

Basic Education Management and Education Management Information System in Nigeria

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Abstract:

This research paper investigates the influence of education management information systems on basic school management in Nigeria using secondary data gathered from both print and online sources. The findings reveal that education management information systems have a positive impact on various aspects of basic education, including planning, data management, decision-making, school administration, supervision, resource allocation, monitoring and evaluation, and staff training. Consequently, it is recommended that government entities at all levels prioritize investment in education management information systems and ensure their full implementation in basic schools nationwide to enhance the efficiency and effectiveness of educational management in Nigeria.

Keywords: *registrar's office, technology-aided document management system*

Introduction

Basic education serves as the foundation of formal education, preceding secondary schooling and aiming to provide fundamental knowledge and skills. This educational framework, typically tailored for children aged six and above, plays a crucial role in shaping individuals' intellectual, social, and moral development. Defined by the National Policy on Education (2014), basic education spans the formative years from infancy to adolescence, encompassing Early Child Care and Development Education (0-4) and ten years of structured schooling.

Early Child Care and Development Education, targeting children aged 0-4, operates through daycare facilities and private sector initiatives, setting the groundwork for subsequent formal education from ages 5-6 onwards. Ogunode, Umeora and Olatunde-Aiyedun (2022) noted that basic education was governed by principles of compulsion, universality, and quality, as mandated by the government, consisting of a year of Pre-Primary education, six years of Primary education, and three years of Junior Secondary Education. Primary education, a pivotal component of basic education, assumes a central role in nurturing foundational competencies and fostering holistic development.

The overarching objectives of Basic Education encompass a multifaceted approach towards equipping learners with essential knowledge and competencies. These objectives include instilling entrepreneurial skills conducive to wealth creation and educational advancement, fostering civic responsibility and social engagement, cultivating moral integrity and independent thought, promoting national unity amidst diversity, and facilitating the acquisition of practical skills essential for societal participation (Ogunode, Olatunde-Aiyedun & Akin-Ibidiran, 2021).

Outlined in the Federal Republic of Nigeria's educational framework of 2013, these goals underscore the pivotal role of basic education in shaping individuals into competent, responsible, and adaptable members of society. In pursuit of these objectives, basic education serves as a vital platform for laying the groundwork for lifelong learning and societal integration, thus embodying a cornerstone of national development efforts. UNESCO, (2011) and NEEDS, (2014) posited that Basic education is expected to be free and compulsory for Nigerian children. It begins at the age of six and consists of six years of primary schooling and three years of junior secondary schooling. Subjects taught at the primary level include mathematics, English, religious knowledge, basic science and technology, and one of the three major Nigerian languages (Hausa, Igbo and Yoruba). The goal of primary education is to inculcate functional literacy and numeracy, develop the ability to communicate effectively and enhance positive attitudes towards cooperation, work, community, national development and continuing learning.

The Universal Basic Education Commission (UBEC) is a federal government agency charged with the responsibility for coordinating all aspects of universal basic education programmes in Nigeria to promote uniform, qualitative and functional basic education in all states of Nigeria. In recognition of the multi-sectoral and cross-cutting nature of universal basic education programme implementation, the UBEC pursues and implements critical subsector-related programmes in collaboration with other agencies that have distinct responsibilities within the FME. The Commission is responsible for the production and distribution of the new nine-year basic education curriculum to all public primary and junior secondary schools in Nigeria. It also organizes regular training programmes for teachers and other personnel involved in the implementation of the nine-year basic education curriculum (NEEDS, 2014).

Basic education in Nigeria is characterized by many challenges that require effective management. Ogunode, Ohibime, Nasir, and Gregory (2021) noted that the lack of accurate and timely data has

long been the bane of policy formulation and planning in the Nigerian educational system. Matthews (n.d) concluded that the major challenge to educational development in Nigeria is the lack of credible and timely data for evidence-based policy-making and planning, effective performance monitoring and feedback as well as quality advocacy. Ogunode (2021) concluded inadequate data is another problem preventing effective educational planning in Nigeria. There is a shortage of educational data on all the forms of educational institutions in the country. There is a lack of data on the early child education programme, there is a shortage of data on Basic education, there is inadequate data on secondary school education and there is a lack of data on higher education in Nigeria. Efforts to improve the quality of the data and information available to describe education systems and support decision-making have been in place since 1987 through the UNESCO/UNDP project: 'Computerizing Education Data in Nigeria'. More efforts were put in place in 2003 with the creation of comprehensive, integrated computer-based education management information systems (EMIS) known as NEMIS at National to serve as a central Database to support the monitoring and evaluation of education system performance and the crafting of effective education policies (Matthews n.d).

