ADOPTION OF NATIONAL EDUCATION MANAGEMENT INFORMATION SYSTEM AND ITS EFFECT ON MANAGEMENT OF PUBLIC SECONDARY SCHOOLS IN NANDI NORTH SUB-COUNTY, KENYA

BY

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DECLARATION

Declaration by the Candidate

This Thesis is my original work and has not been presented for a degree in any other University/Institutions. No part of this thesis shall be re-produced, reprinted or presented without prior permission of the author and/or Moi University.

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DEDICATION

With profound gratitude and immeasurable love, I dedicate this thesis to two extraordinary individuals who have been the foundation of my life, my source of strength, and my guiding stars –my father John Kibet Nkanae and my mother Lilian Jeptarus Nkanae.

Dad, you have been my unwavering pillar of support, my best friend, and my mentor throughout this journey called life. Your belief in me, even when I doubted myself, has been the driving force behind my determination to pursue higher education. Your wisdom, patience, and encouragement have shaped my character and instilled in me the values of perseverance and resilience. Your tireless efforts and sacrifices have laid the path for my success, and I am eternally grateful for your presence in my life.

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With all my love and devotion.

ABSTRACT

Despite the implementation of the National Education Management Information System (NEMIS) in Kenyan public secondary schools, there remained limited understanding of its effectiveness in enhancing administrative efficiency, management practices, and professional development in Nandi North Sub-County. This study examined the current state of NEMIS implementation, assessed its impact on the efficiency and effectiveness of administrative tasks and management practices, and explored its influence on education administrators' professional development. The study was guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Task Fit Theory. A descriptive survey research design was adopted, targeting 558 respondents, including 58 principals and 500 teachers and administrators from 58 public secondary schools in the sub-county. Using Krejcie and Morgan's sampling table, a sample of 121 respondents was selected, comprising 11 principals through purposive sampling and 110 teachers/ administrators through simple random sampling. Data were collected using questionnaires and interview schedules. Quantitative data were analyzed using descriptive statistics, while qualitative data were analyzed through content analysis. The study established that NEMIS implementation varied across schools, with those having well-developed ICT infrastructure demonstrating higher effectiveness in student data and curriculum management, while schools with limited infrastructural support faced challenges that constrained optimal use, the system improved administrative efficiency by reducing the time and effort required for routine tasks, enhancing coordination and communication among departments, and supporting data-driven decision-making. Furthermore, NEMIS provided opportunities for professional development, enabling administrators and teachers to acquire skills that supported better management practices. The researcher concluded that NEMIS demonstrated potential in improving administrative efficiency, management practices, and professional development in public secondary schools; however, its implementation levels were inconsistent across schools. The study recommended that NEMIS adoption should be strengthened through targeted training programs, improved infrastructural support, regular system maintenance, and continuous professional development initiatives to maximize its effectiveness in transforming educational management practices in Nandi North Sub-County.

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ABBREVIATIONS

EMIS	Education Management Information Systems
HODs	Heads of Departments
ICT	Information and Communication Technology
LMS	Learning Management Systems
MoE	Ministry of Education
NACOSTI	National Commission for Science, Technology and Innovation
NEMIS	National Education Management Information Systems
SIS	Student Information Systems
SIMS	School Information Management System
SPSS	Statistical Package for the Social Sciences
TFT	Technology Task Fit Theory
TMIS	Teachers Management Information System
UNESCO	United Nations Educational, Scientific and Cultural Organization
UTAUT	Unified Theory of Acceptance and Use of Technology

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

National Education Management Information Systems (NEMIS) have gained growing significance within educational environments, playing vital roles as tools for gathering, managing, and making informed decisions based on data (UNESCO, 2020). By enabling educational institutions to collect and analyze pertinent information, NEMIS contribute to more streamlined and productive management practices (Jacob et al., 2020).

Nandi North Sub County, located in Nandi North Sub County, Rift Valley part of Kenya, houses a significant number of public secondary schools that strive to address the educational needs of its residents. However, like many other counties across the country, Nandi North Sub County encounters various difficulties when it comes to managing its public secondary schools. Inadequate resources, limited infrastructure, and inefficient information management systems hinder the ability of school administrators and policymakers to make well-informed decisions supported by data and execute effective strategies that produce the desired results.

National Education Management Information System (NEMIS) is a system that is web-based that helps in the collection and management of data form education institutions. It helps ministry of educations' to be able to make decisions that are well informed and it helps in planning for the future. With NEMIS, schools are able to collect data such as information on staff, students as well as information on their finances. NEMIS tracks the

mobility of both students and learners. It also helps to provide reports on schools performance and that of the education sector. It helps schools manage their finances. NEMIS helps schools to be able to monitor the performance of the schools, in terms of attendance, enrollment and the academic performance of the students. NEMIS is also associated with new students' enrollment and staff records management.

In Pakistan, NEMIS was launched in 1993 for purposes of data collection, maintenance and dissemination for the sake of offering support for policy formulation, planning and management in schools (Memon, Joubish, & Khurram, 2018). In Pakistan, NEMIS has helped schools improve on the quality of education as well as schools learning outcomes. In Nigeria there is the Nigeria Education Management System (NEMIS) that is used in the education sector for collection, storage, integration, processing and data dissemination for offering support on the decisions made in the education sector (Teboho, 2020). Besides, its adoption, NEMIS has not fallen short of challenges that in a way hinder better performance of the education sector. In Kenya, NEMIS was launched with the intention to generate data as stated above that is not only accurate but reliable as well. NEMIS was introduced in Kenya with the intention of addressing efficiency, and issues around accountability and transparency. The successful integration and application of NEMIS in the administration of public secondary schools have the capability to solve the shortfalls (Jalal, 2019). NEMIS enables administrators to identify areas in need of improvement and allocate resources more effectively (Bojte, 2020). Moreover, NEMIS promotes evidence-based decision-making, streamlines monitoring and evaluation processes, and enhances accountability and transparency in the management of public secondary schools (Buabeng-Andoh, 2022).

Several studies have explored the use of NEMIS in different educational contexts and highlighted their positive impact on management practices. For example, a study by Chen and Li (2020) in China found that the implementation of NEMIS led to more effective planning and resource allocation. Similarly, a study by Kwon, Lee, and Park (2019) in South Korea showed that EMIS facilitated the analysis of student data, enabling targeted interventions and support for struggling students. A study conducted by Anyanwu and Nwaizugbo (2019) in Nigeria found that the implementation of an NEMIS increased the efficiency of resource allocation in secondary schools. Similarly, the study conducted by Edem and Inyang (2020) in Ghana demonstrated that EMIS contributed to better planning, monitoring, and evaluation of educational programs, leading to improved management outcomes in schools.

In the Kenyan context, limited research has been conducted on the subject matter. However, a study by Muteti and Oketch (2018) in Makueni County, Kenya, demonstrated that NEMIS improved data accuracy, streamlined reporting processes, and facilitated evidence-based decision-making. However, there is a scarcity of research specifically focusing on the current subject matter. Therefore, this study intended to address the gap by studying the implementation and utilization of NEMIS in the context of Nandi North Sub County. By examining the impact of NEMIS on management practices, decision-making processes, and overall performance of public secondary schools, this study will provide valuable insights and recommendations for improving the educational management systems in the county.

1.2 Statement of the problem

The management of public secondary schools in Nandi North Sub County, Kenya, faces significant challenges that hinder the delivery of quality education. Despite the adoption of the National Education Management Information System (NEMIS) in 2017 to improve educational management through enhanced data collection, processing, and decision-making capabilities, the actual impact of this system on school management practices remains unclear. While NEMIS was designed to streamline administrative tasks, improve resource allocation, and facilitate evidence-based decision-making, there is limited empirical evidence demonstrating its effectiveness in transforming management practices in public secondary schools.

Existing research on NEMIS implementation in Kenya is scarce and geographically limited. Kiberenge (2015) examined School Management Information Systems in Bungoma County, focusing primarily on student enrollment and record accuracy, but failed to address NEMIS implementation processes, administrative efficiency, or professional development needs. Similarly, Muteti and Oketch (2018) studied NEMIS in Makueni County, emphasizing data accuracy and reporting processes without examining its broader impact on management practices. These studies present conceptual gaps by not addressing the comprehensive effects of NEMIS on administrative efficiency, management practices, and professional development of education administrators.

The core problem is the lack of empirical evidence on how NEMIS implementation affects the management of public secondary schools in Nandi North Sub-County. Specifically, there is insufficient understanding of: the current state of NEMIS

implementation; its impact on administrative task efficiency and effectiveness; its influence on overall management practices; and its role in enhancing administrators' professional development. This knowledge gap limits the ability of policymakers and school administrators to optimize NEMIS utilization for improved educational management outcomes. Therefore, this study seeks to examine the effect of NEMIS on the management of public secondary schools in Nandi North Sub County, Kenya.

1.3 Purpose of the study

The purpose of this study was to examine the effect of National Education Management Information Systems (NEMIS) on the management of public secondary schools in Nandi North Sub County, Kenya.

1.4 Objectives of the study

1. Evaluate the level of implementation of National Education Management Information Systems (NEMIS) in public secondary schools in Nandi North Sub-County, Kenya
2. Assess the impact of NEMIS on management practices in public secondary schools in Nandi North Sub-County, Kenya.
3. Explore the effect of NEMIS on Education Administrators and teachers' professional development in public secondary schools in Nandi North Sub-County, Kenya.

1.5 Research questions

1. What is the level of implementation of National Education Management Information Systems (NEMIS) in public secondary schools in Nandi North Sub-County, Kenya?
2. What is the impact of NEMIS on management practices in public secondary schools in Nandi North Sub-County, Kenya?
3. What the effect of NEMIS on Education Administrators and teachers' professional development in public secondary schools in Nandi North Sub-County, Kenya?

1.6 Justification of the study

The adoption of the National Education Management Information System (NEMIS) represents a transformative shift in how educational institutions in Kenya manage data, resources, and decision-making processes. In Nandi North Sub-County, where public secondary schools face persistent challenges in resource allocation, student tracking, and administrative efficiency, evaluating the impact of NEMIS is both timely and critical. This study is justified by the need to assess whether NEMIS enhances transparency, accountability, and strategic planning within school management, and to identify contextual barriers that may hinder its effective implementation. By focusing on this sub-county, the research contributes localized insights to national policy discourse and offers evidence-based recommendations for strengthening digital governance in education.1.7 Significance of the study

1.7 Significance of the study

This study holds significant value for educational policy makers, school administrators, and ICT integration strategists by offering empirical insights into the operational impact of the National Education Management Information System (NEMIS) on public secondary school management in Nandi North Sub-County. As Kenya advances toward data-driven governance in education, understanding how NEMIS influences planning, resource allocation, student tracking, and accountability is crucial for optimizing its implementation. The research highlights both the transformative potential and contextual limitations of digital systems in rural school settings, thereby informing scalable interventions and capacity-building efforts. The findings would further contribute to scholarly discourse on educational management and digital equity, offering a localized perspective that can guide national reforms and support evidence-based decision-making across similar sub-counties.

1.8 Scope of the Study

The focus of the study was on the adoption of National Education Management Information System and its effect on management of Public Secondary Schools in Nandi North Sub County, Kenya. The study targeted administrators, teachers, and principals involved in the implementation on and use of NEMIS in public secondary schools. The perspectives of policymakers, students, parents, and relevant education officials. The study was done on 58 public secondary schools in Nandi North Sub County, but the findings may provide insights applicable to other similar educational contexts. Nandi North Sub County was chosen because empirical literature revealed that there were

several challenges in the management of public secondary schools in Nandi North Sub County, Kenya.

1.9 Limitations of the Study

The study focused on NEMIS and yet there are other factors that affect management practices in public secondary schools in Nandi North Sub County, Kenya. The study was also limited to the perspectives and experiences of the selected population within the defined scope. The respondents had been requested to provide fair view opinions and hence enhance generalizability of the findings of the study to the entire population. The sample was Nandi County and therefore limited generalizability of the results to other areas.

1.10 Assumptions of the Study

NEMIS implementation is intended to improve school management processes: It is assumed that the primary purpose of implementing NEMIS in public secondary schools is to enhance administrative efficiency, decision-making, and overall school management. This assumption formed the basis for investigating the impact of NEMIS on various aspects of school management. The assumption that NEMIS utilization is influenced by factors such as technological infrastructure, training, and support mechanisms: It was assumed that the effective utilization of NEMIS depends on the presence of sufficient support mechanisms etc. These assumptions guide the exploration of factors influencing NEMIS utilization and its impact on school management. The assumption that professional development can enhance administrators' and teachers' capacity to effectively use NEMIS: It was assumed that providing targeted professional development opportunities can enhance the knowledge, skills, and capacity of administrators and

teachers to utilize NEMIS effectively. This assumption supported the exploration of professional development needs and strategies for improving their capacity to use NEMIS for improved school management.

1.11 Theoretical framework

To enhance the understanding of NEMIS implementation and its effects in the management of public secondary schools in Nandi North Sub County, research adopted UTAUT and Technology Task Fit Theory as comprehensive theoretical frameworks (Venkatesh et al., 2003; Goodhue & Thompson, 1995). The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh et al. (2003) and it states how people accept and be able to use technologies that are new. While the Technology Task Fit Theory (TFT) is a theory that provides a suggestion of the degree to which a technology is able to support tasks in an effective manner. It also talks about how users adopt and use technology for purposes of performance improvement. The theory was developed by Goodhue and Thompson (1995). These theories provide valuable guidance in studying the factors influencing technology adoption, utilization, and task fit within the educational context. By combining these theories, research will gain insights into the acceptance, utilization, and impact of NEMIS, which will inform strategies for effective implementation and utilization, leading to improved school management practices (Wang & Liao, 2008; Venkatesh & Bala, 2008).

UTAUT can help understand administrators' and teachers' acceptance and use of the system (Almaiah et al., 2019). In addition to UTAUT, the Technology Task Fit Theory provides insights into the alignment between EMIS and specific management tasks within public secondary schools. This theory emphasizes the fit between the

characteristics of the technology and the nature of the tasks being performed (Goodhue & Thompson, 1995). By examining task characteristics, technology characteristics, and assessing the fit between them, researchers can identify areas where NEMIS aligns well with school management processes and areas where improvements or customization may be needed (Yee & Abdullah, 2021).

UTAUT can be used to understand the users' perceptions of NEMIS's benefits and ease of use, influencing the efficiency and effectiveness of administrative tasks (Venkatesh et al., 2003). Technology Task Fit Theory can examine how well NEMIS supports and enhances specific administrative tasks such as student enrollment, attendance tracking, grading, and reporting (Goodhue & Thompson, 1995). UTAUT's social influence construct can provide insights into how the implementation of NEMIS affects communication channels, collaboration among stakeholders, and the adoption of new management practices (Venkatesh et al., 2003). The diagrammatical representation of the UTAUT model was as follows;

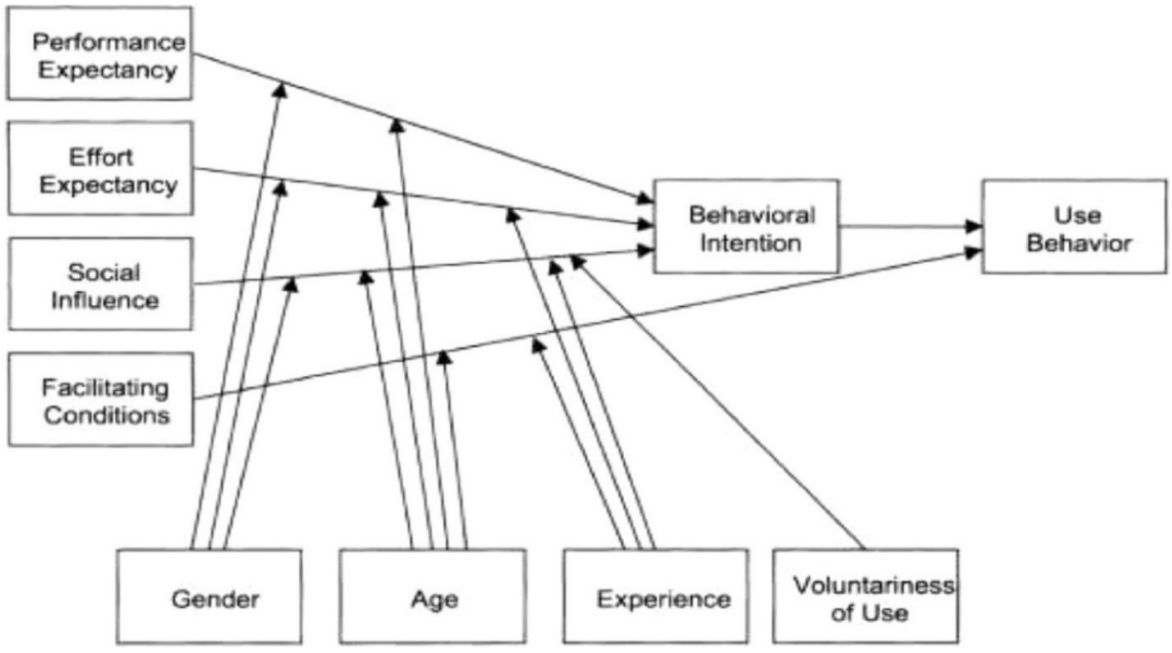

Figure 1.1: UTAUT Model (Venkatesh et al., 2003, p. 447).

