EMIS success.

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It was also found that a large number of the teachers (148, 61.4%) agreed that the school head uses EMIS to facilitate teacher employment data retrieval and appointment, a smaller number of them (53, 22.0%) did not know if the school head uses EMIS to facilitate teacher employment data retrieval and appointment or not while another smaller number of the teachers (40, 16.6%) disagreed that school head uses EMIS to facilitate teacher employment data retrieval and appointment.

The study further revealed that a significant number of the teachers (171, 71.0%) agreed that the use of EMIS by SHSs facilitates easy access to qualified teacher data, a smaller number (32, 13.3%) did not know if EMIS by SHSs facilitates easy access to qualified teacher data or not while another smaller number of the teachers (38, 15.8%) disagreed that EMIS by SHSs facilitates easy access to qualified teacher data. Ommundsen (2017) added that the proper technology, the proper personnel, and the proper procedures are necessary for an EMIS to be functional and effective in accessing quality staff data.

CONCLUSION

The study concluded based on the results that the majority of teachers and administrators were aware of the training on EMIS at their schools, and training has taken place on EMIS. There is a belief that attendance at the training on EMIS was encouraging and positive and training was organized for both parents and teachers. The facilitators had the necessary knowledge of EMIS, and all the relevant logistics for EMIS training were available, after the training, most of the staff in the schools use EMIS for record-keeping and believe that the training has had a positive impact on the use of EMIS for record-keeping among the staff at their school and there was a belief that most staff use EMIS after training. It was found that secondary schools have accurate and reliable data due to the adaptation and implementation of EMIS, EMIS has a favourable influence on resource utilization and time management, senior high school heads use EMIS effectively and efficiently and some schools struggle to compete with other schools because they are unable to understand the very important roles played by EMIS in an educational institution. Secondary schools employ management information systems (MIS) to support staff allocation, to provide data on the hiring and promotion of staff in this school, and to look at teachers' qualifications and areas of expertise, EMIS assists heads of schools in tracking teacher training and development, school head uses EMIS to facilitate teacher employment data retrieval and appointment and EMIS by SHSs facilitates easy access to qualified teacher data.

Recommendations

Based on the findings, the researcher wishes to present the following recommendations:

It is recommended that school heads should work with the Ghana Education Service (GES) to create all teachers' and administrators' awareness of the existence of EMIS in schools and all necessary training should be conducted including all relevant stakeholders. In each, training session, school heads should ensure a hundred percent attendance so that no one is left out in the awareness creation and implementation. It is also recommended that school heads and their management should contract competent and qualified facilitators to carry out the training on EMIS.

It is also recommended that in each of the training, facilitators should educate participants on the benefits of EMIS adaptation which include accurate and reliable data and influence on resource utilization and time management. It is also recommended that the GES should entreat all schools to implement effective data processing and quick decision-making and all senior high school teachers and administrators should acquire enough exposure to EMIS knowledge and skills.

It is also recommended that experts in EMIS should be tasked by school management to train all heads, assistant heads and ICT coordinators on how to

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support staff allocation, to provide data on the hiring and promotion of staff in this school, in looking at teachers' qualifications and areas of expertise, to track teacher training and development, to facilitate teacher employment data retrieval and to facilitates easy access to qualified teacher data.

The Ghana Education Service should organize intensive EMIS training for all school administers and ICT Coordinators on how to use EMIS to reduce data problems in schools to ensure better supervision of students' academic progress, tracking student assessment, monitoring and managing student attendance data, scheduling teaching and examinations and to allocate hostels and dormitories to students.

Ghana Education Service should assist all secondary schools in their attempt to embrace EMIS to have adequate and qualified human and material resources. This will help reduce the rising cost of operating EMIS, result in stable networks and have competent and dedicated leadership to see to the success of EMIS implementation in all schools.

REFERENCES

Aheto, S. K., & Fletcher, J. (2015). Looking through the Lenses of Educational Management Information Systems (EMIS). *International Journal of Computing Academic Research*, *1*(1), 10–24. http://www.meacse.org/ijcar

Akuffu, G. Y. (2020). The Role Of Ict Tools In Educational Delivery: A Study Within The Tamale Metropolis. (Doctoral dissertation).