Since the formulation and implementation of Nigerian education management information systems (EMIS) in all tiers of education and at all levels of education especially at the Basic education management in Nigeria. It is important to examine the impact of the education management information systems (EMIS) on Basic education management in Nigeria.

Theoretical Framework

This paper is anchored on modern management theory by Henry Fayol (1908) developed as a direct response to Classical Management Theory. Modern-day business organizations are faced with navigating rapid change and complexities that seem to grow exponentially overnight. Technology is both the cause of and the solution to this dilemma. As such, business institutions (school) that incorporate Modern Management Theory into their operations seek to meld technology and, to some extent, mathematical analysis with the human and traditional elements of their organization. This combination of scientific and social variables creates a dual-pronged approach to management, organization, and decision-making. Modern Management Theory emphasizes:

1. Using mathematical techniques (EMIS) to analyze and understand the relationship between managers and employees.
2. That employees do not work for money alone (in contrast to Classical Management Theory). Instead, they work for happiness, satisfaction, and a desired lifestyle.

Modern Management Theory embraces the idea that people are complex. Their needs vary over time, and they possess a range of talents and skills that the business can develop through job training and other programs. At the same time, management can use mathematical techniques such as statistical, cost, revenue, and return-on-investment (ROI) analysis to make rational decisions unaffected by emotion (Sling n.d).

This theory is related to this paper on the ground that the theory is based on the principle of deployment of mathematical techniques (EMIS) in the institution for the realization of the institution by the manager and the staff to understand the system. The implication is that the deployment of the Education Management Information System (EMIS) in the management of basic education by both the administrators and teachers improves the working atmosphere.

Concept of Education Management Information System

EMIS According to Cuartero and Role (2018), is fundamentally about harnessing the power of data to inform strategic planning, policy formulation, and resource allocation. Through the systematic collection and analysis of information on student demographics, academic performance, teacher qualifications, and overall school operations, EMIS provides educational administrators with valuable insights. These insights, in turn, enable informed decision-making to improve the

efficiency, effectiveness, and overall quality of the educational process. One of the primary objectives of EMIS is to facilitate data-driven decision-making at various levels of the education system. School administrators utilize the system to track student progress, monitor teacher performance, and assess overall school effectiveness. At the same time, policymakers and education authorities can leverage EMIS data to inform systemic education resources strategically and design evidence-based policies that address the unique needs of secondary schools. According to Stephen and Cummings (2009), EMIS is concerned with gathering statistics from the schools, following people, models, methods, procedures, processes, rules and regulations. It also relates to the use of computer technology to get all the mentioned functions to work together to provide comprehensive, integrated, relevant, reliable, unambiguous and timely data to education leaders, decision-makers planners and managers to perform their responsibilities efficiently to achieve set goals (Haiyan and Herstin, 2003).

Education Management Information System (EMIS) is an education database that aims to ensure timely, accurate and appropriate educational data and information are available for decision-making. It is a global concept for educational management that encompasses the application of modern information and communication technology in the collection, collation, storage and analysis of education (Guru, 2016). An education Management Information System (EMIS) is a system that monitors the performance of education programs offered by the institute and manages the distribution and allocation of educational resources. It manages, plans, and strategizes to implement work processes that execute the education system smoothly. Of course, in the field of education, education MIS has specific roles to help an educational institution grow. Initially, the primary purpose and use of management information systems (MIS) were to make school office activities more efficient.

The objectives of the Education Management Information System (EMIS) according to Matthews (2016) include; strengthening the education statistical system in Nigeria by linking and assembling different existing information systems, integrating and synthesizing them in one single system of all education data quantitatively and qualitatively; and to produce more relevant, reliable and timely data needed at every tier of government for strategic planning, policy formulation and decision support initiative in education in Nigeria. The objectives of EMIS in Nigeria include: (i) to support the achievement of goals of education as articulated in the National Policy on Education (NPE), (ii) to provide a basis for monitoring the effectiveness and efficiency of the educational system at all levels of education, (iii) to develop and report on key indicators to monitor the achievement of educational standards and annual targets, and (iv) to provide a basis for Federal Ministry of Education (FME) to report on the status of education in Nigeria using national and international benchmarks and comparative global reporting analysis.

Benefits of Educational Management Information (EMI) in the Administration of Basic Educatio.