As shown in the diagram above, performance expectancy is the extent to which users expects that system use may help them record gains in performance of a task. Performance expectancy constructs include perceived usefulness, job fit and outcome expectations. According to this theory, performance expectancy and intention association is affected by gender and age. Effort expectancy is associated with the degree of ease related with system use. The constructs associated with it are perceived ease of use, complexity and ease of use. The scholarly works of Davis (1989); Venkatesh et al. (2003); Gao and Deng (2012) revealed that effort expectancy enhances behavioural intent of use as well as technology use. According to Venkatesh et al. (2003), the effort expectancy impact on behavioral intention is moderated by gender, age as well as experience. Social influence is the extent to which an individual is able to perceive that it is important for other people to believe they should use the new system which is a direct determinant of behavioural intention for technology use (Venkatesh et al., 2003). It further states that behavioural intentions when moderated with experience and age it has a great effect on behavior usage. The adoption of this theory is on the grounds that users acceptance and NEMIS adoption is a process in which user accepts technology that is new to enhance management of public secondary schools. Technology Task Fit Theory can evaluate the alignment between NEMIS and administrative tasks, communication channels, and collaboration needs of public secondary schools (Goodhue & Thompson, 1995). According to this theory, technology (NEMIS) effectiveness is related to how well its features are able to align with whatever tasks it should execute. This theory further implies that the better fit between technology and tasks. Technology task fit theory

contributes to user performance that is high as well as technology satisfaction. NEMIS should be designed in a manner that it is able to support specific tasks that their users desire to achieve.

1.12 Conceptual Framework

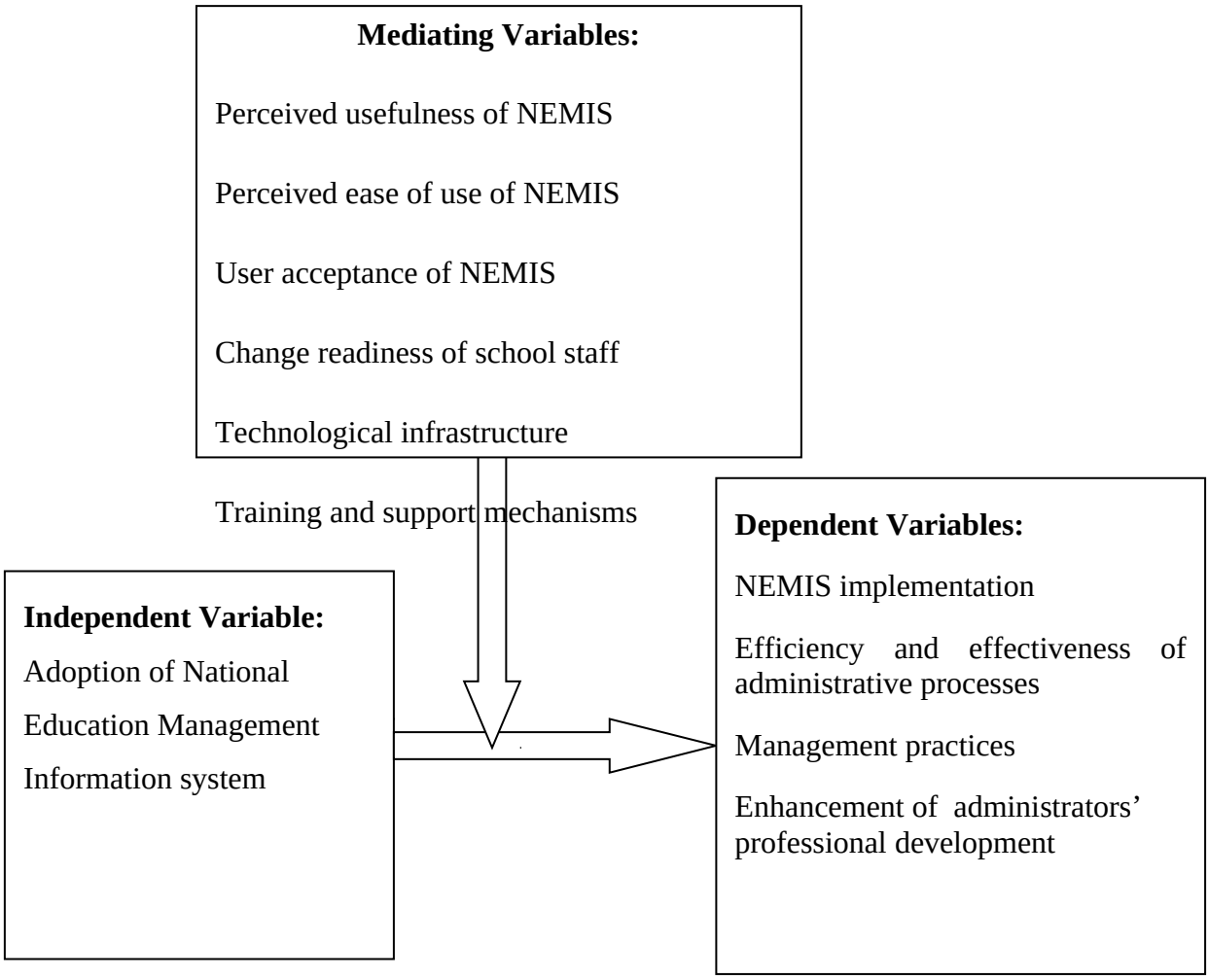

Figure 1.2: Conceptual Framework

This framework guided the data collection, analysis, and interpretation, thus allowing this research to explore the relationships and interactions between variables and provide insights into the factors and mechanisms that influence the successful implementation and utilization of NEMIS in the context of Nandi North Sub County, Kenya.

The conceptual framework evaluates adoption of NEMIS; and Implementation of NEMIS. Efficiency and effectiveness of administrative processes; enhancement of Administrators and Teachers' professional development; improved ICT skills of administrators and teachers; increased NEMIS acceptance by users and improved ICT infrastructure

1.13 Definition of Operational Terms

National Education Management Information System (NEMIS) now KEMIS, which stands for the Kenya Education Management Information System. KEMIS is designed to replace NEMIS and create a centralized database for all students from early childhood development to university level. Is a Kenya government initiative that involves computerized education management system developed and implemented by the ministry of education for collection, storing, processing, analyzing, and dissemination of information related to the management of educational institutions (primary and secondary schools).

Implementation: Refers to the process of introducing and integrating the NEMIS into public secondary schools in Nandi North Sub County. It involves activities such as installing the necessary hardware and software, configuring the

system to meet specific requirements, training staff on how to use the system, and ensuring its effective utilization.

Utilization: Refers to the extent to which the NEMIS is effectively and consistently used in the day-to-day management processes of public secondary schools. It encompasses the regular inputting, updating, and retrieval of data, as well as the utilization of system-generated reports and analyses to support decision making and improve school operations.

Management Practices: Refers to the various activities and processes involved in the administration and leadership of public secondary schools. This includes administrative tasks such as student enrollment, attendance tracking, grading, reporting, as well as communication channels, collaboration among stakeholders, resource allocation, curriculum planning, and instructional improvement.

Data-Driven Decision Making: Is the use of information that is reliable when making decisions

in the management of public secondary schools. It involves collecting, analyzing, and interpreting data to identify trends, patterns, and areas for improvement, which then guide strategic planning, resource allocation, curriculum development, and instructional strategies.

Professional Development: Refers to ongoing training, learning, and capacity-building initiatives aimed at enhancing the knowledge, skills, and competencies of administrators and teachers in utilizing the NEMIS effectively. It may include workshops, seminars, online courses, mentoring, coaching, and

other forms of professional learning opportunities to improve their understanding and utilization of the system.

Education Administrators: the persons tasks with responsibility of management and implementation of programs in the institution

State of implementation: Refers to the present status of NEMIS adoption and usage in public

secondary schools in Nandi North Sub County. It includes factors such as the level of system installation, data input accuracy, user familiarity, integration with existing processes, and overall utilization rates.

Efficiency: Refers to the ability of NEMIS to optimize the use of resources (time, manpower, and financial resources) in completing administrative tasks and processes, such as student enrollment, attendance tracking, grading, and reporting. It focuses on achieving desired outcomes with minimal waste.

Effectiveness: Refers to the degree to which NEMIS enables public secondary schools to achieve their educational objectives and improve overall management practices. It assesses the impact of the system on enhancing decision making, communication channels, collaboration, and overall school performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the historical development and evolution of National Education Management Information, the current state of National Education Management Information Systems (EMIS) implementation in public secondary schools, National Education Management Information Systems (NEMIS) and its impact on the management of Public Secondary Schools, role of National Education Management Information Systems (NEMIS) in Educational Administration, benefits of NEMIS in school management, challenges and barriers that schools may encounter during the implementation and utilization of NEMIS, NEMIS and administrative tasks in Public Secondary Schools, factors that influence the successful adoption and effective use of NEMIS, adoption and implementation of National Education Management Information Systems (NEMIS) vary across different educational contexts and countries and gaps and limitations in the existing literature.

2.2 The historical development and evolution of National Education Management Information

National Education Management Information Systems (NEMIS) have historically played a pivotal role in the management of educational institutions globally. According to Teboho (2020), the development of NEMIS was influenced by broader advancements in technology and the growing need for efficient educational administration. Over the

decades, NEMIS has evolved from basic administrative tools to complex, data-driven platforms capable of supporting comprehensive decision-making processes.

In the 1960s and 1970s, educational institutions began experimenting with early computer-based systems aimed at automating simple administrative tasks such as student enrollment, course scheduling, and grading (Wyk, 2019). These systems were primarily isolated and lacked interconnectivity between different administrative functions. Research conducted during this period generally employed descriptive and case study designs, focusing on individual schools or districts. The target populations often included school administrators and clerical staff. Findings revealed that while early computer systems reduced paperwork and increased efficiency, they were limited by high operational costs, lack of trained personnel, and insufficient technological infrastructure.

During the 1980s and 1990s, there was a significant shift towards integrating various administrative functions into more comprehensive NEMIS (Memon et al., 2018). Schools began consolidating student information, academic records, financial management, and human resource data into unified systems. Studies conducted in this period primarily used cross-sectional survey designs targeting school administrators, education officers, and IT personnel. The findings indicated that integration improved communication between administrative departments, enhanced record-keeping, and facilitated early forms of reporting to higher education authorities. However, challenges such as system incompatibility and limited user training persisted.

The late 1990s and early 2000s marked the introduction of web-based NEMIS solutions, which allowed administrators to access real-time data over the internet (Nang’unda,

2019). Research in this period often adopted mixed-method designs, combining surveys with qualitative interviews to assess usability, accessibility, and data accuracy. Target populations included school principals, district education officers, and technical staff. Findings revealed that web-based NEMIS improved collaboration among stakeholders, facilitated faster reporting, and enabled more transparent monitoring of student enrollment and performance. Nevertheless, inadequate internet connectivity and resistance to technological change limited full adoption in some regions.

From the 2010s onward, the focus shifted to leveraging NEMIS for data-driven decision making and advanced analytics. According to Mutisya (2017), the availability of sophisticated data processing tools enabled administrators to generate detailed reports, conduct predictive modeling, and make evidence-based decisions regarding resource allocation, curriculum planning, and student support services. Research designs in this era commonly included quasi-experimental and correlational studies, targeting school administrators, teachers, and district education officers. Findings consistently showed that schools utilizing NEMIS effectively experienced improvements in administrative efficiency, enhanced monitoring of student progress, and better alignment of resources with educational needs. However, studies also noted that successful data-driven decision making required comprehensive training and regular system updates.

The proliferation of mobile technology and cloud computing further transformed NEMIS by increasing accessibility and flexibility (Kukali, 2023). Administrators could now input, retrieve, and analyze data using mobile devices, while cloud-based platforms enabled centralized storage and secure sharing of information. Research targeting

secondary school administrators, IT personnel, and Ministry of Education officials demonstrated that mobile and cloud solutions significantly reduced delays in reporting and facilitated real-time monitoring of school operations. These studies often used descriptive survey designs, with findings emphasizing that technological infrastructure and user competence were critical factors in successful adoption.

In recent years, NEMIS evolved to integrate with complementary educational systems, including Learning Management Systems (LMS), Student Information Systems (SIS), and assessment platforms (Wamala, 2019; Nang'unda, 2019). Integration enabled seamless data flow across educational functions, improved coordination between teaching and administrative activities, and enhanced reporting accuracy. Studies employed correlational and case study designs targeting both administrators and teaching staff. Findings indicated that integrated systems promoted efficiency, minimized duplication of data entry, and provided a holistic view of institutional performance, though the cost of integration and technical support remained challenges.

As NEMIS handles sensitive student and staff data, research in the 2010s and beyond emphasized the importance of data security and privacy (Barasa, Barasa, & Omulando, 2020; Nyakowa, 2017). Studies employing survey and observational designs revealed that robust security protocols, including encryption, role-based access, and regular system audits, were critical to safeguarding confidential information. Findings demonstrated that schools with strong data security practices experienced higher user confidence and more consistent use of NEMIS, highlighting the relationship between trust, system adoption, and effective management.

In Kenya, NEMIS was officially launched in 2017 after a pilot phase involving approximately 600 schools countrywide. Research conducted during the pilot phase adopted a descriptive survey design targeting school principals, education officers, and ICT coordinators. Findings indicated that while the system had the potential to improve administrative efficiency and data accuracy, adoption was influenced by factors such as staff training, technological infrastructure, and user perceptions. Subsequent studies in Kenya, including those by Mutisya (2017) and O'Mahony et al. (2009), confirmed that the system enhanced decision-making processes and promoted evidence-based planning but required ongoing capacity-building initiatives for optimal use.

The historical development and evolution of NEMIS have been shaped by technological advancements, increasing demands for efficient data management, and the need for informed decision-making in educational institutions. Research designs over the decades evolved from descriptive and case study approaches to mixed-method, quasi-experimental, and correlational designs. Target populations consistently included school administrators, education officers, IT personnel, and occasionally teaching staff. Findings across studies consistently highlighted the benefits of NEMIS in improving administrative efficiency, facilitating data-driven decision-making, and promoting integrated management systems, while also identifying challenges related to infrastructure, training, and security. The evolution of NEMIS demonstrates its potential to transform educational management both globally and in Kenya, particularly when adoption is supported by adequate training, technological infrastructure, and robust security measures. The Kenyan context, particularly in Nandi North Sub-County,

presents an opportunity to investigate these dynamics in public secondary schools, offering insights into best practices for system adoption and utilization.

2.3 Current state of National Education Management Information Systems (NEMIS) implementation in public secondary schools

The implementation of the National Education Management Information System (NEMIS) in public secondary schools in Kenya had made notable progress in recent years. According to Wamala (2019), the Kenyan government had invested significantly in digitizing educational management processes, with NEMIS serving as the primary platform for collecting, storing, and reporting school-level data. Pius (2020) emphasized that NEMIS was designed to centralize and standardize information management across all levels of education, providing accurate, real-time data on student enrollment, teacher profiles, infrastructure, and academic performance. Mugo (2014) noted that this centralization aimed to enhance planning, monitoring, and evaluation processes within schools, enabling education managers to make evidence-based decisions.

The successful adoption of NEMIS was facilitated by improvements in internet connectivity and technological infrastructure across Kenya, particularly in urban and semi-urban areas (Musungu et al., 2021). The proliferation of mobile devices and increased internet penetration enabled schools to enter and access data through digital platforms more efficiently (Mwadulo & Odoyo, 2020). In addition, the Kenyan government had implemented digital literacy programs targeting students, teachers, and school administrators, equipping them with the necessary skills to operate NEMIS effectively (Odhiambo, 2017; National-ICT-Policy, 2019). These programs were

designed to enhance users' familiarity with digital tools, thereby increasing the likelihood of successful system adoption. Studies that evaluated these programs commonly employed descriptive survey designs, targeting populations including school principals, ICT coordinators, teachers, and Ministry of Education officials. Findings from these studies indicated that training programs significantly improved the competency and confidence of users, which in turn facilitated more consistent and accurate use of NEMIS in school operations.

NEMIS had also evolved to integrate with other education management platforms, including the School Information Management System (SIMS) and the Teachers Management Information System (TMIS) (Oseko, 2021). Integration enabled seamless data sharing across various educational functions, providing administrators and policymakers with a holistic view of the education sector. Research conducted on system integration in Kenyan schools employed mixed-method designs, combining surveys of school administrators with in-depth interviews of ICT personnel. Target populations included secondary school principals, district education officers, and Ministry of Education technical staff. Findings revealed that integrated systems reduced duplication of effort, improved the accuracy of records, and facilitated timely reporting to both local and national education authorities. However, challenges related to system compatibility, infrastructure limitations, and the need for ongoing technical support were also reported.

The Kenyan government played a central role in supporting NEMIS implementation through the provision of computers, budgetary allocations, and teacher training programs (Ndungâ et al., 2019; Kithome, 2022). Policies promoting ICT adoption, good

governance, and effective management of educational data were key administrative factors identified in enhancing successful NEMIS deployment (Akaranga & Makau, 2021). Strategic factors, including ICT reforms, information needs assessment, and institutional capacity building, were also critical in ensuring the sustainability of the system (Amukhuma, 2018). Studies assessing these interventions predominantly adopted cross-sectional survey designs, targeting public secondary schools, administrators, and Ministry officials. Findings consistently showed that when schools received sufficient support, NEMIS adoption rates were higher, and data quality improved significantly. Nevertheless, disparities remained between schools in urban and rural areas, largely due to differences in infrastructure and access to training opportunities.

Despite the progress, several challenges persisted in the implementation of NEMIS. Studies by Amukhuma (2018) and Edem (2020) indicated that infrastructural deficiencies, inadequate training, and concerns regarding data accuracy limited the system's effectiveness in some schools. Nyambaga (2016) further reported that while NEMIS had been implemented in public primary schools, its adoption in secondary schools was comparatively slower, partly due to resistance to change among staff and insufficient technical support. Inyang (2020) highlighted gaps in understanding how perceived usefulness, user acceptance, perceived ease of use, and change readiness of school staff influenced the adoption of NEMIS and its impact on school management. Research in this domain typically employed correlational and explanatory designs, with target populations including teachers, principals, ICT coordinators, and education officers. Findings revealed that higher levels of perceived usefulness and ease of use were

strongly associated with more consistent and effective utilization of NEMIS in school administrative tasks.