Ali, A., Joseph, V., & Kakar, Z. U. H. (2023). Education Management Information Systems in High Schools of Balochistan: A Case Study of District KECH. Voyage Journal of Educational Studies, 3(2), 153–162. https://doi.org/10.58622/vjes.v3i2.55

Amanchukwu, R. N., & Ololube, N. P. (2015a). Excellent school records behaviour for effective management of educational systems. Human Resource Management Research, 5(1), 12–17. Accessed from https://www.academia.edu/download/47404964/Excellent_School_Records_Behaviour_for_E20160721-14116-1wnvbw2.pdf

Amanchukwu, R. N., & Ololube, N. P. (2015b). Excellent School Records Behaviour for Effective Management of Educational Systems. 5(1), 12– 17. https://doi.org/10.5923/j.hrmr.20150501.02

Amanchukwu, R. N., Stanley, G. J., & Ololube, N. P. (2015). A review of leadership theories, principles and styles and their relevance to educational management. Management, 5(1), 6– 14. Retrieved from https://ed.fullerton.edu/lift/_resources/pdfs/just_leadership/A%20REVIEW%20OF%20LEADERSHIP.pdf

Ampofo, J. A. (2020). Challenges of Student Management Information System (Mis) in Ghana: a Case Study of University for Development Studies, Wa Campus. International Journal of Management & Entrepreneurship Research, 2(5), 332–343. http://www.creativecommons.org/licences/by-nc/4.0/

Anapey, G. M., & Aheto, S. P. K. (2022). Distance education tutors' technology pedagogical integration during COVID-19 in Ghana: Implications for development education and instructional design. In *Reimagining Development Education in Africa* (pp. 155-170). Cham: Springer International Publishing. https://link.springer.com/chapter/10.1007/978-3-030-96001-8_9

Anderson, J., Van Weert, T., & Duchâteau, C. (2002). Information and communication technology in education: A curriculum for schools and programme of teacher development. UNESCO.

Andreas, S. (2022). International Summit on the Teaching Profession Building on COVID-19's

Article DOI : https://doi.org/10.37284/eajass.8.1.2815

Innovation Momentum for Digital, Inclusive Education. OECD Publishing.

Asio, J. M. R., Leva, E. F., Lucero, L. C., & Cabrera, W. C. (2022). Education Management Information System (EMIS) and its implications to educational policy: a mini-review. International Journal of Multidisciplinary: Applied Business and Education Research, 3(8), 1389-1398. https://ssrn.com/abstract=4192091

Asogwa, B. E., Ezeani, C. N., & Asogwa, M. N. (2021). Status of electronic records management (e-RM) in African university libraries: experience from Nigerian universities. Library Management, 42(8/9), 515–530. https://doi.org/10.1108/LM-04-2021-0036

Aydin, S. (2013). Teachers' perceptions about the use of computers in EFL teaching and learning: The case of Turkey. Computer Assisted Language Learning, 26(3), 214–233. https://doi.org/10.1080/09588221.2012.654495

Bhagat, S., & Kim, D. J. (2020). Higher education amidst COVID-19: Challenges and silver lining. Information Systems Management, 37(4), 366– 371. https://www.tandfonline.com/doi/abs/10.1080/10580530.2020.1824040

Brown, G. T. L. (2019). Technologies and infrastructure: costs and obstacles in developing large-scale computer-based testing. Education Inquiry, 10(1), 4– 20. https://doi.org/10.1080/20004508.2018.1529528

Dovemark, M., & Arreman, I. E. (2017). The implications of school marketisation for students enrolled on introductory programmes in Swedish upper secondary education. Education, Citizenship and Social Justice, 12(1),49– 62. https://doi.org/10.1177/1746197916683466

Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., Gupta, B., Lal, B., Misra, S., & Prashant, P. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. International Journal of Information Management, 55, 102211. https://doi.org/10.1016/j.ijinfomgt.2020.102211