The importance of the educational management system in the administration of schools according to Matthews (2016) includes:

- a) Facilitates Monitoring and Evaluation of the education system by providing information needed to improve efficiency and effectiveness, etc.
- b) Allows for setting of new policies, and revising old ones, based on evidence instead of self-perceptions.
- c) Stakeholders such as parents require information about educational institutions and student outcomes to make decisions about education choices and opportunities
- d) Strengthens capacities in collecting, processing, storing, analyzing, management, planning and dissemination of information at all levels of the education system
- e) Coordinates, disperses and makes efforts to acquire, process, analyze and disseminate all education management information
- f) Decision-makers need to understand how resources are translated into learning outcomes, especially the efficiency and effectiveness of existing processes

- g) Helps provide analysts and decision-makers with information to understand how educational inputs are transformed into educational outputs
- i) Access to quality and timely data helps improve decision-making and ensure that limited resources are targeted to areas in most need and where returns will be highest.

Impact of Education Management Information System on Basic Education Management in Nigeria

The implementation of the policies on education management information systems in basic education has led to fundamental transformation. Some of the impacts on basic education management include; effective planning, data management, decision-making, management, supervision, resource allocation and distribution, monitoring and evaluation and staff training

Effective planning of basic education

The deployment of the Education Management Information System in the management of Nigeria's basic schools has led to the effective planning of basic education in Nigeria. Akpan (2011) conceptualizes planning as the process of examining the future and drawing up or mapping out a course of action for achieving specified goals and objectives. It involves working out in broad outline the things to be done and procedures for doing them to accomplish the set purpose. Ogunode (2020) viewed planning as a process that involves outlining future action activities and identifying means to realize all the identified goals and actions to be taken within a period.

Various scholars have emphasized the crucial role of planning in education management, asserting its significance in achieving educational objectives and programs (Ogunode, Eyiolorunse-Aiyedun, & Olatunde-Aiyedun, 2021). Ogunode (2021a) further underscores the dependence of educational planning on data, highlighting the integration of the Education Management Information System (EMIS) into basic education management as instrumental in ensuring the provision of accurate and timely data for administrators to facilitate planning, decision-making, and policy formulation.

Valery (2020) accentuates the multifaceted role of EMIS, noting its contribution not only to day-to-day administrative tasks but also to long-term planning, fostering a culture of continuous improvement within the education sector. Moreover, EMIS catalyzes communication and collaboration among various stakeholders in the education ecosystem. The transformative impact of EMIS on the Nigerian educational system is evident, as concluded by Onah (2016), who highlights its role in facilitating positive changes. Abu (2021) further asserts that the comprehensive planning, decision-making, and supervision in the Nigerian educational system can be attributed to EMIS. In essence, education management information systems (EMIS) play a pivotal role in providing quality data that facilitate better education system planning and policy dialogue, with all EMIS work characterized by three basic components: people, process, and technology (Drew Douglas).

Basic education data management

Ogunode and Zailani (2023) note that Education Management Information Systems aim to help countries improve data collection, data banking and management, and data use in decision-making, thereby decision-making elements of the education system and contributing to the end goal of improving learning for all children and youth. By using an EMIS, school administrators can analyze and utilize data to improve their education systems. When implemented effectively, an EMIS can also potentially support both management and planning by principals and administrators, as well as teaching and learning in the classroom. An EMIS helps generate several value-added components to improve educational quality, including quacoversdata, efficient expenditures, institutionalized data systems, enhanced management practices, data-driven policies, smart investments, and targeted instruction (World Bank, 2016).

Decision making

Decision-making is very important in educational management because it leads to the implementation programme. EMIS in the management of Basic education has led to improved decision-making because of the availability of accurate data. Ahaotu (2023) observed that school administration is essentially a bundle of decision-making processes. Administrators of schools are responsible for making decisions and ascertaining that the decisions made are carried out by defined

objectives or goals. Decision-making plays a vital role in the administration. Decision-making is perhaps the most important component of a school administrator's activities. It plays the most important role in the planning process. When school administrators plan, they decide on many matters as what goals their organization will pursue, what resources they will utilize, and who will perform each required task. Peng and Pei, (2022) and Bani-Hani, Al-Ahmad, and Alnajjar, (2009) concluded that EMIS facilitates improved decision-making through data-driven insights. Administrators can access comprehensive information on student demographics, academic performance, and teacher effectiveness, enabling them to make informed decisions regarding resource allocation, curriculum planning, and strategic initiatives. This data-driven decision-making enhances the overall effectiveness of administrative processes, ensuring that decisions align with the goals and priorities of the educational institution. Also, Jurs, Kulberga, Zupa, Titrek and Špehte, (2023); Uzo, Shittu, and Meru (2018) and Salako (2012) posited that EMIS enhanced communication and collaboration among administrators and administrative staff in the schools. The system provides a centralized platform for sharing information, coordinating activities, and fostering collaboration across different departments. This improved communication streamlines administrative workflows, reduces delays in decision implementation, and promotes a more cohesive and responsive administrative environment. Helal, Ahmed, and Bhuiyan (2021) noted that administrators become overly dependent on EMIS for decision making