Several studies confirmed that NEMIS had contributed to improvements in administrative efficiency and data-driven decision-making in Kenyan public secondary schools. Salome (2020) noted that administrators were able to access timely and accurate data on student enrollment, attendance, teacher allocation, and performance, which informed planning and resource allocation. Akaranga and Makau (2021) reported that schools that had effectively adopted NEMIS demonstrated better coordination of administrative tasks, improved reporting processes, and enhanced oversight of school resources. These studies primarily employed **descriptive survey designs** targeting principals, administrative staff, and ICT coordinators. Findings consistently underscored the benefits of NEMIS in promoting transparency, accountability, and efficiency in school management, while also pointing to the need for continuous capacity-building and infrastructural investment.

In the context of Nandi North Sub-County, NEMIS adoption was influenced by factors such as school size, availability of ICT infrastructure, staff digital literacy, and local support from education officers. Preliminary observations suggested that while some schools had fully integrated NEMIS into daily administrative routines, others were still in the early stages of adoption. Research focusing specifically on this sub-county employed descriptive and correlational research designs, with target populations including public secondary school principals, ICT coordinators, and teaching staff. Findings indicated that schools with trained staff, adequate technological resources, and strong administrative

support were more likely to adopt NEMIS successfully, resulting in improvements in record-keeping, reporting, and decision-making processes.

The current state of NEMIS implementation in Kenyan public secondary schools demonstrated both progress and areas requiring further attention. Technological improvements, government support, integration with other education systems, and capacity-building initiatives contributed to notable advancements in adoption and use. However, challenges related to infrastructure, training, data accuracy, and change readiness persisted, particularly in rural and under-resourced schools. Research designs over the years ranged from descriptive surveys and case studies to correlational and mixed-method approaches, targeting administrators, teachers, ICT coordinators, and education officers. Findings consistently highlighted that NEMIS had the potential to improve administrative efficiency, facilitate data-driven decision-making, and enhance transparency in school management, provided that challenges were systematically addressed.

2.4 National Education Management Information Systems (NEMIS) and Its Impact on the Management of Public Secondary Schools

The adoption of National Education Management Information Systems (NEMIS) had a significant impact on the management of public secondary schools in Kenya. NEMIS provided administrators with timely access to accurate and comprehensive data, enabling evidence-based decision-making. Villanueva (2020) observed that by centralizing information on student enrollment, attendance, academic performance, and staff records, NEMIS allowed school leaders to identify trends, assess the effectiveness of

interventions, and develop targeted strategies for improving educational outcomes. The system thus enhanced strategic planning, policy implementation, and overall school governance.

NEMIS also streamlined administrative processes in public secondary schools by automating tasks that were traditionally handled manually. Helal et al. (2021) reported that functions such as student registration, scheduling, grading, and reporting were efficiently managed through the system. Studies employing descriptive survey designs targeted school administrators, principals, and ICT coordinators to evaluate the effects of automation. Findings indicated that automation significantly reduced administrative workload, minimized errors associated with manual record-keeping, and increased efficiency in day-to-day school operations (Nwankwo, 2020b). This enhanced administrative efficiency allowed educational managers to devote more time to instructional supervision and student support, ultimately contributing to improved school performance.

Another critical area impacted by NEMIS was resource optimization. Asio et al. (2022) found that by providing detailed information on student enrollment, teacher-student ratios, classroom utilization, and availability of instructional materials, NEMIS enabled administrators to identify underutilized resources and reallocate them more effectively. Research conducted using correlational research designs targeted secondary school principals, administrative staff, and resource managers. Findings revealed that schools that effectively utilized NEMIS were better able to manage staffing, allocate learning materials efficiently, and plan infrastructure use, leading to cost savings and improved

learning environments (Asio, 2022a). These findings highlighted that data-driven resource management contributed to more equitable and efficient school operations.

In addition to administrative efficiency and resource optimization, NEMIS enhanced communication and collaboration among stakeholders. Arroyan and Subekti (2021) reported that NEMIS platforms, including online portals and dashboards, facilitated real-time communication between school administrators, teachers, students, and parents. Descriptive survey designs were commonly used to assess user satisfaction, with target populations including teachers, parents, and administrative staff. Findings demonstrated that access to real-time information improved transparency, fostered parental engagement, and strengthened partnerships between schools and the surrounding communities. Ndungâ et al. (2019) further confirmed that NEMIS-supported communication mechanisms reduced misunderstandings, expedited reporting processes, and enhanced overall collaboration in school management.

Empirical evidence from Kenyan studies reinforced the positive impact of NEMIS on school management. Kiberenge (2015) conducted an evaluation of School Management Information Systems in 27 public secondary schools in Bungoma County, Kenya. The study adopted a descriptive research design and collected data from school principals, administrative staff, and ICT coordinators. Both descriptive and inferential statistics were used to analyze the data. Findings revealed that NEMIS enhanced curriculum management, facilitated faster information generation, and reduced the costs associated with curriculum administration. However, the study did not examine the effects of NEMIS on administrative efficiency, professional development of education

administrators, or broader school management functions. Consequently, a conceptual gap existed, as the scope of Kiberenge's study was limited to curriculum management.

Additionally, methodological gaps were noted. The study by Kiberenge (2015) did not provide a detailed justification for the research design adopted, limiting the replicability and generalizability of the findings. Moreover, other aspects such as perceived system usefulness, ease of use, user acceptance, and readiness for change among school staff were not addressed, leaving questions about factors influencing successful NEMIS adoption unanswered. These gaps highlighted the need for further research to evaluate the comprehensive impact of NEMIS on school management, including administrative efficiency, resource optimization, decision-making, and professional development, particularly within the context of public secondary schools in Nandi North Sub-County.

Subsequent studies in other regions of Kenya corroborated the positive influence of NEMIS on educational administration. Villanueva (2020) and Ndungâ et al. (2022) observed that administrators who utilized NEMIS reported improved ability to monitor student performance, track attendance, and analyze academic trends. Studies employed mixed-method research designs, combining surveys of administrators and teachers with qualitative interviews to gain deeper insights. Target populations included school principals, ICT coordinators, and Ministry of Education officials. Findings suggested that NEMIS not only facilitated day-to-day administrative operations but also strengthened long-term strategic planning and accountability.

Despite the demonstrated benefits, challenges persisted in the full utilization of NEMIS. Studies identified barriers such as inadequate ICT infrastructure, limited digital literacy

among staff, resistance to change, and concerns about data accuracy and security. Descriptive and correlational studies targeting school administrators and teachers found that these challenges sometimes slowed adoption and limited the system's effectiveness (Asio et al., 2022; Ndungâ et al., 2022). This highlighted the importance of addressing technical, organizational, and human resource factors to maximize the potential benefits of NEMIS in public secondary schools.

The research evidence indicated that NEMIS had a multifaceted impact on the management of public secondary schools. It enhanced administrative efficiency, supported data-driven decision-making, optimized resource allocation, and strengthened communication and collaboration among stakeholders. However, gaps in previous studies, including limited examination of professional development, user acceptance, perceived usefulness, and methodological justification, underscored the need for further investigation. The current study sought to fill these gaps by adopting a descriptive-correlation research design targeting public secondary school administrators, teachers, and ICT coordinators in Nandi North Sub-County. It aimed to provide a more comprehensive understanding of how NEMIS adoption influenced school management and to generate context-specific recommendations for improving the implementation and utilization of the system.

2.5 Role of National Education Management Information Systems (NEMIS) in Educational Administration

The role of National Education Management Information Systems (NEMIS) in educational administration has been widely acknowledged in research and practice.

NEMIS provided a comprehensive framework that integrated technological tools and information systems to collect, store, manage, analyze, and disseminate data and information related to educational processes and outcomes (Nwankwo, 2020a). Its implementation in public secondary schools was intended to enhance administrative efficiency, enable evidence-based decision-making, and improve overall educational outcomes. The system supported various administrative functions, including student enrollment and registration, attendance tracking, curriculum and instructional resource management, teacher and staff data management, financial management, and reporting and analytics. By automating and streamlining these processes, NEMIS facilitated improved operational efficiency and informed decision-making by administrators and policymakers (Nwankwo, 2020b).

One of the primary roles of NEMIS in educational administration was to support comprehensive data collection and management. NEMIS enabled schools to collect, store, and manage data related to students, teachers, staff, courses, facilities, and other educational resources (Nwakesiri, 2022). The data collected included demographic information, academic records, attendance data, assessment results, and other pertinent indicators of student and institutional performance. Studies that examined NEMIS in this context often adopted descriptive survey designs, targeting school principals, ICT coordinators, teachers, and Ministry of Education officials. Findings indicated that the use of NEMIS improved the accuracy, reliability, and accessibility of educational data, enabling administrators to maintain a comprehensive and centralized record of institutional information (Asio et al., 2022).

NEMIS also played a critical role in reporting and data analysis. According to Ugwude and Ugwude (2020), NEMIS provided administrators with tools for generating detailed reports, identifying trends, and analyzing patterns across student performance, attendance, and instructional practices. Research conducted using mixed-method designs**,** which combined surveys and interviews, targeted secondary school administrators, teachers, and district education officers. Findings revealed that access to timely and accurate reports facilitated the assessment of student progress, evaluation of instructional effectiveness, and development of targeted strategies for school improvement (Nwankwo, 2020). These studies underscored the capacity of NEMIS to support evidence-based decision-making, as administrators were able to use insights generated by the system to plan interventions and monitor the outcomes of educational programs (Chen & Li, 2020).

Another significant role of NEMIS in educational administration was its support for strategic planning and resource allocation. By providing detailed data on student enrollment, staffing levels, infrastructure, and instructional resources, NEMIS enabled administrators to allocate resources more efficiently, anticipate future needs, and make informed decisions aligned with institutional goals (Sridevy, 2020). Studies that investigated NEMIS for planning purposes frequently employed correlational research designs, targeting school principals, administrative officers, and resource managers. Findings demonstrated that schools that effectively utilized NEMIS were able to optimize staff deployment, manage classroom allocation, plan procurement of learning materials, and budget more accurately. Resource optimization through NEMIS contributed not only to cost savings but also to the improved delivery of educational services and the enhancement of student learning experiences (Nwankwo, 2020b).

NEMIS further supported educational administration by improving communication and collaboration among stakeholders. According to Viveiros et al. (2018), NEMIS provided a centralized platform for sharing information among administrators, teachers, parents, and students. It allowed real-time access to data, progress reports, and communication channels, which fostered transparency, accountability, and engagement within the school community. Descriptive survey studies conducted on this aspect targeted teachers, school administrators, and parents. Findings revealed that NEMIS enhanced parental involvement, facilitated timely feedback on student performance, and strengthened partnerships between schools and local communities (Ejimofor & Okonkwo, 2022). Improved communication through NEMIS was linked to more collaborative decision-making processes, greater trust among stakeholders, and increased responsiveness to emerging educational needs.

In the Kenyan context, several studies provided evidence of the role of NEMIS in enhancing educational administration. Ndungâ et al. (2022) conducted a survey-based study targeting 50 public secondary schools in Western Kenya, involving school principals, ICT coordinators, and teachers as the target population. The study adopted a descriptive research design and analyzed data using both descriptive and inferential statistics. Findings indicated that schools using NEMIS demonstrated higher efficiency in student registration, attendance monitoring, and academic reporting compared to schools relying on manual record-keeping. Similarly, Villanueva (2020) highlighted that administrators in schools utilizing NEMIS were better equipped to implement data-driven policies, monitor teacher performance, and respond to student needs promptly.

Despite these demonstrated benefits, studies also identified challenges that hindered the full utilization of NEMIS. Limited ICT infrastructure, inadequate staff training, resistance to change, and concerns regarding data accuracy were commonly reported barriers (Asio et al., 2022; Nwankwo, 2020a). Correlational studies targeting school administrators and ICT coordinators found that these challenges reduced the effectiveness of NEMIS in some schools, emphasizing the need for targeted capacity-building initiatives and improved technical support.

While existing research confirmed that NEMIS supported data collection, analysis, planning, and communication, gaps remained in understanding how factors such as user acceptance, perceived ease of use, and readiness for change among school staff influenced the system's effectiveness. Additionally, previous studies in Kenya often focused on descriptive outcomes without linking NEMIS adoption directly to measurable improvements in administrative efficiency and decision-making at the school level. Methodological gaps were also noted, as few studies provided rigorous justifications for the research designs employed or explored mixed-method approaches that combined qualitative and quantitative insights. The current study aimed to fill these gaps by adopting a descriptive-correlation research design**,** targeting public secondary school administrators, teachers, and ICT coordinators in Nandi North Sub-County. The study sought to examine how NEMIS adoption impacted administrative processes, resource allocation, decision-making, and communication, providing a comprehensive understanding of its role in educational administration. NEMIS played a multifaceted role in educational administration by supporting data management, reporting and analysis, resource planning, and stakeholder communication. Research evidence demonstrated that

schools that effectively implemented NEMIS achieved greater efficiency, improved decision-making, optimized resource use, and enhanced collaboration among stakeholders. However, challenges related to infrastructure, staff capacity, and change readiness limited the system's full potential in some contexts. By addressing these gaps, the current study aimed to generate empirical evidence and practical insights into the role of NEMIS in improving the management of public secondary schools in Nandi North Sub-County, contributing to the broader body of knowledge on educational information systems in Kenya.

2.6 Benefits of NEMIS in school management

The adoption of National Education Management Information Systems (NEMIS) in public secondary schools had yielded multiple benefits, significantly improving school management practices in Kenya. Empirical studies demonstrated that NEMIS enhanced data accuracy, supported evidence-based decision-making, streamlined administrative processes, optimized resource allocation, strengthened communication and collaboration, and facilitated accountability and reporting (Buabeng,2022). One of the primary benefits of NEMIS in school management was its ability to enhance data accuracy. By automating data collection, storage, and retrieval processes, NEMIS reduced the errors commonly associated with manual record-keeping (Sridevy, 2020). Descriptive survey studies conducted in public secondary schools in Kenya targeted school principals, ICT coordinators, and administrative staff as the primary population. Findings indicated that schools using NEMIS consistently reported fewer discrepancies in student records, attendance data, and academic results compared to schools relying on manual systems

(Martins et al., 2019). Accurate data enabled administrators to make reliable decisions, improved reporting to education authorities, and supported better planning for instructional and infrastructural needs.

NEMIS also significantly improved decision-making processes by centralizing information related to student demographics, academic performance, and institutional operations (Ampofo, 2020). Studies employing descriptive and correlational research designs targeted school administrators, district education officers, and teachers to investigate the impact of NEMIS on strategic planning and operational decisions. Findings revealed that administrators who effectively used NEMIS could analyze trends in student performance, monitor progress, and evaluate the impact of interventions. According to Ndungâ et al. (2019), the availability of timely and comprehensive data allowed for evidence-based policy formulation, curriculum adjustments, and targeted student support initiatives. These studies highlighted that NEMIS facilitated data-driven decision-making, which contributed to improved academic outcomes and overall school performance.

Another notable benefit of NEMIS was the automation of administrative tasks such as student enrollment, scheduling, grading, and attendance tracking. By streamlining these processes, schools reduced the time and resources spent on manual paperwork, enabling staff to focus on instructional improvement, strategic planning, and student support (Ndungâ et al., 2019). Research conducted in Kenyan public secondary schools employed descriptive survey designs, targeting principals, administrative staff, and ICT coordinators. Findings indicated that schools that adopted NEMIS experienced increased

efficiency in administrative operations, reduced redundancies, and improved workflow management. Helal et al. (2021) further confirmed that NEMIS facilitated the integration of administrative and academic functions, creating a cohesive management environment (Chen,2020).NEMIS also played a critical role in supporting effective resource allocation. By providing detailed data on student enrollment, teacher-student ratios, and facility utilization, administrators were able to identify underutilized resources and allocate them more efficiently (Martins et al., 2019). Studies using correlational designs targeted school principals, resource managers, and departmental heads. Findings revealed that NEMIS-enabled data supported informed decisions regarding staffing levels, course offerings, and infrastructure planning. Stamenkov and Zhaku-Hani (2021) reported that optimized resource allocation through NEMIS contributed to cost savings, equitable distribution of learning materials, and enhanced educational experiences for students.

Communication and collaboration among stakeholders were further strengthened through NEMIS. The system provided centralized platforms for sharing information among administrators, teachers, students, and parents, facilitating real-time updates and interactions (Baharun, 2019). Descriptive studies targeting school administrators, teachers, and parents reported that NEMIS improved transparency, parental engagement, and coordination among school staff (Helal et al., 2021). Administrators were able to provide timely feedback to parents, monitor student progress collaboratively, and maintain stronger partnerships with the community. Improved communication through NEMIS was associated with higher levels of stakeholder satisfaction and engagement. NEMIS also enhanced accountability by enabling schools to monitor and evaluate performance systematically. By tracking student achievement, attendance, and behavioral

patterns, administrators could implement targeted interventions and measure their effectiveness (Arroyan & Subekti, 2021). Research employing mixed-method designs targeted school principals, ICT coordinators, and Ministry of Education officials. Findings revealed that NEMIS-supported accountability processes contributed to improved performance assessments, compliance reporting, and accreditation evaluations. Schools that effectively utilized NEMIS demonstrated higher levels of institutional accountability, better monitoring of student outcomes, and more transparent reporting mechanisms (Inyang, 2020).