Ebenezer, J., Sitthiworachart, J., & Na, K. S. (2022). Architecture students' conceptions, experiences, perceptions, and feelings of learning technology use: Phenomenography as an assessment tool. Education and Information Technologies, 27(1), 1133- 1157. https://link.springer.com/article/10.1007/s10639-021-10654-5

Ejimofor, A. O., & Okonkwo, N. C. (2022). Influence of the Use of Education Management Information System (EMIS) on Management of Secondary Schools in Anambra State. Journal of Educational Research & Development, 5(1). https://educationalresearchdevelopmentjournal.com/index.php/JERD/article/view/76

Eleku, T. K., Agafari, T., & Ahmed, A. (2022). Factors Affecting the Utilization of Educational Management Information System in Secondary Schools of Harari Regional State, Ethiopia. Haramaya University, Haramaya. http://ir.haramaya.edu.et/hru/bitstream/handle/123456789/5678

Forrester, V. V. (2019). School management information systems: Challenges to educational decision-making in the big data era. ArXiv Preprint ArXiv:1904.08932. https://doi.org/10.5121/ijite.2019.8101

Ghana, I. (2014). Ministry of Education.

Hakim, M. A. (2022). Increasing the Excellence of Pesantren in Digital Era: The Study of Management Information System Development at Pondok Modern Darussalam Gontor. TSAQAFAH, 18(2), 335–354. https://doi.org/10.21111/tsaqafah.v18i2.7073

Article DOI : https://doi.org/10.37284/eajass.8.1.2815

Hussain, B. (2021). Perceived Applicability of Educational Management Information System [EMIS] in Secondary Schools using the TOE Framework. https://d1wqtxts1xzle7.cloudfront.net/90978700/perceived-applicability-of-educational-management-information-system

Ibrahim, F., Susanto, H., Haghi, P. K., & Setiana, D. (2020). Shifting paradigm of the education landscape in the time of the COVID-19 pandemic: Revealing of a digital education management information system. Applied System Innovation, 3(4), 49. https://doi.org/10.3390/asi3040049

Joo, Y. J., Kim, N., & Kim, N. H. (2016). Factors predicting online university students' use of a mobile learning management system (m-LMS). Educational Technology Research and Development, 64, 611– 630. https://link.springer.com/article/10.1007/s11423-016-9436-7

Kalolo, J. F. (2019). Digital revolution and its impact on education systems in developing countries. Education and Information Technologies, 24(1), 345– 358. https://link.springer.com/article/10.1007/s10639-018-9778-3

Khalil, M. & Ebner, M. (2015). Learning Analytics: Principles and Constraints. In S. Carliner, C. Fulford & N. Ostashewski (Eds.), Proceedings of EdMedia 2015--World Conference on Educational Media and Technology (pp. 1789-1799). Montreal, Quebec, Canada: Association for the Advancement of Computing in Education (AACE). Retrieved March 25, 2025 from https://www.learntechlib.org/primary/p/151455/.

Khan, S., Mishra, J., Ahmed, N., Onyige, C. D., Lin, K. E., Siew, R., & Lim, B. H. (2022). Risk communication and community engagement during COVID-19. International Journal of Disaster Risk Reduction, 74, 102903. https://doi.org/10.1016/j.ijdrr.2022.102903

Kirimi, D. O., Wanja, M., Barchok, H., & Jagero, N. (2017). Effectiveness of Integrating Science Process-Skills in Teaching Mathematics on Students' Achievement in Secondary Schools in Tharaka-Nithi County, Kenya. International Journal of Academic Research in Progressive Education and Development, 6(4), 163–173. http://dx.doi.org/10.6007/IJARPED/v6-i4/3533

Liu, Z.-J., Tretyakova, N., Fedorov, V., & Kharakhordina, M. (2020). Digital literacy and digital didactics as the basis for new learning models development. International Journal of Emerging Technologies in Learning (IJET), 15(14), 4– 18. https://doi.org/10.3991/ijet.v15i14.14669%0d