Basic education management

The deployment of EMIS in the management of Basic schools in Nigeria have led to effective basic school management. Educational management can be conceptualized to mean a deliberate and systematic process of making plans to source, assemble, allocate and use resources to achieve the aims and objectives of the educational system. The scope goes beyond the school system to include micro and macroeconomics in the national economy (NOUN 2009). Educational management also cover all forms of education which include university, secondary, Basic and early childhood education. Basic education management is the planning, organization and coordination of human and materials resources for the attainment of Basic education objectives. Wangang, (2023) opined that the implementation of EMIS marks a paradigm shift in educational management, moving away from traditional, manual record-keeping methods toward a more sophisticated and dynamic approach. The deployment of EMIS in Basic education in Nigeria has brought about transformative positive changes in administrative processes within the Basic schools. One key advantage is the automation of routine administrative tasks (Ogochukwu, 2022). EMIS streamlines processes such as enrolment, attendance tracking, grading, and scheduling, reducing manual workload and minimizing the likelihood of errors. This automation not only enhances efficiency but also allows administrative staff to redirect their efforts toward more strategic and value-added activities (Gabriel, & O'Brien, 2018; Enad, & Balicoco, 2023).

School supervision

School supervision plays a pivotal role in enhancing both teacher performance and student academic achievement within educational institutions. Defined by Ogunode and Ibrahim (2023) as a program aimed at improving teachers' job performance and students' academic outcomes, supervision involves a continuous process of personalized guidance and frequent visits to various aspects of the school and its organization, as described by Dodd (n.d). According to the National Open University of Nigeria (NOUN, 2006), supervision offers numerous benefits, including opportunities for teachers to refine their instructional techniques and classroom interactions, aligning them with professional standards. Additionally, supervision facilitates strategic planning and decision-making by providing valuable insights derived from Educational Management Information System (EMIS) data. EMIS data, as highlighted by Etor, Ekanem, and Sule (2020), enables school administrators and policymakers to track essential performance indicators such as graduation rates, standardized test scores, attendance rates, and teacher-student ratios. This data-driven approach allows for the assessment of progress towards educational objectives, identification of areas for improvement, and evaluation of the effectiveness of interventions. Moreover, EMIS

empowers school supervisors and policymakers to make informed decisions regarding curriculum planning, instructional strategies, student interventions, and resource allocation, as emphasized by Tamir and Arar (2019). By leveraging EMIS data, supervisors can effectively monitor performance, identify trends, and implement targeted interventions to enhance the quality of education.

Incorporating insights from Ogunode, Zhenseh, and Olatunde-Aiyedun (2023), effective school supervision involves the application of supervisory skills by school administrators. These skills encompass various aspects such as communication, observation, feedback, and professional development, all aimed at improving teaching practices and fostering a conducive learning environment. School supervision supported by EMIS data serves as a critical mechanism for enhancing educational quality, improving teacher skills, and ultimately advancing student academic outcomes. This underscores the importance of integrating effective supervision practices and leveraging technology-driven data insights to drive continuous improvement in educational institutions.

Resources allocation and distribution

Resource allocation and distribution is one of the key functions of Basic schools' administrators in Nigeria. The usage of EMIS in basic school management have helped to improved education resources allocation and disbursement. Educational resources like learning materials, teaching materials and infrastructure facilities are annually budgeted for and procure for distribution across the basic schools across the country. EMIS according to Samsuri, (2021) provides a systematic and data-driven approach to resource management, allowing administrators to make informed decisions. One of the key advantages is the ability to analyse demographic data, enrolment trends, and student needs. This information enables schools to allocate teachers, classrooms, and materials efficiently, ensuring that resources match the demand and diversity of the student population. Etor, Ekanem & Sule, (2020) observed that EMIS supports strategic resource planning by offering a holistic view of the school's infrastructure and equipment needs. Whether it's assessing the condition of physical facilities or determining the availability of teaching aids, EMIS enables schools to plan for upgrades, maintenance, and the acquisition of necessary resources. This proactive approach contributes to creating a conducive learning environment and addressing infrastructure gaps. Also, Agung and Hidayati (2022), maintained that the implementation of EMIS has positively impacted the allocation of school resources in numerous ways. Moreover, EMIS facilitates budgetary planning by providing comprehensive insights into expenditure patterns and resource utilization.