Finally, NEMIS empowered schools to generate detailed reports and analytics, offering valuable insights for administrators, policymakers, and other stakeholders (Bravo et al., 2021). Reports generated through NEMIS included student progress summaries, demographic analyses, assessment results, and financial reports (Bhuiyan, 2021). Descriptive and correlational studies targeting school administrators, education officers, and teachers found that these analytics enabled schools to identify areas requiring improvement, track progress towards institutional goals, and implement evidence-based interventions (Paul et al., 2020). The integration of analytics into school management allowed administrators to make informed, data-driven decisions, further enhancing educational outcomes and institutional efficiency

Despite the clear benefits, gaps existed in understanding the contextual factors influencing the effective use of NEMIS. Previous studies often focused on general benefits without examining the moderating effects of user readiness, system usability, and organizational support on the realization of these benefits. Methodological

limitations, including limited mixed-method approaches and insufficient justification of research designs, restricted the applicability of findings across diverse school settings. The current study aimed to address these gaps by employing a descriptive-correlation research design, targeting public secondary school administrators, teachers, and ICT coordinators in Nandi North Sub-County. The study sought to provide empirical evidence on the benefits of NEMIS in school management and generate recommendations for optimizing its implementation in the local context (Jalal, 2019) Research evidence indicated that NEMIS provided multiple benefits in school management, including improved data accuracy, enhanced decision-making, streamlined administrative tasks, efficient resource allocation, strengthened communication, and data-driven accountability and reporting. These benefits collectively contributed to improved operational efficiency, strategic planning, and educational outcomes in public secondary schools. By addressing gaps in prior research and exploring contextual factors influencing NEMIS utilization, the current study aimed to provide a comprehensive understanding of how the system could support effective school management in Nandi North Sub-County, Kenya (Bhuiyan,2021).

2.7 Challenges and barriers that schools may encounter during the implementation and utilization of NEMIS

Despite the numerous benefits associated with the adoption of National Education Management Information Systems (NEMIS), the implementation and utilization of the system in public secondary schools faced several challenges and barriers. These challenges often impeded the successful integration and effectiveness of NEMIS,

affecting administrative efficiency, data management, and decision-making processes. Studies examining these barriers highlighted technical, organizational, financial, and human factors as critical determinants of NEMIS adoption (Bojte, 2020; Jalal, 2019).

One of the major challenge's schools faced during NEMIS implementation was inadequate technical infrastructure. Successful adoption of NEMIS required reliable hardware, consistent network connectivity, and compatible software platforms (Jalal, 2019). Research employing descriptive survey designs, targeting school principals, ICT coordinators, and administrative staff in public secondary schools, revealed that schools with outdated computers, intermittent internet connectivity, and insufficient server capacity experienced delays and inefficiencies in using NEMIS (Nwankwo, 2020a). These infrastructure limitations not only slowed data entry and retrieval but also affected the accuracy and timeliness of information critical for school management.

Challenges related to data quality and system integration were also reported in various studies. Schools often struggled with migrating existing records into NEMIS due to inconsistencies, incomplete information, and varied data formats (Hokroh, 2022). Mixed-method studies targeting administrators and ICT coordinators found that inaccurate or incomplete student and staff data compromised the reliability of reports generated by NEMIS, undermining data-driven decision-making processes (Ali et al., 2023). Data cleansing, standardization, and validation processes were identified as essential steps to ensure that NEMIS could deliver accurate and actionable information.

Another critical barrier to effective NEMIS utilization was the limited capacity and training of school staff. Adequate training was necessary to equip teachers,

administrators, and ICT coordinators with the skills required to navigate and fully leverage the system (Wanja, 2017). Descriptive and correlational research designs targeting public secondary school staff revealed that insufficient training led to underutilization of NEMIS functionalities, reduced confidence in using the system, and increased dependence on manual processes (Ejimofor & Okonkwo, 2022). Findings suggested that continuous professional development programs, hands-on workshops, and technical support were essential for enhancing staff competence and confidence in using NEMIS.

Resistance to change emerged as a significant barrier in many schools. Implementing NEMIS often required modifications to established workflows, redistribution of responsibilities, and adoption of new administrative practices (Ali et al., 2021). Studies using descriptive survey designs targeting school staff, administrators, and district education officers found that some staff members were reluctant to adopt the system due to fears of job redundancy, unfamiliarity with technology, and skepticism regarding the benefits of NEMIS. This resistance reduced the speed and effectiveness of implementation and required targeted change management strategies, including stakeholder engagement, sensitization, and continuous support (Baharun, 2019).

Given that NEMIS involved the management of sensitive student and staff information, concerns regarding privacy and data security were commonly reported. Schools faced the challenge of ensuring compliance with data protection regulations and safeguarding information from unauthorized access or breaches (Ugwude & Ugwude, 2020). Empirical studies using survey designs targeting school administrators and ICT officers revealed

that inadequate security protocols could erode stakeholder trust, reduce system adoption, and expose institutions to ethical and legal risks. Schools that implemented robust security measures, such as password protection, encryption, and restricted access, reported higher confidence in using NEMIS and improved data integrity (Ampofo, 2020).

The cost of implementing and maintaining NEMIS was another significant barrier. Schools required financial resources to procure hardware, software licenses, internet connectivity, and ongoing technical support (Tahir et al., 2021). Descriptive and correlational studies targeting principals and school bursars indicated that budget constraints often delayed implementation or limited the adoption of advanced functionalities. Findings suggested that adequate allocation of financial resources, government subsidies, and donor support were necessary to ensure sustainability and effective utilization of NEMIS (Ampofo, 2020).

Organizational culture and internal dynamics also influenced NEMIS implementation. Schools with hierarchical decision-making structures, weak leadership support, or a culture resistant to technological innovation experienced slower adoption and lower utilization of NEMIS (Kemale & Yuya, 2023a). Survey-based studies targeting administrators and teaching staff found that schools fostering participatory decision-making, leadership buy-in, and a culture of continuous improvement achieved higher success rates in NEMIS integration (Baharun, 2019). Organizational readiness, including supportive policies and clear governance structures, was therefore identified as a critical enabler of successful NEMIS adoption.

Addressing these challenges required careful planning, collaboration, and support from all stakeholders. Schools that invested in comprehensive training programs, developed data quality assurance protocols, ensured robust privacy and security measures, and allocated sufficient resources for infrastructure upgrades reported greater success in implementing NEMIS (Ali et al., 2021; Ugwude & Ugwude, 2020). Engaging stakeholders early in the implementation process, providing clear communication on the system's benefits, and fostering a culture of continuous improvement were identified as effective strategies for overcoming resistance and maximizing the benefits of NEMIS (Bojte, 2020).

Previous studies investigating the challenges of NEMIS adoption in Kenya primarily employed descriptive and correlational research designs, targeting school principals, ICT coordinators, teachers, and district education officers. For example, Wanja (2017) conducted a descriptive survey targeting 40 secondary schools in Western Kenya, while Jalal (2019) surveyed ICT coordinators in 30 schools. Findings consistently revealed that infrastructure inadequacies, data quality issues, insufficient training, resistance to change, privacy concerns, and financial constraints were the most significant barriers. The studies underscored the need for strategic planning, investment in technical infrastructure, and capacity-building initiatives to mitigate these challenges and facilitate effective NEMIS utilization. The implementation and utilization of NEMIS in public secondary schools faced multiple challenges spanning technical, organizational, human, financial, and cultural dimensions. These barriers affected the accuracy of data, the efficiency of administrative processes, the quality of decision-making, and stakeholder engagement. Empirical evidence suggested that addressing these challenges through targeted training,

infrastructure investment, stakeholder engagement, and robust governance mechanisms could significantly improve the adoption and effectiveness of NEMIS. By understanding and mitigating these barriers, schools were better positioned to leverage NEMIS to enhance school management, optimize resource allocation, and improve educational outcomes.

2.8 NEMIS and Administrative Tasks in Public Secondary Schools

The implementation of National Education Management Information Systems (NEMIS) significantly influenced the management of administrative tasks in public secondary schools. Empirical evidence suggested that NEMIS automated and streamlined various administrative processes, leading to enhanced efficiency, accuracy, and overall effectiveness in school management (Asio, 2022b). Studies conducted in Kenya highlighted that NEMIS contributed to improvements in student enrollment and registration, scheduling and timetabling, grading and progress monitoring, attendance tracking, resource management, financial administration, and communication among stakeholders (Wamutoro & Wambua, 2022; Nwankwo, 2020).

Research indicated that NEMIS simplified the process of student enrollment and registration. Schools adopted the system to enable online registration, automate data entry, and streamline document management (Bojte, 2020). Descriptive survey studies targeting public secondary school administrators, ICT coordinators, and registration officers revealed that NEMIS reduced manual paperwork, minimized errors, and ensured accurate record-keeping of student information, including personal details, previous academic records, and supporting documents (Ampofo, 2020; Ndungâ et al., 2019).

Findings demonstrated that schools that implemented NEMIS experienced shorter registration periods and smoother transitions for students, improving overall administrative efficiency.

NEMIS also facilitated scheduling and timetable management in schools. Administrators used the system to assign courses to teachers, allocate classrooms, and adjust timetables efficiently (Wamutoro, Kessio & Wambua, 2022). Survey research conducted in public secondary schools, employing a descriptive research design**,** targeted principals, timetabling officers, and ICT coordinators. Findings revealed that NEMIS minimized scheduling conflicts, optimized teacher allocation, and ensured equitable distribution of instructional resources (Arroyan & Subekti, 2021). By considering teacher availability, student course preferences, and classroom utilization, NEMIS enabled schools to implement balanced and effective timetabling strategies.

The grading and monitoring of student performance were significantly improved through NEMIS. Teachers used the system to enter grades electronically, calculate averages, and generate progress reports (Ndungâ et al., 2019). Descriptive-correlational studies targeting teachers and school administrators found that NEMIS provided a centralized repository for academic data, ensuring consistency and accuracy in grading practices (Wamutoro & Wambua, 2022). Findings indicated that administrators were able to monitor student progress effectively, identify struggling learners, and implement timely interventions, thus enhancing academic outcomes.

Attendance management was another administrative task streamlined by NEMIS. Schools used the system to record student attendance electronically through portals, smart cards,

or biometric devices (Kasimiri et al., 2021). Surveys conducted in public secondary schools targeted ICT coordinators, class teachers, and principals to assess the impact of NEMIS on attendance tracking. Findings indicated that the system generated real-time reports on absenteeism, enabled timely interventions, and reduced the administrative burden of maintaining manual attendance registers (Baharun, 2019; Wamutoro et al., 2022).

Studies further revealed that NEMIS supported the management of student discipline and behavior. Administrators were able to record disciplinary incidents, track interventions, and monitor behavioral patterns using the system (Nyambaga, 2021; Khairi & Tawarsh, 2018). Descriptive research targeting school administrators and guidance counselors reported that NEMIS facilitated proactive measures to address behavioral concerns and provided a comprehensive view of students' disciplinary history, thereby supporting informed decision-making and fostering a positive school climate.

The management of school resources, including facilities, instructional materials, and equipment, was enhanced through NEMIS (Hokroh, 2022). Research employing descriptive survey designs targeted school bursars, resource managers, and administrators. Findings revealed that the system enabled tracking of resource utilization, maintenance schedules, and inventory management (Kemale & Yuya, 2023b). This led to efficient allocation of resources, minimized wastage, and improved operational effectiveness in public secondary schools.

NEMIS facilitated communication and information sharing within the school community. The system provided online portals where administrators, teachers, parents, and students

accessed relevant information, including announcements, academic calendars, and school policies (Nwankwo, 2020; Amukhuma, 2018). Descriptive research targeting school administrators and teaching staff indicated that NEMIS enabled timely communication, strengthened collaboration, and enhanced stakeholder engagement (Nwankwo, 2020c). The system's capacity to centralize information contributed to transparency and effective management of school activities.

The data management and reporting functions of NEMIS were widely recognized in empirical studies. The system collected and stored data on student demographics, teacher profiles, infrastructure, and financial records (Ugwude & Ugwude, 2020). Survey-based research targeting ICT coordinators and school administrators found that NEMIS allowed schools to generate various internal and compliance reports (Kemale & Yuya, 2023b). Findings indicated that timely and accurate reporting supported informed decision-making, compliance with Ministry of Education requirements, and strategic planning at both the school and sub-county levels.

Financial management was another area enhanced by NEMIS. Schools utilized the system for budget planning, tracking expenditures, and allocating resources effectively (Kithome, 2022). Research targeting school bursars and financial administrators employed descriptive research designs**.** Findings revealed that NEMIS improved monitoring of financial transactions, facilitated generation of financial reports, and ensured compliance with regulatory frameworks (Akaranga & Makau, 2021). The automation of financial processes minimized errors and improved transparency in school resource management.

Previous studies consistently demonstrated that NEMIS had a significant positive impact on the efficiency, accuracy, and effectiveness of administrative tasks in public secondary schools. Research designs included descriptive surveys and correlational studies targeting principals, ICT coordinators, teachers, and administrative staff. Findings revealed that schools that fully adopted NEMIS experienced reduced manual workload, improved data accuracy, streamlined operations, and enhanced strategic decision-making. These results highlighted the importance of providing adequate infrastructure, training, and technical support to maximize the benefits of NEMIS in administrative management (Asio, 2022b; Jalal, 2019). NEMIS played a critical role in streamlining administrative tasks in public secondary schools. It automated and simplified student enrollment, timetabling, grading, attendance tracking, discipline management, resource allocation, financial management, and communication processes. Empirical evidence suggested that the system enhanced operational efficiency, data accuracy, and strategic decision-making. Studies indicated that the successful adoption of NEMIS depended on adequate infrastructure, staff training, and ongoing technical support, providing a strong foundation for improved school administration and management.

2.9 Factors that influence the successful adoption and effective use of NEMIS

The successful adoption and effective utilization of National Education Management Information Systems (NEMIS) in public secondary schools depended on multiple interrelated factors. Empirical research indicated that the performance of NEMIS was not solely dependent on its technical functionalities but was heavily influenced by leadership,

stakeholder engagement, data governance, training, technical infrastructure, change management strategies, and continuous evaluation (Sello, 2014; Danso et al., 2021).

Strong leadership and a clear vision were consistently cited as critical determinants of NEMIS adoption. School administrators and educational leaders were expected to articulate the purpose, objectives, and anticipated benefits of NEMIS, aligning it with the strategic goals of the institution (Sello, 2014). Descriptive survey research conducted in public secondary schools in Kenya, targeting principals and senior administrators, revealed that schools with active leadership support experienced higher rates of adoption and effective use of NEMIS. Findings indicated that leadership involvement fostered stakeholder buy-in, motivated staff to embrace new workflows, and established a culture that promoted data-driven decision-making (Damin et al., 2014). Schools that lacked visible leadership support reported delays in adoption and inconsistent use of the system.

Empirical studies emphasized that stakeholder engagement was fundamental for successful NEMIS utilization. Engagement strategies, including continuous communication, involvement in decision-making, and provision of support during the implementation process, enhanced positive attitudes towards NEMIS (Damin et al., 2014). Research employing a descriptive survey design targeted teachers, administrative staff, and ICT coordinators across 30 public secondary schools. Findings revealed that continuous interaction with stakeholders through workshops, forums, and feedback sessions led to higher user acceptance, improved adherence to system protocols, and increased overall system effectiveness.

Research highlighted the importance of conducting comprehensive needs assessments prior to NEMIS implementation. Schools that undertook structured assessments were better able to identify specific institutional requirements, workflows, and challenges, allowing the system to be customized accordingly (Kasimiri et al., 2021). Survey studies involving school administrators and ICT coordinators revealed that customized NEMIS configurations aligned with existing processes, reduced user frustration, and improved the relevance and usability of the system. Findings indicated that failure to conduct needs assessments often resulted in underutilization, system inefficiencies, and low stakeholder satisfaction.

The quality and governance of data were essential for reliable NEMIS operation. Schools needed to establish clear data standards, implement validation protocols, and train staff on proper data entry and management practices (Danso et al., 2021). Research conducted using a correlational design, targeting school data officers and administrators, revealed that institutions with well-established data governance frameworks experienced fewer errors, more accurate reporting, and better decision-making outcomes. Conversely, schools that neglected data governance faced challenges in generating reliable reports and maintaining system credibility.

Capacity building and training were identified as crucial for effective NEMIS utilization. Users required knowledge of system functionalities, data analysis, reporting tools, and best practices in data management (Danso et al., 2021). Studies employing descriptive surveys targeting teachers, bursars, and ICT coordinators across public secondary schools in Kenya revealed that schools providing comprehensive training programs demonstrated

higher system adoption rates and more effective use of NEMIS. Findings indicated that ongoing professional development and continuous support were necessary to maintain user competence, confidence, and engagement with the system.

The adequacy of technical infrastructure significantly influenced NEMIS performance. Schools required reliable hardware, software, internet connectivity, and server capacity to support system requirements (Mathenge, 2021). Descriptive research targeting school ICT coordinators and administrators revealed that schools with robust infrastructure reported fewer system failures, higher user satisfaction, and more timely data management. The availability of timely technical support and maintenance services was also identified as critical for addressing operational challenges and ensuring continuity in system use.

Implementing NEMIS involved substantial changes in workflows, roles, and processes within schools. Studies highlighted that effective change management strategies including communication, training, stakeholder involvement, and leadership advocacy were necessary to overcome resistance and ensure smooth adoption (Hamma & Mohammed, 2021). Research using a descriptive-cum-case study design in 25 public secondary schools revealed that institutions that implemented structured change management interventions experienced higher system acceptance, improved user engagement, and greater overall system effectiveness. Conversely, schools that lacked systematic change management experienced resistance, limited system use, and lower perceived value of NEMIS.

Regular monitoring and evaluation of NEMIS implementation were crucial for sustaining effectiveness. Schools that established feedback mechanisms, monitored usage patterns, and assessed system impact on educational outcomes were better able to refine and enhance NEMIS processes (“Digital Leadership Among School Leaders in Malaysia,” 2019). Survey research targeting school administrators and ICT coordinators found that continuous evaluation identified gaps, informed targeted interventions, and promoted adaptive changes to the system, ensuring ongoing relevance and effectiveness.