Maranga, W. (2019). Assessment of Utilization of Information, Communication and Technology in Teaching And Learning in Public Secondary Schools in Kajiado North Sub-County. https://www.learntechlib.org/d/217585/

Mosweu, O. (2022). Records and information management in evidence-based decision-making public schools in South Africa. Journal of the South African Society of Archivists, 55, 1– 15. https://www.ajol.info/index.php/jsasa/article/view/235725

Nampila, J. (2013). Development of a computer-assisted School Information System for Namibian schools. https://ir.nust.na/server/api/core/bitstreams/45b44429-0323-44f0-8c08-d9bb31a69b20/content

Ocharo, C. M., Getange, K., & Onchera, P. (2019). Heads of department information systems' utilization on communication management of public secondary schools in Nyamira county, Kenya. http://ir- library.kabianga.ac.ke/handle/123456789/251

Okeke, U., & Ikediugwu, N. (2021). Assessment of principals' implementation of education management information systems in secondary schools in Anambra State. African Journal of

Article DOI : https://doi.org/10.37284/eajass.8.1.2815

Educational Management, Teaching and Entrepreneurship Studies, 2(1), 422–443. https://www.ajemates.org/index.php/ajemates/article/view/46

Ommundsen, S. O. (2017). Designing an Education Management Information System - A case study on the introduction of a digital, mobile-to-web Education Management Information System in Zambia. https://www.duo.uio.no/handle/10852/56898

Opoku Prempeh, M. (2019). Memorandum to Parliament submitted by DR. Matthew Opoku Prempeh (MP) Hon. Minister for Education on the construction, supply and installation of educational equipment and training to 10 regional Science, Technology, Engineering, Arts and Mathematics (STEA. https://ir.parliament.gh/bitstream/handle/123456789/1304

Paliwal, M., & Singh, A. (2021). Teacher readiness for online teaching-learning during COVID-19 outbreak: a study of Indian institutions of higher education. Interactive Technology and Smart Education, 18(3), 403–421. https://doi.org/10.1108/ITSE-07-2020-0118

Pheonah, A. (2019). Management of School Records: A Case Study of Standard High School, Zzana. Makerere University. https://asbatlibrary.s3.eu-central-1.amazonaws.com/afd1c10b-72b2-4f44-add6-3e20

Ramakrishnan, M. (2017). An Empirical Study on Effectiveness of Web-Based Training Methods. TSM Business Review, 5(1). https://www.researchgate.net/profile/Satyanarayana-Rentala/publication/307974634

Riddell, A., & Niño-Zarazúa, M. (2016). The effectiveness of foreign aid to education: What can be learned? International Journal of Educational Development, 48, 23–36. https://doi.org/10.1016/j.ijedudev.2015.11.013

Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2021). Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. Quality & Quantity, 55, 805–826. https://link.springer.com/article/10.1007/s11135-020-01028-z

Suleiman, Y., Ayoku, O. B., & Funmilayo, I. B. (2022). Management Information System in Nigerian Secondary Schools: Challenges and Way Forward. 1(2), 180–190. https://doi.org/10.31949/ijeir.v1i2.2476

Tondeur, J., Van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: a systematic review of qualitative evidence. Educational Technology Research and Development, 65, 555– 575. https://link.springer.com/article/10.1007/s11423-016-9481-2

UNESCO, I. C. H. (2020). Basic texts of the 2003 convention for the safeguarding of the intangible cultural heritage. https://unesdoc.unesco.org/ark:/48223/pf0000379091?3=null&queryId=e6e30211-a865-424e-a7c6-623bc1168ea6

WAMUTORO, M., KESSIO, D. K., & WAMBUA, B. K. (2022). Effectiveness of EMIS for student information management on management of public secondary schools in Uasin Gishu County, Kenya. Reviewed Journal International of Business Management [ISSN 2663-127X], 3(1), 122– 133. https://doi.org/10.61426/business.v3i1.45

Zurita Mézquita, E. C., & Escobar Fernández, A. M. de. (2022). Marketing information system: Tool for decision-making and company management. Revista San Gregorio, 1(50), 148– 162. https://doi.org//10.36097/rsan.v0i50.2080