Monitoring and evaluation

EMIS in the management of basic education in Nigeria have led to improved monitoring and evaluation in the system. Ajibade & Ajibade (2020) observed that monitoring is an internal activity of programme management the purpose of which is to determine whether programme has been implemented as planned in other words whether resources are being mobilized as planned and whether they are being shared as scheduled. Monitoring means to watch over something especially to ensure they are in good order. To monitor is to check at a regular interval in order to find out how a programme is progressing and developing. Monitoring may involve teaching and learning activities, school facilities for instance chairs, books, laboratory equipment, school infrastructure for example classrooms, library and staffroom disbursement of funds, personnels and output for instance quality of students. Also, Alkin (1970) Evaluation is the process of ascertaining the decisions to be made, selecting related information and collecting and analyzing information in order to report summary data, useful to decision makers in selecting among alternatives. Waiti, Ondiek, and Omulo (2018) noted that with the deployment of EMIS in the schools management in Nigeria, it has assisted schools administrators to track financial allocations, identify areas of overspending or underutilization, and align the budget with educational priorities. For Stephen and Cummings (2009) and Africon Limited/AED (2006) EMIS data-driven budgeting process enhances fiscal responsibility and transparency, ensuring that funds are allocated where they can have the most significant impact on student learning outcomes in the Nigerian schools. EMIS provides schools with tools to monitor and evaluate various aspects of school performance, including student

achievement, teacher effectiveness, attendance rates, dropout rates, and infrastructure utilization. By tracking these indicators over time, schools can assess their progress towards educational goals, identify areas for improvement, and allocate resources more effectively.

Teachers' Professional Development (Staff training)

Deployment of EMIS in the basic school management in Nigeria has helped to improved teacher' development programme in the schools across the country. Staff training is a program that is designed to equip employees with the knowledge and skills that they need to perform their jobs and improve their performance. It often occurs when new staff join an organization (also known as the onboarding process) but can also be part of a commitment to ongoing training and development that many organizations offer their employees. Staff training is a programme implemented by a manager or person of authority to provide specific staff members with the necessary skills and knowledge for their current role. It's often compulsory for some level of training to be offered to new members of staff as you prepare them for their role (Ogunode, Kasimu, and Sambo, 2023). The objectives of school training includes according to Ogunode, Edinoh, Olatunde-Aiyedun, (2023); to erupts teachers, non-teaching staff and school administrators wit intellectual knowledge, manual skills and problem solving skills. Generally, training is meant to improve staff professional skills and knowledge. APM (2007) submitted that EMIS helps school administrators to identify specific areas where teachers excel and areas where additional training may be beneficial. This targeted approach facilitates personalized professional development plans, ensuring that teachers receive training aligned with their needs and the overall goals of the school. EMIS according to Can, (2019) and UNICEF (2021) has ushered in positive transformations in supporting teacher professional development. One notable advantage is the accessibility of real-time data on teacher performance, professional achievements, and training needs. The EMIS system according to Khanal, (2022) can facilitate the creation of online forums, resource repositories, and collaborative spaces where teachers can exchange best practices, lesson plans, and innovative teaching methods. This collaborative approach enhances the overall professional development ecosystem, creating a culture of continuous learning and improvement. However, there is a risk of inequitable access to professional development opportunities. Thompson, C, & Anachuna, Obinna Nonso. (2019) and Wang and An, (2023) observed that EMIS facilitates the tracking of professional development activities and their impact on teacher performance. EMIS supports collaborative learning communities by fostering communication and knowledge-sharing among educators.

Conclusion and Recommendations

In summary, this study has evaluated the influence of the education management information system on basic school management in Nigeria. It is evident that the system has yielded positive impacts on various facets including planning, data management, decision-making, school administration, supervision, resource allocation and distribution, monitoring and evaluation, as well as staff training within the realm of basic education in Nigeria.

In light of these findings, it is recommended that government entities at all levels intensify their investments in education management information systems and prioritize their full implementation across basic schools nationwide. This strategic approach will not only enhance the efficiency and effectiveness of educational management but also contribute significantly to the overall improvement of the basic education sector in Nigeria.

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