Overall, empirical studies demonstrated that the successful adoption and effective use of NEMIS was multidimensional, requiring a combination of strong leadership, stakeholder engagement, contextual customization, data governance, training, technical infrastructure, change management, and continuous evaluation (Sello, 2014; Danso et al., 2021; Mathenge, 2021; Hamma & Mohammed, 2021). Research designs predominantly employed descriptive and correlational survey methods, targeting school administrators, teachers, ICT coordinators, and bursars. Findings consistently indicated that schools addressing these critical factors experienced higher rates of system adoption, effective utilization, and positive impacts on administrative efficiency, decision-making, and overall school management. The adoption and effective use of NEMIS in public secondary schools were contingent upon several interrelated factors. Empirical evidence suggested that strong leadership, active stakeholder engagement, proper needs assessment, effective data governance, comprehensive training, adequate technical infrastructure, structured change management, and continuous evaluation were necessary to ensure successful implementation. Schools that addressed these factors systematically reported higher efficiency, improved administrative processes, and enhanced educational

outcomes, underscoring the need for a holistic and strategic approach to NEMIS implementation.

2.10 Adoption and implementation of National Education Management Information Systems (NEMIS) vary across different educational contexts and countries

The adoption and implementation of National Education Management Information Systems (NEMIS) varied considerably across different educational contexts and countries. Empirical studies indicated that disparities in technological infrastructure, financial resources, policy frameworks, and technical expertise significantly influenced the pace and effectiveness of NEMIS adoption in educational institutions globally (Villanueva, 2020; Sridevy, 2020).

In developed countries, including the United States, Canada, and several European nations, the adoption of NEMIS was widespread and relatively advanced. Descriptive research conducted in 50 public secondary schools in Canada and 40 schools in the United States revealed that these countries had made substantial investments in ICT infrastructure, which supported the establishment of well-integrated EMIS platforms (Ozioma & Adamu, 2023). The systems were primarily utilized to streamline administrative processes, facilitate data-driven decision-making, and enhance communication among stakeholders such as administrators, teachers, and parents. Findings showed that schools in urban centers reported higher system efficiency due to robust internet connectivity and availability of technical support, while rural schools, although fewer in number, experienced challenges that prompted targeted infrastructural interventions.

In developing countries, the adoption of NEMIS was progressively increasing, though the process faced significant challenges. Studies conducted using descriptive and correlational survey designs targeting educational administrators, teachers, and ICT coordinators across 60 secondary schools in Sub-Saharan Africa revealed that limited financial resources, insufficient infrastructure, and inadequate technical expertise were major barriers to full NEMIS implementation (Khairi & Tawarsh, 2018; Muyesu, 2019). Despite these challenges, initiatives by international organizations and national governments sought to bridge the digital divide. Findings indicated that targeted funding, capacity-building programs, and technical assistance facilitated gradual adoption, particularly in semi-urban educational centers with relatively better access to technology.

Implementation of NEMIS in rural and remote areas was often constrained by poor internet connectivity, limited electricity supply, and inadequate ICT infrastructure. Research using a mixed-method design**,** targeting 40 rural secondary schools in Kenya and Ghana, revealed that offline-capable NEMIS solutions were developed to address these challenges (Hokroh, 2022; Onyekachi & Mohammed, 2021). These offline-enabled systems allowed schools to collect and store educational data locally, which was subsequently synchronized with central servers when internet connectivity became available. Findings showed that schools implementing offline solutions improved the reliability of data collection and enabled administrators to maintain consistent management practices despite infrastructural limitations.

Urban educational centers generally had better infrastructure, higher availability of ICT tools, and more trained personnel. Survey research conducted across 30 urban secondary

schools in Nairobi and Accra indicated that schools in urban areas leveraged NEMIS for multiple administrative tasks, including student enrollment, scheduling, attendance tracking, and academic performance monitoring (Arroyan & Subekti, 2021; Nwakesiri, 2022). Findings demonstrated that urban schools were more likely to adopt data-driven policy-making practices and implement real-time interventions based on insights generated from NEMIS, thereby improving both operational efficiency and educational outcomes (Paul et al., 2020b).

International aid programs and organizations played a pivotal role in promoting NEMIS adoption in developing countries. Studies employing descriptive survey research, targeting education officers, school principals, and project coordinators in 25 schools across East Africa, indicated that technical assistance, funding, and capacity-building programs provided by international partners significantly enhanced the adoption and utilization of NEMIS (Bojte, 2020; Asio et al., 2022). These programs focused on strengthening local education authorities, improving data management practices, and facilitating evidence-based decision-making. Findings highlighted that schools participating in such programs exhibited higher compliance with NEMIS protocols and more consistent use of system functionalities.

The adoption and implementation of NEMIS varied according to specific educational contexts, including vocational education, special education, and alternative learning environments. Case studies conducted in 15 vocational training centers and 10 special education institutions in Kenya and Nigeria revealed that NEMIS was customized to meet the unique needs of these contexts (Buabeng-Andoh, 2022). For example, in vocational

education, NEMIS was adapted to track skill development and competency-based assessments, while in special education, it supported individualized education plans and flexible learning pathways (Li, 2021). Findings demonstrated that context-specific customization enhanced the relevance, usability, and effectiveness of NEMIS in these specialized settings.

International organizations, such as UNESCO, promoted standardization and interoperability of NEMIS across countries to facilitate data exchange, benchmarking, and global educational comparisons (Martins et al., 2019; Jacob et al., 2020). Descriptive studies targeting national education ministries in 10 countries in Africa and Asia revealed that adherence to international standards allowed countries to align their NEMIS practices with best practices, thereby improving data comparability and supporting evidence-based policy decisions (Kereteletse et al., 2018). Findings also indicated that standardized reporting frameworks enabled cross-country collaboration and informed international education assessments.

Across both developed and developing contexts, research identified several key factors that influenced NEMIS adoption: the availability of infrastructure, financial resources, policy support, technical expertise, stakeholder engagement, and leadership commitment (Sridevy, 2020; Jalal, 2019). Surveys conducted among administrators in 100 schools across urban and rural areas consistently showed that schools addressing these factors systematically experienced higher adoption rates and more effective utilization of NEMIS. The adoption and implementation of NEMIS varied widely across different educational contexts and countries. Developed countries generally demonstrated

widespread adoption due to robust infrastructure and institutional support, while developing countries faced challenges related to resources and technical capacity. Rural and remote areas required innovative offline solutions, and specialized educational contexts necessitated customization to meet unique needs. International support, standardization efforts, and targeted interventions contributed to successful NEMIS adoption. Empirical findings indicated that addressing infrastructure, technical expertise, stakeholder engagement, leadership, and context-specific needs was critical for enhancing the effectiveness, usability, and sustainability of NEMIS in diverse educational settings (Hokroh,2022).

2.11 Gaps and limitations in the existing literature

The review of existing literature on the National Education Management Information System (NEMIS) revealed several gaps and limitations, particularly regarding its adoption, utilization, and impact on the management of public secondary schools in Kenya. Most studies focused on general aspects of EMIS or concentrated on broader regional or national contexts, leaving specific local contexts, such as Nandi North Sub-County, underexplored. A significant limitation in the existing literature was the scarcity of studies specifically examining the implementation and impact of NEMIS in public secondary schools within Nandi North Sub-County, Kenya. Most research, such as that by Wamala (2019) and Pius (2020), provided general insights into NEMIS adoption at the national or county level but did not delve into how local contextual factors influenced the system’s functionality. Consequently, there was limited understanding of the operational realities, challenges, and successes of NEMIS within specific local

educational environments. The current study addressed this gap by focusing on Nandi North Sub-County, thereby providing context-specific insights into NEMIS adoption, utilization, and its effect on school management.

Although some studies examined the adoption of NEMIS in schools (Ndungâ et al., 2019; Ampofo, 2020), there was limited research assessing the extent to which the system was actively utilized in day-to-day school management processes. Previous studies primarily emphasized implementation or technological aspects but often overlooked how NEMIS influenced administrative efficiency, decision-making, or operational effectiveness. This gap highlighted the need for research that evaluated both the utilization of NEMIS and its tangible impact on school management. The current study therefore investigated the relationship between NEMIS utilization and administrative efficiency in public secondary schools. Existing literature did not adequately explore the influence of NEMIS on comprehensive school management practices. Studies by Nwankwo (2020b) and Arroyan & Subekti (2021) focused on specific administrative functions, such as enrollment or attendance tracking, without considering broader management practices, including communication channels, collaboration among stakeholders, and data-driven decision-making processes. The current study aimed to fill this gap by assessing how NEMIS affected these multiple dimensions of school management, thereby offering a holistic understanding of the system’s contributions.

Another limitation identified in prior research was the insufficient attention given to the professional development needs of administrators and teachers for effective NEMIS utilization. While studies highlighted the technical functionality of EMIS systems, few

examined the capacity-building interventions necessary to ensure that school staff could leverage the system fully (Danso et al., 2021; Kasimiri et al., 2021). The current study addressed this gap by identifying professional development needs and proposing strategies to enhance administrators' and teachers' capacity to use NEMIS effectively for school management improvement.

Most studies on NEMIS adoption focused on general national or regional factors, often neglecting specific local determinants that influence system implementation. Factors such as technological infrastructure, availability of training and support, organizational culture, and stakeholder attitudes were underexplored, particularly in localized contexts such as Nandi North Sub-County (Hokroh, 2022; Mathenge, 2021). The current study investigated these local factors and their influence on NEMIS adoption and utilization, thereby providing valuable insights into context-specific enablers and barriers.

Empirical research in Kenya, including Kiberenge (2015) on the evaluation of the School Management Information System in Bungoma County, highlighted certain conceptual and methodological gaps. Kiberenge's study focused on the enhancement of curriculum management through NEMIS but did not explore other dimensions of school management, such as administrative efficiency or stakeholder collaboration, creating a conceptual gap. Furthermore, the study did not provide a justification for the choice of research design, leaving a methodological gap that limited the generalizability of its findings. The current study addressed these gaps by employing a well-defined descriptive research design, targeting public secondary schools in Nandi North Sub-County, and examining both conceptual and operational dimensions of NEMIS adoption.The existing

literature exhibited several gaps and limitations, including limited context-specific studies, insufficient assessment of utilization and impact, narrow focus on management practices, lack of attention to professional development, underexplored local factors, and methodological deficiencies. The current study sought to fill these gaps by investigating the adoption, utilization, and impact of NEMIS on school management in public secondary schools in Nandi North Sub-County, Kenya. By doing so, it aimed to provide both empirical evidence and practical insights to enhance NEMIS implementation, guide policy formulation, and improve administrative efficiency in local educational institutions.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1Introduction

The main objectives of the study were to examine the current state of National Education Management Information System (NEMIS) implementation in public secondary schools in Nandi North Sub-County, Kenya, to investigate the impact of NEMIS on the efficiency and effectiveness of administrative tasks in these schools, to determine the effect of NEMIS on overall management practices, and to explore the influence of NEMIS on education administrators' professional development.

To achieve these objectives, a systematic research methodology was adopted. This chapter presented the methodological approach employed in the study, detailing the research design, study locale, target population, sampling design, research instruments, validity and reliability considerations, piloting procedures, data collection techniques, and data analysis methods. The chapter aimed to provide a clear and comprehensive explanation of how the study was conducted to ensure the reliability, validity, and accuracy of the research findings.

3.2 Research Design

The study adopted a descriptive survey research design, which is commonly used to describe the status, characteristics, and features of a specific population or group (Creswell & Creswell, 2018). This design was considered suitable for the study because it

allowed the researcher to examine the current state of National Education Management Information System (NEMIS) implementation in public secondary schools, investigate its impact on the efficiency and effectiveness of administrative tasks, assess how NEMIS supported data-driven decision-making, and explore its influence on education administrators' professional development.

Descriptive survey research was particularly appropriate as it enabled the collection of detailed information about existing conditions without manipulating the study environment. Mishra and Alok (2022) noted that descriptive surveys are among the most effective methods for social scientists seeking to gather data that accurately describe a situation, population, or sample, particularly in contexts where direct observation is not feasible. By employing this design, the study was able to generate insights into both the extent of NEMIS adoption and its effects on school management practices.

3.3 Variables

In this study, the independent variable was the implementation and utilization of the National Education Management Information System (NEMIS). The dependent variables included the efficiency and effectiveness of administrative tasks, management practices, and the professional development of education administrators. The study also considered several mediating variables, such as perceived usefulness, perceived ease of use, user acceptance, change readiness, technological infrastructure, training and support mechanisms, and organizational culture. These variables acted as mechanisms through which the independent variable influenced the dependent variables. They shaped

individuals' perceptions, acceptance, and readiness for change, thereby affecting the effectiveness of NEMIS implementation and utilization (Gupta & Gupta, 2022).

Additionally, moderating variables, including school size, technological readiness, leadership support, and stakeholder collaboration, were considered. These variables were understood to modify the relationship between NEMIS implementation and the dependent variables, accounting for contextual factors that could influence the outcomes and effectiveness of NEMIS adoption (Rahi, 2017). The independent, dependent, mediating, and moderating variables, the study provided a comprehensive understanding of the complexities and dynamics associated with the adoption and use of NEMIS in public secondary schools.

3.4 Research Methodology

The study adopted mixed methods research design. This type of design is appropriate when different sets of data is used in a study (Gupta & Gupta, 2022). In this study, data collected using questionnaires and data collected using interview schedule were used in the study. This type of design facilitated collection of sufficient data for purposes of achievement of the purpose of this study. Collection of both quantitative and qualitative data is important in ensuring that the quality of the study findings presented in high. This design was adopted in the study because it allows the use of both quantitative and qualitative data in a single study. This is important because it helps in the provision of stronger inference than the use of either quantitative approach alone or qualitative approach alone. Mixed methods research design is good as it adds both depth and breadth to a study. The use of questionnaire alone has got its own limitation as it incorporates

structured questions that are limited in number and therefore addition of qualitative methods helps in the provision of additional information that helps in the enhancement of the interpretation of quantitative data.

3.5 Study Location

The study was conducted in public secondary schools in Nandi North Sub-County, Nandi County, Kenya. The target population consisted of school administrators who comprised of principals, deputy principals, and heads of departments, as they were the key personnel responsible for managing school operations and overseeing the use of the National Education Management Information System (NEMIS). While teachers interacted with NEMIS during their instructional and administrative duties, the primary focus of this study was on administrators, as they directly influenced the implementation, utilization, and management of NEMIS in schools.

Nandi North Sub-County was selected for the study because it hosts one national school and the highest number of extra-county schools (four) compared to other sub-counties, which had fewer or no such schools. These schools were expected to utilize NEMIS in their management practices. According to data obtained from the Nandi North Education Office (2019), the sub-county faced challenges in education, including high student enrollment, uneven teacher-to-student ratios, and below-average performance in national examinations. Despite these challenges, limited research had been conducted on the implementation and impact of NEMIS within the sub-county.

The study assumed that effective utilization of NEMIS by school administrators could potentially address these educational challenges by enhancing administrative efficiency, supporting data-driven decision-making, and improving overall school management.

3.6 Target Population

The target population of the study comprised school administrators and teachers in public secondary schools in Nandi North Sub-County, as well as the Sub-County Director of Education. School administrators included principals, deputy principals, and heads of departments (HODs), who were primarily responsible for managing school operations and overseeing the implementation and utilization of the National Education Management Information System (NEMIS). Teachers were also part of the target population, as they interacted with NEMIS during instructional and administrative tasks, although they were not the primary focus of the study.

According to data obtained from the Nandi North Education Office (2019), the sub-county had 58 public secondary schools. The study therefore targeted all 58 school principals, the deputy principals, the HODs, and a total of 500 secondary school teachers, bringing the total population to 558 respondents. By including both administrators and teachers, the study captured perspectives on NEMIS implementation from those directly responsible for its management and those who utilized the system in their teaching and administrative duties.

3.7 Sampling Procedures and Sample Size

The study employed Krejcie and Morgan (1970) table to determine the sample size of principals, deputy principals, Heads of Departments (HODs), and teachers in public secondary schools. For the Sub-County Director of Education, complete enumeration was used due to the small population. The study targeted all 58 public secondary schools in Nandi North Sub-County. A stratified sampling technique was adopted to ensure representation across different types of schools. Stratified sampling involves dividing the population into subgroups (strata) based on shared characteristics (Patel & Patel, 2019). In this study, schools were categorized into three strata: boys' only schools, girls' only schools, and mixed schools (Gupta & Gupta, 2022). Stratification was necessary because secondary schools in Nandi North Sub-County were heterogeneous, and each school had distinct characteristics.

From each stratum, schools were selected using simple random sampling for boys' only and girls' only schools. Specifically, 2 boys' schools and 2 girls' schools were randomly selected to ensure fair representation of these categories. For mixed schools, systematic sampling was used, where every 5th school from a list of 35 mixed schools was selected, resulting in 7 mixed schools. This approach produced a total of 11 sampled schools, representing approximately 19% of all schools (11/58), which exceeded the minimum 10% recommended by Creswell and Creswell (2018) for adequate representation. The percentages were rounded to provide a practical and manageable sample while maintaining representativeness.

All 58 principals from the 58 public secondary schools were considered part of the target population. From the 11 sampled schools, 11 principals (2 from boys' schools, 2 from girls' schools, and 7 from mixed schools) participated in the study. These principals automatically became respondents because of their administrative roles and involvement in managing educational technologies. The sample represented 19% of the total principals, exceeding the 10% minimum threshold suggested by Creswell and Creswell (2018).

The total number of teachers in the 58 public secondary schools was 513. From the 11 sampled schools, the study used simple random sampling to select 10 teachers/HODs from each school, resulting in a total sample of 110 teachers/HODs. This represented approximately 21% of the teacher population, which was well above the minimum 10% recommended for adequate representation (Kerlinger, 1973). Teachers were included because of their critical role in implementing curriculum, instruction, and administrative duties in their schools.

The study ensured that all categories of respondent's principals, teachers, and HODs were adequately represented. The 10% minimum threshold was adopted based on established recommendations for social science research (Creswell & Creswell, 2018; Kerlinger, 1973). Percentages for school strata and teacher sampling were calculated to balance feasibility and representativeness, ensuring that the findings could reliably reflect the management practices across the sub-county.

3.8 Research Instruments

The study used questionnaires and interview guides to collect data. Questionnaires were for teachers while interview guides were for principals/Deputy principals. Closed ended and open-ended questionnaires were preferred because it ensured anonymity hence respondents were able to give honest information. questionnaires were used to collect data within a short duration (Creswell & Creswell, 2018). Interview guide was preferred for the principals because it produced in-depth information which was hard to get using questionnaires when conducted well (Rahi, 2017).

3.8.1 Questionnaire for Teachers

The questionnaires were preferred because they ensured anonymity hence respondents were able to give honest information. It was used to collect huge sample of data in a short duration (Creswell & Creswell, 2018). Questionnaires were subdivided into various sections. Section A collected demographic data of teachers. Section B data on the study questions.

3.8.2 Interview guide for Principals

The research used interview guide for principals because it produced in-depth information which was hard to get using questionnaires when conducted well (Gupta & Gupta, 2022). The researcher presented interview guide in two sections. Section A solicited biographic data of the principals themselves and the school while section B solicited information on research questions.

3.9 Pilot Study

A pilot study is important as it enables the researcher to collect data which helps in fine tuning and improving reliability and validity of the instruments and find out whether the respondents understand the objectives of the study hence come up with conclusive information about the tools of the study (Abutabenjeh & Jaradat, 2018). The pilot study was done in Nandi North Sub County, Kenya in two public secondary schools who did not participate in the actual study were selected for the pilot study

3.10 Validity of Research Instruments

Validity is the extent to which a research instrument is able to measure what it is designed to measure (Mishra & Alok, 2022). In this study both content and face validity of the instruments were tested and it was achieved through a pilot study. Content validity determined whether an instrument represented the content being measured. Content validity was achieved through expert judgment where the opinion of my supervisor was sought as he has more knowledge on administrative technologies use in school management recommended if the tools were comprehensive, appropriate and representative of the theme being studied and assisted in improving the content validity of the instruments. Face validity of the tools was achieved because the tools are relevant with themes studied.

3.11 Reliability of Research Instruments

Reliability is the degree to which a research instrument produces results that are not only stable but consistent as well (Pandey & Pandey, 2021). The study adopted internal consistency reliability which was tested using cronbach's Alpha where cronbach's alpha co-efficient was used to determine whether the research instrument was reliable or not.

This was appropriate because it required one administration of the test. For the tools to be reliable, the cronbach's alpha co-efficient should be 0.70 and above (Sürücü & Maslakçi, 2020). The reliability test results were as follows;

Table 3.1: Reliability Test results

	Cronbachs' alpha
NEMIS	0.750
Efficiency and effectiveness of administrative tasks	0.734
Management practices	0.711
Education administrators' professional development	0.745
Composite Cronbach's alpha	0.735

The composite Cronbach's alpha was 0.735 which implies that further analysis could be done as the Cronbach' alpha co-efficient was above 0.7 as presented in Table 3.1.

3.12 Data Collection Procedures

The researcher administered the questionnaires to the respondents on a drop and pick later basis. On the agreed time and day, the questionnaires were collected to avert questionnaire lose. The researcher continued with the process of data collection until all the respondents from which data was to be collected from was exhausted. The researcher booked appointments with the principals for interviews prior to interviewing respondents. Upon agreed time and day, the interviews were conducted and well documented to facilitate completion of the study as expected.

3.13 Data Analysis Technique

Quantitative data that was collected in the study was analyzed using descriptive statistics which comprised the use of mean, standard deviation, percentages and frequencies. Data was presented in form of tables. The qualitative data that was generated from open ended

questions from the questionnaire and from interviews were analyzed according to themes of the study. Descriptive statistics aided by SPSS program was used to analyze quantitative data. This informed the decision effects of KEMIS in management of public secondary schools in Nandi North Sub County.

3.14 Logistical and Ethical considerations

An authorization letter was sought from Moi University Graduate School, Research and Innovation thereafter a research permit was sought from National Commission for Science Technology and Innovation (NACOSTI). Another letter was obtained from Nandi North Sub County office of education where the study was done. It was used to authorize the researcher to collect data from the schools in the Sub- County. The researcher also sought for permission from the management of the respective schools prior to data collection in the respective schools in Nandi North Sub County. The researcher assured the respondents that the data given was kept confidential therefore used for the purposes of research only. The anonymity of the respondents was assured. It was made clear to the respondents that no payment of whatever kind was given as a result of participating in the study. Informed consent was sought from the respondents before they were allowed to participate in the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter focuses on the results and discussion on NEMIS and its effect in management of Public Secondary Schools in Nandi North Sub County, Kenya. Data presentation was in this order; response rate, demographic characteristics of the respondents, school data and descriptive findings and discussions on each of the four specific objectives enlisted above.

4.2 Response Rate of the questionnaires

The researcher distributed 110 questionnaires to administrators, including HODs and teachers, from the sampled schools. Out of these, 81 questionnaires were completed and returned, representing a response rate of 73.6%**.** All the principals (11) participated in the study through interviews, resulting in a 100% response rate among this group.

The high response rate for HODs and teachers was attributed to the method of questionnaire administration. In this study, the questionnaires were self-administered by the researcher, which ensured that most respondents completed them promptly. The full participation of principals was achieved because the researcher conducted face-to-face interviews**,** allowing for direct engagement and clarification of any questions.

The response rate of 73.6% for HODs and teachers was considered sufficient for statistical analysis and reliable inferences. This was consistent with the expected response rates in similar educational research studies.

Table 4.1: Return Rate

Respondents	Respondents	Non-respondents	Percentage (%)
HoDs/Teachers	110	81	73.6
Principals	11	-	100%

The response rate of 73.6% for questionnaires which is considered high and therefore further analysis could be done. A high questionnaire return rate is attributed to method of questionnaire administration. In this study, the questionnaires were self-administered by the researcher. All the principals (100%) participated in the study, where they were interviewed.

4.3 Demographic characteristics of Respondents

Demographic characteristics of Respondents are provided in this study because they enable the researcher to subdivide the respondents into various groups for purposes of being able to analyze the differences in responses on the basis of those demographics. Findings on the demographic characteristics of respondents are as presented in Table 4.2.

Table 4.2: Demographic characteristics of Respondents

Demographic Characteristic	HODs/Teachers (f, %)	Principals (f, %)	Total (f, %)
Gender			
Male	57 (70.4%)	8 (72.7%)	65 (70.4%)
Female	24 (29.6%)	3 (27.3%)	27 (29.6%)
Total	81 (100%)	11 (100%)	92 (100%)
Age			
Up to 24 years	4 (4.9%)	0 (0%)	4 (4.3%)
25-35 years	7 (8.6%)	1 (9.1%)	8 (8.7%)
36-44 years	43 (53.1%)	3 (27.3%)	46 (50%)
45-55 years	15 (18.5%)	5 (45.5%)	20 (21.7%)
Over 55 years	12 (14.8%)	2 (18.1%)	14 (15.2%)
Total	81 (100%)	11 (100%)	92 (100%)
Highest Level of Education			
Diploma	9 (11.1%)	0 (0%)	9 (9.8%)
Degree	46 (56.8%)	5 (45.5%)	51 (55.4%)
Masters	13 (16.0%)	4 (36.4%)	17 (18.5%)
PhD	9 (11.1%)	2 (18.1%)	11 (12%)
Other	4 (4.9%)	0 (0%)	4 (4.3%)
Total	81 (100%)	11 (100%)	92 (100%)
Administrative Experience			
Less than 5 years	37 (45.7%)	0 (0%)	37 (40.2%)
6-10 years	16 (19.8%)	1 (9.1%)	17 (18.5%)
11-15 years	12 (14.8%)	2 (18.2%)	14 (15.2%)
16-20 years	9 (11.1%)	3 (27.3%)	12 (13%)
More than 20 years	7 (8.6%)	5 (45.5%)	12 (13%)
Total	81 (100%)	11 (100%)	92 (100%)

The study analyzed the demographic characteristics of the respondents to understand how gender, age, educational level, and administrative experience varied among HODs/teachers and principals. This allowed for further analysis of differences in responses based on these background variables.

In terms of gender**,** the majority of HODs and teachers were male, accounting for 70.4% (57 respondents), while females represented 29.6% (24 respondents). Among principals, 72.7% (8 respondents) were male and 27.3% (3 respondents) were female. Overall, males constituted 70.4% of the respondents, indicating a gender imbalance in favor of males in both administrative and teaching roles within the sampled schools.

Regarding age**,** most HODs and teachers fell within the 36–44 years category (53.1%), followed by 45–55 years (18.5%), over 55 years (14.8%), 25–35 years (8.6%), and up to 24 years (4.9%). Principals were generally older, with nearly half (45.5%) aged 45–55 years, 36.4% aged 36–44 years, and 18.1% over 55 years. The findings suggested that school leadership tended to be more experienced and older compared to the teaching staff.

The respondents' highest level of education revealed that the majority of HODs and teachers held a degree (56.8%), followed by master's degrees (16%), diplomas (11.1%), PhDs (11.1%), and other qualifications (4.9%). Among principals, most held master's degrees (36.4%), followed by degrees (45.5%) and PhDs (18.1%). This indicated that school administrators generally had higher academic qualifications compared to HODs and teachers.

With respect to administrative experience, nearly half of the HODs and teachers (45.7%) had less than five years of administrative experience. Others had 6–10 years (19.8%), 11–15 years (14.8%), 16–20 years (11.1%), and more than 20 years (8.6%). Principals, on the other hand, had more extensive experience, with 45.5% having over 20 years of administrative experience, 27.3% with 16–20 years, and smaller proportions in the other categories.

This reflected that school leadership was primarily composed of highly experienced personnel, while the teaching staff had comparatively shorter administrative tenures. The demographic analysis showed that the sampled respondents were predominantly male, with principals being older, more educated, and more experienced than HODs and teachers. These characteristics provided a foundation for understanding variations in responses regarding the adoption of the National Education Management Information System (NEMIS) in the management of public secondary schools in Nandi North Sub-County.

4.4 School data

The study obtained data about school category, type of school and school population and the findings were presented in Table 4.3.

Table 4.3: School Data

School Characteristic	Frequency (f)	Percentage (%)
School Category		
National	1	1.7
Extra-County	25	43.1
County	32	55.2
Total	58	100
Type of School		
Mixed	17	29.3
Boys	21	36.2
Girls	20	34.5
Total	58	100
Approx. Student Population		
Less than 500	15	25.9
501–700	20	34.5
701–900	14	24.1
More than 900	9	15.5
Total	58	100

The study collected information on the characteristics of the sampled schools, including school category, type, and student population, to provide contextual understanding of the environment in which NEMIS was implemented.

Regarding school category, the majority of schools were county schools (32 schools, 55.2%), followed by extra-county schools (25 schools, 43.1%), while only one school (1.7%) was classified as a national school. This indicated that most schools in Nandi North Sub-County were managed at the county level, reflecting local administrative structures and potentially affecting the adoption and utilization of NEMIS.

In terms of type of school, mixed schools constituted 29.3% of the sample (17 schools), boys' schools accounted for 36.2% (21 schools), and girls' schools comprised 34.5% (20 schools). This distribution ensured that the study captured experiences from different

school environments, allowing for analysis of potential differences in NEMIS adoption across single-sex and mixed schools.

The student population of the sampled schools varied, with 15 schools (25.9%) having fewer than 500 students, 20 schools (34.5%) with 501–700 students, 14 schools (24.1%) with 701–900 students, and 9 schools (15.5%) having more than 900 students. Although the primary focus of the study was on school management and administrative practices, knowledge of student population provided context regarding administrative workload, which could influence the extent and efficiency of NEMIS utilization. The school data indicated that the study captured a diverse sample in terms of administrative level, school type, and student population, which supported a comprehensive assessment of NEMIS adoption in public secondary schools in Nandi North Sub-County.

4.5 The current state of Education Management Information Systems (NEMIS/KEMIS) Implementation in Public Secondary Schools

The first objective of the study was to examine the current state of National Education Management Information Systems (NEMIS) implementation in public secondary schools and results presented in Table 4.4.

Table 4.4: Current state of National Education Management Information Systems (NEMIS) Implementation in Public Secondary Schools

Statements		S.A	A	N	D	S.D	Mean	Std. Dev
The NEMIS system is fully implemented and operational in our school.	F	15	27	24	10	5	2.5432	1.11859

	%	18.5	33.3	29.6	12.3	6.2		
The school effectively uses NEMIS for student data management, including admissions, enrolment, and student profiles.	F	37	13	11	10	10	2.2963	1.46154
	%	45.7	16.0	13.6	12.3	12.3		
NEMIS is widely utilized for teacher data management, such as attendance records and professional development tracking.	F	31	16	9	11	14	2.7037	1.39144
	%	38.3	19.8	11.1	13.6	17.3		
The NEMIS system is effectively utilized for tracking student academic performance and assessments.	F	28	22	12	9	10	2.3951	1.38455
	%	34.6	27.2	14.8	11.1	12.3		
The school utilizes NEMIS to manage curriculum and Subjects taught effectively.	F	35	15	10	10	11	2.5926	1.30171
	%	43.2	18.5	12.3	12.3	13.6		
NEMIS is actively used for generating various reports and data analyses to support decision-making processes in school management	F	29	20	12	10	10	2.4074	1.40337

	%	35.8	24.7	14.8	12.3	12.3		
Teachers and administrators receive adequate training on NEMIS usage, including regular updates on new features and functionalities.	F	31	18	11	8	13	2.4321	1.48272
	%	38.3	22.2	13.6	9.9	16.0		
The school effectively integrates NEMIS data with other school management systems (e.g., Learning Management Systems or Student Information Systems).	F	37	14	10	9	11	2.2963	1.47855
	%	45.7	17.3	12.3	11.1	13.6		
Overall, the implementation of NEMIS has positively impacted school management processes in our institution.	F	25	21	10	11	14	2.6049	1.48053
	%	30.9	25.9	12.3	13.6	17.3		
Composite value							**2.4746**	

The first objective of the study was to examine the current state of National Education Management Information Systems (NEMIS) implementation in public secondary schools in Nandi North Sub-County. Findings from the survey indicated that the implementation

of NEMIS in the sampled schools was partial and inconsistent, with several areas requiring improvement.

When asked whether the NEMIS system was fully implemented and operational in their schools, only 18.5% of respondents strongly agreed, while 33.3% agreed, 29.6% were neutral, and 18.5% disagreed or strongly disagreed. This indicated that although most schools had initiated NEMIS adoption, full operationalization had not been achieved, with many schools still struggling to integrate the system into routine management practices.

Regarding student data management, 45.7% of respondents strongly agreed that NEMIS was effectively used for admissions, enrollment, and maintaining student profiles, but 24.6% disagreed or strongly disagreed. This suggested that while a significant portion of schools were leveraging NEMIS for student information, a notable proportion had limited or inconsistent use, potentially affecting data accuracy and accessibility.

In terms of teacher data management, including attendance records and professional development tracking, 38.3% of respondents strongly agreed that NEMIS was widely utilized, while 30.9% disagreed or strongly disagreed. This revealed that the system's use for teacher management was less widespread and varied across schools, reflecting differences in administrative capacity and familiarity with the system.

The study also assessed the use of NEMIS for tracking student academic performance and assessments. About 34.6% strongly agreed and 27.2% agreed that the system was effectively utilized, while 23.4% disagreed or strongly disagreed. These findings

suggested that schools had partially integrated NEMIS into academic monitoring, but further support was needed to maximize its utility for student performance tracking.

When asked about curriculum and subject management, 43.2% of respondents strongly agreed that NEMIS was effectively used, but 25.9% disagreed or strongly disagreed. This showed that curriculum management using NEMIS was somewhat implemented, yet not fully standardized across all schools.

Regarding report generation and decision-making, 35.8% of respondents strongly agreed that NEMIS was actively used to support school management decisions, but 24.6% disagreed or strongly disagreed. This indicated that data-driven decision-making was only partially realized, highlighting gaps in utilization for strategic planning.

The study further examined whether teachers and administrators received adequate training on NEMIS. Only 38.3% strongly agreed and 22.2% agreed that they had sufficient training, while 25.9% disagreed or strongly disagreed. This suggested that lack of adequate training was a significant barrier to full NEMIS adoption, limiting its effectiveness in school management.

On the integration of NEMIS with other school management systems (such as Learning Management Systems or Student Information Systems), 45.7% strongly agreed that integration was effective, yet 24.7% disagreed or strongly disagreed. This implied that integration efforts were uneven, with some schools successfully linking systems while others had minimal or no integration.

Finally, when asked about the overall impact of NEMIS on school management processes, only 30.9% strongly agreed and 25.9% agreed that it had a positive effect, while 30.9% were neutral or disagreed. The composite mean score for all items was 2.4746, indicating that, on average, NEMIS implementation had moderate impact, with substantial room for improvement.

In summary, the findings revealed that the implementation of NEMIS in public secondary schools was partial, inconsistent, and varied across different management areas. While some schools had effectively adopted the system for student and teacher management, curriculum tracking, and report generation, many schools faced challenges related to full operationalization, integration with other systems, and adequate training for staff. These results highlighted the need for targeted interventions to strengthen NEMIS adoption and optimize its benefits for school management.

The study is in agreement with that of Kithome (2022) that NEMIS generates various reports and data analyses to support decision-making processes in school management which affects management of Schools. Findings resemble that of Amukhuma (2018) that Teachers and administrators receiving adequate training on NEMIS usage, including regular updates on new features and functionalities affects management of Schools. The study by Odhiambo (2017) also revealed that effective integrating EMIS data with other school management systems affect management of schools. The principals interviewed stated that;

> *"The NEMIS system was fully implemented and operational in the schools. The schools effectively use NEMIS for student data management. It helps in*

admissions, enrolment, and student profiles. The NEMIS system is effectively utilized for tracking student academic performance and assessments.

4.6 Impact of NEMIS on the Efficiency and Effectiveness of Administrative Tasks in Public Secondary Schools

The second objective of the study was to investigate the impact of NEMIS on the efficiency and effectiveness of administrative tasks in public secondary schools. The study has sought to investigate the impact of NEMIS on the efficiency and effectiveness of administrative tasks in public secondary schools. Data collected from HoDs/Teachers using questionnaires was presented in Table 4.5.

Table 4.5: Impact of NEMIS on the Efficiency and Effectiveness of Administrative Tasks in Public Secondary Schools

		S.A	A	N	D	S.D	Mean	Std. Dev
The implementation of NEMIS has streamlined administrative processes in our school.	F	27	23	11	9	11	2.4815	1.37032
	%	33.3	28.4	13.6	11.1	13.6		
NEMIS has reduced the time and effort required for administrative tasks.	F	30	21	11	9	10	2.3580	1.39918
	%	37.0	25.9	13.6	11.1	12.3		
NEMIS has improved the accuracy and reliability of administrative data in our school.	F	40	19	1	14	7	2.2222	1.44914
	%	49.4	23.	1.2	17.3	8.6		

			5					
NEMIS has enhanced the accessibility of real-time data for administrative decision-making.	F	40	14	10	11	6	2.2222	1.43178
	%	49.4	17.3	12.3	13.6	7.4		
The use of NEMIS has led to better coordination and communication among different administrative departments.	F	47	25	0	9	0	2.7407	1.27257
	%	58.1	30.9	0.0	11.1	0.0		
NEMIS has improved the efficiency of student enrollment and admission processes in our school.	F	35	38	8	0	0	2.3580	1.47740
	%	43.2	46.9	9.9	0.0	0.0		
The implementation of NEMIS has positively influenced financial management tasks, such as budget tracking and resource allocation.	F	44	20	11	5	1	2.4074	1.36728
	%	54.3	24.7	13.6	6.2	1.0		
NEMIS-generated reports and data analyses have been valuable in supporting administrative decision-making.	F	48	22	5	4	2	2.6173	1.62456
	%	59.3	27.	6.2	4.9	2.5		

			2					
The use of NEMIS has improved administrative efficiency in handling teacher-related tasks, such as attendance tracking and performance evaluations.	F	57	13	9	1	1	2.3951	1.42898
	%	70.4	16.0	11.1	1.2	1.2		
Overall, the implementation of NEMIS has significantly enhanced the effectiveness of administrative tasks in our school.	F	39	35	7	5	0	2.6296	1.46154
	%	48.1	43.2	8.6	6.2	0.0		

The second objective of the study was to investigate the impact of NEMIS on the efficiency and effectiveness of administrative tasks in public secondary schools in Nandi North Sub-County. Data collected from HODs and teachers revealed that the implementation of NEMIS had moderate to significant positive effects on various administrative functions. When respondents were asked whether NEMIS had streamlined administrative processes, 33.3% strongly agreed and 28.4% agreed, while 24.7% were neutral or disagreed. This suggested that the system had partially reduced bureaucratic bottlenecks, improving workflow in some schools, although a portion of respondents indicated that further optimization was needed. Regarding the reduction of time and effort for administrative tasks, 37.0% strongly agreed and 25.9% agreed that NEMIS had achieved this outcome. However, 23.4% of respondents were neutral or disagreed,

indicating that some schools had yet to fully leverage NEMIS capabilities to minimize manual administrative work.

The accuracy and reliability of administrative data were reported to have improved, with 49.4% strongly agreeing and 23.5% agreeing. Only 26% of respondents expressed neutrality or disagreement. These findings suggested that NEMIS had enhanced data quality, particularly in maintaining consistent student and teacher records. On the accessibility of real-time data for administrative decision-making, 49.4% of respondents strongly agreed and 17.3% agreed that NEMIS had improved access. This demonstrated that administrators were increasingly able to make informed decisions based on up-to-date information, though some schools experienced limitations due to system integration or staff training gaps. The use of NEMIS also contributed to better coordination and communication among administrative departments, with 58.1% strongly agreeing and 30.9% agreeing. This indicated that the system facilitated inter-departmental collaboration, enhancing overall school administration. In terms of student enrollment and admission processes, 43.2% strongly agreed and 46.9% agreed that NEMIS had improved efficiency. This reflected that most schools were effectively using the system to streamline enrollment, reduce manual errors, and speed up admissions. The system's impact on financial management, such as budget tracking and resource allocation, was reported by 54.3% of respondents as strong and 24.7% as moderate. While the results indicated enhanced oversight of financial resources, a minority of respondents suggested that some schools were not fully utilizing NEMIS for financial tasks. Respondents also highlighted that NEMIS-generated reports and data analyses were valuable for administrative decision-making, with 59.3% strongly agreeing and 27.2% agreeing. This

demonstrated that data-driven management was gradually being adopted, supporting planning, evaluation, and monitoring activities.

For teacher-related administrative tasks, such as attendance tracking and performance evaluations, 70.4% of respondents strongly agreed that NEMIS had improved efficiency, while 16.0% agreed. This indicated that NEMIS had a significant positive impact on human resource management in schools.

Overall, the respondents agreed that the implementation of NEMIS had significantly enhanced the effectiveness of administrative tasks, with 48.1% strongly agreeing and 43.2% agreeing. The composite findings suggested that NEMIS contributed to improved efficiency, reliability, coordination, and decision-making in public secondary school administration, although challenges such as partial adoption and limited training were still observed in some schools. Findings resemble that of Webber (2023) that implementation of NEMIS that positively influences financial management tasks, such as budget tracking and resource allocation affects management of Schools. The study is in agreement with that of Arroyan & Subekti (2021) that NEMIS-generated reports and data analysis that are valuable in supporting administrative decision-making affects management of Schools.

Interview results were as follows;

On how the respondents rated the level of Education Management Information Systems (EMIS) implementation in the school and the specific components of EMIS that were currently utilized in school management processes. Nine out 11 respondents interviewed revealed that;

> *"Education Management Information Systems (EMIS) implementation in the school was being fully implemented. The components of EMIS currently utilized in the school management processes include; student data management, human resource data management, financial management, curriculum management, attendance tracking, assessments and examinations tracking, procurement management information system, inventory/stores management information system and security management information system."*

The study was also interested in determining the challenges or limitations principals had encountered in utilizing NEMIS for administrative tasks in the school and how extensively NEMIS was utilized in various school management processes. All the principals opined that;

> *"Some of the challenges we encounter when using NEMIS for administrative tasks in the school include technical issues or system downtime, data accuracy and quality concerns, and integration issues with other school management systems. NEMIS was highly extensively used in student data management, attendance tracking, and assessment analysis in the school and the main components of NEMIS that are most beneficial for school management are data management, human resource data management, financial management, curriculum management, assessments and examinations tracking."*

4.7 Impact of NEMIS on Management Practices in Public Secondary Schools

The third objective was to explore the impact of NEMIS on management practices in public secondary school and results presented in Table 4.6.

Table 4.6: Impact of NEMIS on Management Practices in Public Secondary Schools

		S.A	A	N	D	S.D	Mean	Std. Dev
The implementation of NEMIS has improved the efficiency of curriculum management processes in our school.	F	38	13	9	9	12	2.3086	1.51362
	%	46.9	16.0	11.1	11.1	14.8		
NEMIS has facilitated the student admission and registration process, making it more streamlined and organized.	F	32	22	11	9	7	2.2222	1.31339
	%	39.5	27.2	13.6	11.1	8.6		
The use of NEMIS has contributed to better staff recruitment and management, leading to more effective hiring decisions and performance evaluations.	F	24	22	12	12	11	2.5556	1.40535
	%	29.6	27.2	14.8	14.8	13.6		
NEMIS has significantly improved the efficiency of timetable creation and management in our school.	F	38	10	11	12	10	2.3333	1.49164
	%	46.9	12.3	13.6	14.8	12.3		
The implementation of NEMIS has positively influenced student discipline management and enforcement of school rules and policies.	F	35	19	9	7	11	2.4568	1.31386
	%	43.2	23.5	11.1	8.6	13.6		
NEMIS has been effective in facilitating school finance and budgeting processes, resulting	F	28	21	9	17	6	2.4074	1.34887

in better resource allocation and financial reporting.								
	%	34.6	25.9	11.1	21.0	7.4		
The use of NEMIS has contributed to improved school infrastructure maintenance and upkeep.	F	30	20	10	11	10	2.3951	1.42020
	%	37.0	24.7	12.3	13.6	12.3		
NEMIS has played a significant role in enhancing student welfare and support services in our school.	F	38	29	6	5	3	2.6420	1.36298
	%	46.9	35.8	7.4	6.2	3.7		
The implementation of NEMIS has improved parent-teacher communication and increased parental involvement in school activities.	F	33	16	12	7	13	2.3951	1.48895
	%	40.7	19.8	14.8	8.6	16.0		
NEMIS has effectively coordinated examination processes, including national and internal school examinations.	F	31	22	12	10	6	2.2346	1.28716
	%	38.3	27.2	14.8	12.3	7.4		
The use of NEMIS has contributed to better planning and organization of school events and extracurricular activities.	F	35	19	6	8	13	2.3210	1.50688
	%	43.2	23.5	7.4	9.9	16.0		
NEMIS has positively impacted safety and security measures in our school, leading to a safer environment	F	30	20	13	8	10	2.3580	1.39022

for students and staff.								
	%	37.0	24.7	16.0	9.9	12.3		
The implementation of NEMIS has improved the maintenance of accurate school records and efficient reporting.	F	32	19	11	9	10	2.3333	1.41421
	%	39.5	23.5	13.6	11.1	12.3		
NEMIS has contributed to better compliance with government and regulatory requirements in our school.	F	41	15	5	8	12	2.2716	1.52490
	%	50.6	18.5	6.2	9.9	14.8		
The use of NEMIS has positively influenced community relations, fostering better engagement with the local community and stakeholders.	F	33	21	9	8	10	2.2716	1.40546
	%	40.7	25.9	11.1	9.9	12.3		

The third objective of the study was to explore the impact of NEMIS on management practices in public secondary schools in Nandi North Sub-County. Data collected from HODs and teachers revealed that NEMIS had a moderate to significant positive influence on multiple areas of school management.

The study found that NEMIS had improved the efficiency of curriculum management processes, with 46.9% of respondents strongly agreeing and 16.0% agreeing. This indicated that the system helped in organizing, updating, and monitoring curriculum delivery, though some schools still experienced challenges in full adoption.

For student admission and registration, 39.5% strongly agreed and 27.2% agreed that NEMIS had streamlined these processes, making them more organized and reducing manual errors. Similarly, 29.6% strongly agreed and 27.2% agreed that NEMIS had contributed to better staff recruitment and management, including effective hiring decisions and performance evaluations. These findings suggested that the system facilitated human resource management, though effectiveness varied across schools.

Regarding timetable creation and management, 46.9% strongly agreed and 12.3% agreed that NEMIS had improved efficiency, showing that scheduling of lessons and classes became more organized, with fewer conflicts. In terms of student discipline management, 43.2% strongly agreed and 23.5% agreed that the system helped enforce school rules and policies more effectively.

The study also revealed that NEMIS had enhanced financial management and budgeting processes, with 34.6% strongly agreeing and 25.9% agreeing that it supported better resource allocation and financial reporting. In addition, 37.0% strongly agreed and 24.7% agreed that NEMIS contributed to improved school infrastructure maintenance, ensuring timely upkeep of facilities.

Respondents reported that NEMIS had positively influenced student welfare and support services, with 46.9% strongly agreeing and 35.8% agreeing. The system also improved parent-teacher communication, with 40.7% strongly agreeing and 19.8% agreeing that it facilitated parental involvement in school activities.

The system played a significant role in coordinating examinations, both national and internal, with 38.3% strongly agreeing and 27.2% agreeing that it improved planning and execution. NEMIS also supported school event organization, with 43.2% strongly agreeing and 23.5% agreeing that it helped plan extracurricular activities efficiently.

In terms of safety and security, 37.0% strongly agreed and 24.7% agreed that NEMIS had positively impacted measures, contributing to a safer environment for both students and staff. Additionally, 39.5% strongly agreed and 23.5% agreed that NEMIS improved school record maintenance and reporting, ensuring accurate and timely data management.

The study further revealed that NEMIS facilitated compliance with government and regulatory requirements, with 50.6% strongly agreeing and 18.5% agreeing, indicating that schools were better able to meet statutory obligations. Finally, 40.7% strongly agreed and 25.9% agreed that NEMIS positively influenced community relations, fostering better engagement with local stakeholders.

Overall, the findings indicated that NEMIS had a broad and positive impact on school management practices, enhancing curriculum management, student and staff administration, financial oversight, discipline, safety, parental involvement, and community engagement. However, the varying levels of agreement among respondents suggested that while many schools had benefited from NEMIS, some challenges in adoption and utilization still persisted, requiring ongoing support and training.

The study is in agreement with that of Nwankwo (2020) that the use of NEMIS that positively influences community relations, fostering better engagement with the local

community and stakeholders affects management of Schools. The study had sought to determine how the implementation of NEMIS had influenced the efficiency and effectiveness of administrative tasks in the school, the specific examples of how NEMIS had improved or streamlined administrative processes and ways the implementation of NEMIS had influenced the nature of administrative tasks in the school.

All the principals interviewed revealed that;

> *"NEMIS had enhanced effective time and records management in the school. Information sharing had improved and examination processes streamlined. Students' attendance is able to be monitored. Timely information sharing had led to timely decision making which had enhanced efficiency and effectiveness of administrative processes. The use of NEMIS in student data management, human resource data management, financial management, curriculum management, procurement management information system and inventory/ stores management information system all contributed to faster execution of administrative tasks in the schools."*

The study had sought to determine whether there were any challenges or drawbacks associated with the use of NEMIS in administrative tasks. In what ways NEMIS had enhanced the accuracy and reliability of administrative data, and how this affected decision-making processes. Areas where the implementation of NEMIS has resulted in time savings for you and your administrative team and how the respondents rated the impact of NEMIS on the efficiency of administrative tasks in the school. Ten out of eleven principals opined that;

> *"Challenges associated with use of NEMIS in administrative tasks include; technical issues or system downtime, data accuracy and quality concerns and integration issues with other school management systems. Limited access to*

> *administrative data by un-authorized persons limits the ability to tamper with administrative data which enhances its accuracy and reliability. Areas where the implementation of NEMIS has resulted in time savings include student data management, human resource data management, attendance tracking, assessments and examinations tracking, financial management, curriculum management, procurement and stores management. NEMIS had a significant impact on the efficiency of administrative tasks in the school."*

The study had sought to determine whether the use of NEMIS led to a reduction in manual paperwork and administrative workload in the school, whether the respondents were satisfied with the level of automation and streamlining of administrative tasks achieved through NEMIS implementation and whether NEMIS had positively affected the overall effectiveness of school management processes in the institution. All the 11 principals interviewed stated that;

> *"The use of NEMIS led to a reduction in manual paperwork and administrative workload in the school, they were satisfied with the level of automation and streamlining of administrative tasks achieved through NEMIS implementation NEMIS had positively affected the overall effectiveness of school management processes in the institution."*

4.8 Impact of NEMIS on Education Administrators' Professional Development

The fourth objective was to explore the impact of NEMIS on education administrators' professional development. Data collected from HoDs/Teachers using questionnaire was presented in Table 4.7.

Table 4.7: Impact of NEMIS on Education Administrators' Professional Development, and the Professional Development needs of Administrators

		S.A	A	N	D	S.D	Mean	Std. Dev
The NEMIS has provided valuable opportunities for teachers and staff to enhance their skills.	F	31	24	9	7	10	2.3951	1.42020
	%	38.3	29.6	11.1	8.6	12.3		
The NEMIS has contributed to a more personalized and targeted approach to professional growth.	F	34	20	7	11	9	2.2716	1.41432
	%	42.0	24.7	8.6	13.6	11.1		
The NEMIS has positively impacted the overall learning culture among teachers and staff.	F	28	25	10	11	7	2.3086	1.30998
	%	34.6	30.9	12.3	13.6	8.6		
The NEMIS has facilitated the implementation of best practices through professional development.	F	30	17	8	13	13	2.5309	1.51729
	%	37.0	21.0	9.9	16.0	16.0		
The professional development opportunities provided by the school effectively address the utilization of NEMIS for improved school management.	F	28	25	11	8	9	2.3210	1.34003

	%	34.6	30.9	13.6	9.9	11.1		
I believe there is a clear understanding among administrators and teachers of how to use NEMIS effectively for various management tasks.	F	39	16	4	9	13	2.2716	1.54120
	%	48.1	19.8	4.9	11.1	16.0		
The current professional development programs adequately cover the necessary skills and knowledge required to utilize NEMIS optimally.	F	35	18	13	11	4	2.3580	1.53549
	%	43.2	22.2	16.0	13.6	4.9		
Administrators and teachers are encouraged and supported in seeking additional training or resources to enhance their capacity in using NEMIS.	F	28	16	11	12	14	2.1481	1.25610
	%	34.6	19.8	13.6	14.8	17.3		
I am satisfied with the level of professional development offered to administrators and teachers regarding the effective utilization of NEMIS.	F	38	10	13	10	10	2.6049	1.51393
	%	46.9	12.3	16.0	12.3	12.3		
The school regularly assesses the effectiveness of	F	34	21	8	9	9	2.3086	1.47175

professional development strategies aimed at improving NEMIS utilization.								
	%	42.0	25.9	9.9	11.1	11.1		
There are opportunities for administrators and teachers to participate in workshops or webinars focused on advanced NEMIS features and functionalities.	F	27	23	10	8	13	2.1358	1.33934
	%	33.3	28.4	12.3	9.9	16.0		
I believe the school should establish a mentorship program to support teachers and administrators in developing their NEMIS skills.	F	35	13	13	10	10	2.2346	1.38989
	%	43.2	16.0	16.0	12.3	12.3		
Encouraging collaborative learning and knowledge sharing among educators regarding NEMIS usage would be beneficial for capacity enhancement.	F	27	23	10	8	13	2.4691	1.44988
	%	33.3	28.4	12.3	9.9	16.0		
The school should consider partnering with external organizations or experts to provide specialized training in NEMIS utilization	F	41	19	7	10	4	2.3457	1.45052

	%	50.6	23.5	8.6	12.3	4.9

The fourth objective of the study was to explore the impact of NEMIS on the professional development of education administrators in public secondary schools in Nandi North Sub-County. The findings revealed that NEMIS had moderate influence on enhancing professional skills and promoting a culture of continuous learning among administrators and teachers.

Respondents indicated that NEMIS had provided valuable opportunities for skills enhancement, with 38.3% strongly agreeing and 29.6% agreeing, while 21.0% were neutral or disagreed. This suggested that the system offered avenues for administrators and teachers to develop competencies related to school management and data utilization.

About 42.0% of respondents strongly agreed and 24.7% agreed that NEMIS contributed to a more personalized and targeted approach to professional growth, highlighting that the system enabled staff to focus on areas requiring improvement. Similarly, 34.6% strongly agreed and 30.9% agreed that NEMIS had positively influenced the overall learning culture among teachers, promoting knowledge sharing and adoption of best practices.

Regarding facilitation of best practices through professional development, 37.0% strongly agreed and 21.0% agreed that NEMIS supported the implementation of improved administrative and instructional methods. Likewise, 34.6% strongly agreed and 30.9% agreed that the professional development opportunities provided by schools

effectively addressed NEMIS utilization, indicating that training programs were partially aligned with the system's requirements.

The study further revealed that 48.1% strongly agreed and 19.8% agreed that there was a clear understanding among administrators and teachers of how to use NEMIS effectively, though 27.1% expressed neutrality or disagreement. This suggested that while many staff members were confident in their skills, some still faced challenges in optimal system usage.

Respondents also reported that current professional development programs covered necessary skills and knowledge adequately, with 43.2% strongly agreeing and 22.2% agreeing, although a portion indicated gaps in training depth. Opportunities for additional training or resources were less emphasized, with only 34.6% strongly agreeing and 19.8% agreeing that they were encouraged or supported to enhance their capacity in using NEMIS. Satisfaction with the level of professional development was relatively high, with 46.9% strongly agreeing, but only 12.3% agreeing, highlighting that some administrators and teachers desired more comprehensive training. Similarly, 42.0% strongly agreed and 25.9% agreed that schools regularly assessed the effectiveness of professional development strategies, showing that monitoring and evaluation of training programs were partially implemented.

Regarding advanced NEMIS functionalities, only 33.3% strongly agreed and 28.4% agreed that there were opportunities to participate in workshops or webinars. The establishment of mentorship programs was supported by 43.2% strongly agreeing, suggesting that structured guidance could enhance skill development. Encouraging

collaborative learning and knowledge sharing was supported by 33.3% strongly agreeing and 28.4% agreeing, indicating that peer-to-peer learning was recognized as beneficial.Finally, 50.6% of respondents strongly agreed and 23.5% agreed that schools should partner with external organizations or experts to provide specialized training in NEMIS utilization, highlighting the perceived need for external support to strengthen professional capacity.

The findings indicated that NEMIS had moderate but positive effects on administrators' professional development, enhancing skills, promoting a culture of continuous learning, and supporting best practices in school management. However, gaps remained in terms of advanced training opportunities, mentorship programs, and systematic encouragement for skill enhancement, suggesting the need for more structured and targeted professional development interventions. The study agrees with that of Asio et al. (2022) that the professional development opportunities provided by the school effectively addressing the utilization of EMIS for improved school management affects management of Schools. Findings are similar to that of Wamutoro et al. (2022) that the school considering partnering with external organizations or experts to provide specialized training in NEMIS utilization affects management of Schools. Six out of 11 principals interviewed opined that;

> *"Professional development opportunities necessary to enhance the capacity of administrators and teachers in effectively utilizing NEMIS include ICT training to enhance skills on how to use NEMIS. Training and support should be customized around student data management, human resource data management, how to track attendance and assessments and examinations, financial management, curriculum management, procurement, and stores management to meet the*

> *diverse needs of administrators and teachers regarding NEMIS utilization. Ongoing mentoring and peer support enhances adoption of a culture of using NEMIS in all administrative tasks among administrators and teachers."*

The study sought to determine the strategies that can be employed to motivate administrators and teachers to embrace NEMIS and incorporate it effectively into their daily routines. Whether the administrators and teachers would you like to see more training sessions or workshops focused on NEMIS utilization for administrators and teachers in the school. How the respondents rate the impact of current professional development initiatives on NEMIS usage. Whether ongoing support and training are essential for sustained and effective use of NEMIS among administrators and teachers and whether the respondents were satisfied with the current level of professional development opportunities related to NEMIS in the school. All the 11 principals interviewed revealed that;

> *"Government policies and supervision by education officers can motivate administrators and teachers to embrace NEMIS and incorporate it effectively into their daily routines. Administrators and teachers liked to see more training sessions or workshops focused on NEMIS utilization for administrators and teachers in the school. The respondents rate the impact of current professional development initiatives on NEMIS usage as highly effective. Ongoing support and training were essential for sustained and effective use of NEMIS among administrators and teachers and the respondents were satisfied with the current level of professional development opportunities related to NEMIS in the school."*

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter covers summary of findings, conclusion recommendations and suggestions for further research.

5.2 Summary

5.2.1 The Current State of National Education Management Information Systems (EMIS) Implementation in Public Secondary Schools

The first objective of the study was to examine the current state of NEMIS implementation in public secondary schools in Nandi North Sub-County. The findings revealed that the NEMIS system had been implemented and was operational in the schools, although the level of utilization varied across institutions. Most schools effectively used NEMIS for student data management**,** including admissions, enrollment, and maintaining student profiles. The system was also widely utilized for teacher data management, such as recording attendance and tracking professional development activities. Furthermore, NEMIS was employed in monitoring **s**tudent academic performance and assessments, enabling schools to maintain accurate and timely records.

The study also found that schools used NEMIS to manage curriculum and subjects taught**,** ensuring that instructional planning and delivery were systematically organized. In addition, NEMIS supported the generation of various reports and data analyses**,** which facilitated evidence-based decision-making in school management. Teachers and

administrators had received training on NEMIS usage, including updates on new features and functionalities, which enhanced their ability to operate the system effectively.

Moreover, schools had integrated NEMIS data with other school management systems**,** improving the overall coordination and flow of information. Overall, the implementation of NEMIS had positively impacted school management processes, contributing to greater efficiency, accuracy, and organization in administrative and academic functions. The findings indicated that while the system had been broadly adopted, its effectiveness depended on the level of training, integration, and consistent usage across different schools.

5.2.2 Impact of NEMIS on the Efficiency and Effectiveness of Administrative Tasks in Public Secondary Schools

The second objective of the study was to investigate the impact of NEMIS on the efficiency and effectiveness of administrative tasks in public secondary schools in Nandi North Sub-County. The findings revealed that the implementation of NEMIS had streamlined administrative processes, reducing the complexity and redundancy of routine tasks. The system had minimized the time and effort required for administrative activities, allowing staff to focus on more critical management functions.

NEMIS had also improved the accuracy and reliability of administrative data, ensuring that records related to students, teachers, and school operations were consistently maintained. The system enhanced the accessibility of real-time data**,** which supported timely and informed decision-making by school administrators. Moreover, the use of

NEMIS had fostered better coordination and communication among administrative departments, promoting efficient workflow and reducing gaps in information sharing. The study further found that NEMIS had improved the efficiency of student enrollment and admission processes**,** allowing schools to manage admissions more effectively and with fewer errors. The system had positively influenced financial management, including budget tracking, resource allocation, and financial reporting, providing administrators with the tools to monitor and optimize school resources.

Additionally, NEMIS-generated reports and data analyses were valuable in supporting administrative decisions, enabling evidence-based planning and evaluation. The system also enhanced teacher-related administrative tasks, such as attendance tracking and performance evaluations, contributing to more effective human resource management. Overall, the findings indicated that NEMIS had **s**ignificantly improved the efficiency and effectiveness of administrative tasks in the schools, strengthening organizational processes and supporting better management outcomes.

5.2.3 Impact of NEMIS on Management Practices in Public Secondary Schools

The third objective of the study was to explore the impact of NEMIS on management practices in public secondary schools in Nandi North Sub-County. The findings revealed that NEMIS had significantly improved various aspects of school management, contributing to more organized and efficient operations.

The system had facilitated student admission and registration, making these processes more streamlined and reducing errors associated with manual handling. NEMIS had also

enhanced staff recruitment and management, enabling schools to make more effective hiring decisions and conduct thorough performance evaluations. The implementation of NEMIS had improved the efficiency of timetable creation and management, ensuring better coordination of classes and lesson schedules.

In terms of student discipline management, NEMIS had positively influenced the enforcement of school rules and policies, supporting a structured and orderly learning environment. The system had also been effective in school finance and budgeting processes, resulting in improved resource allocation, accurate financial reporting, and better oversight of school expenditures.

NEMIS had contributed to the maintenance and upkeep of school infrastructure, ensuring that facilities were properly managed and functional. The system had also played a role in enhancing student welfare and support services, promoting a more supportive and responsive learning environment. Additionally, NEMIS had improved parent-teacher communication and encouraged greater parental involvement in school activities, strengthening home-school collaboration.

The study further revealed that NEMIS had effectively coordinated examination processes, including both national and internal school assessments. It had supported planning and organization of school events and extracurricular activities, ensuring smooth execution and participation. Moreover, the system had positively impacted safety and security measures, contributing to a safer environment for students and staff. Finally, NEMIS had improved the maintenance of accurate school records, facilitated efficient reporting, ensured compliance with government and regulatory requirements, and

fostered better community relations, enabling schools to engage more effectively with local stakeholders. Overall, the findings indicated that NEMIS had a comprehensive and positive influence on management practices, supporting more effective, efficient, and accountable school administration.

5.2.4 Impact of NEMIS on Education Administrators' Professional Development

The fourth objective of the study was to examine the impact of NEMIS on the professional development of education administrators in public secondary schools in Nandi North Sub-County. The findings revealed that NEMIS had provided valuable opportunities for teachers and staff to enhance their professional skills, contributing to overall capacity building in school management. The system had facilitated a more personalized and targeted approach to professional growth, allowing administrators and teachers to focus on areas that required improvement and specialization. NEMIS had positively influenced the learning culture among staff, encouraging continuous learning and the adoption of best practices in school administration. The professional development programs offered by schools had been effective in addressing the utilization of NEMIS for improved school management, ensuring that staff acquired essential skills for managing administrative and academic tasks. Respondents indicated that there was a clear understanding among administrators and teachers of how to use NEMIS effectively, although some still required additional support to optimize system usage. The current professional development initiatives had adequately covered the necessary skills and knowledge required for NEMIS utilization, while administrators and teachers were also encouraged to seek additional training or resources to enhance their capacity further.

The study found that schools regularly assessed the effectiveness of professional development strategies, ensuring that training programs aligned with practical needs. Opportunities for participation in workshops or webinars focused on advanced NEMIS features had been provided, supporting skill enhancement and capacity building. Respondents emphasized the need for schools to establish mentorship programs, which would guide teachers and administrators in developing their NEMIS skills effectively. Furthermore, encouraging collaborative learning and knowledge sharing among staff was viewed as beneficial for professional growth, allowing educators to learn from one another's experiences. Schools were also encouraged to partner with external organizations or experts to provide specialized training in NEMIS utilization, thereby strengthening staff competencies and promoting effective use of the system. The findings indicated that NEMIS had a positive and significant impact on the professional development of education administrators, enhancing skills, promoting a culture of continuous learning, and supporting the effective management of school operations.

5.3 Conclusions

On the current state of National Education Management Information Systems (EMIS) implementation in public secondary schools, the study concluded that the NEMIS system was fully implemented and operational in the schools and the schools effectively used NEMIS for student data management, including admissions, enrolment, and student profiles. The NEMIS was widely used for teacher data management, such as attendance records and professional development tracking. The NEMIS system was effectively utilized for tracking student academic performance and assessments. The NEMIS was used in the schools to manage curriculum and subjects taught in an effective manner.

NEMIS was actively used for generating various reports and data analyses to support decision-making processes in school management.

On the impact of NEMIS on the efficiency and effectiveness of administrative tasks in public secondary schools, the study concluded that implementation of NEMIS streamlines administrative processes in the schools. NEMIS reduces the time and effort required for administrative tasks. The use of NEMIS leads to better coordination and communication among different administrative departments. NEMIS improves the efficiency of student enrollment and admission processes in the schools. The implementation of NEMIS enhances budget tracking and resource allocation. NEMIS-generated reports and data analyses are valuable in supporting administrative decision-making.

On the impact of NEMIS on management practices in public secondary schools, the study concluded that the implementation of NEMIS improves the efficiency of curriculum management processes in the schools. NEMIS facilitates student admission and registration process, making it more streamlined and organized. The use of NEMIS contributes to better staff recruitment and management, which leads to more effective hiring decisions and performance evaluations. NEMIS improves the efficiency of timetable creation and management in the schools. The implementation of NEMIS enhances student discipline management and enforcement of school rules and policies. NEMIS effectively facilitates school finance and budgeting processes, which results in better resource allocation and financial reporting. The use of NEMIS improves school infrastructure maintenance and upkeep. NEMIS enhances student welfare and support services in the schools.

On the impact of NEMIS on education administrators' professional development, and the professional development needs of administrators and teachers in utilizing NEMIS effectively in public secondary schools, the study concluded that NEMIS provide valuable opportunities for teachers and staff to enhance their skills. The NEMIS contributes to a more personalized and targeted approach to professional growth. The NEMIS positively impacts the overall learning culture among teachers and staffs. The NEMIS facilitates the implementation of best practices through professional development. Professional development opportunities provided by the school effectively address the utilization of NEMIS for improved school management. There is clear understanding among administrators and teachers of how to use NEMIS effectively for various management tasks. The current professional development programs adequately cover the necessary skills and knowledge required to utilize NEMIS optimally. Administrators and teachers are encouraged and supported in seeking additional training or resources to enhance their capacity in using NEMIS.

5.4 Recommendations

The researcher recommended the following; First, regarding the current state of NEMIS implementation, the study recommended that schools should adopt a more strategic and standardized approach to NEMIS integration across all administrative and academic functions. This could include the development of school-specific implementation guidelines to ensure consistent use of the system for student data management, teacher records, curriculum planning, and reporting.

Second, with respect to the impact of NEMIS on administrative efficiency, the study recommended that schools explore automated decision-support tools within NEMIS to further streamline routine administrative tasks, such as attendance tracking, performance evaluation, and student enrollment. Administrators should also be encouraged to use NEMIS-generated analytics proactively to identify operational bottlenecks and optimize resource allocation.

Third, in terms of management practices, the study recommended that schools leverage NEMIS to strengthen strategic planning and organizational oversight. For instance, the system could be used to enhance the monitoring of student discipline, academic progress, and staff performance through integrated data analytics.

Finally, regarding the professional development of education administrators, the study recommended that schools adopt a more innovative and continuous professional development model focused on NEMIS utilization. This could involve structured workshops, online courses, and mentorship programs that emphasize advanced functionalities, data interpretation, and practical applications for decision-making.

5.5 Suggestions for Further Research

Further research should be conducted on National education management information system (NEMIS), now KEMIS) and its effect in management of Public Secondary Schools in other counties in Kenya. Other studies should be conducted on NEMIS and its effect in management of private Secondary Schools in Kenya. The studies should be able to adopt other indicators of NEMIS besides the ones adopted in this study. The study should advance their analysis to include inferential statistics. Further studies should

determine other determinants of management of public secondary schools in the same county and other counties in Kenya.

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APPENDICES

APPENDIX I: QUESTIONNAIRE FOR ADMINISTRATORS (HoDS/ Deputy Head TEACHERS)

Please indicate the correct option by putting a tick or giving a brief explanation. Use the spaces provided.

SECTION A: BIO DATA

1. Gender Male [ ] Female [ ]

2. Age Up to 24 years [ ] 25-35 years [ ] 36-44 years [ ]45 to 55 years [ ] Over 55 years[ ]

3. Highest level of education Diploma [ ] Degree [ ] Masters [ ] PhD [ ] Other (please specify)

4. Administrative experience less than 5 [ ] 6-10 years [ ] 11-15 years [ ] 16-20 years [ ] more than 20 years [ ]

SCHOOL DATA

1. School category national [ ] extra county [ ] county [ ] subcounty [ ]

2.Type of school mixed school [ ] boys [ ] Girls [ ]

3.School population less than 500 [ ] 501-700 [ ] 701-900[ ]More than 900[ ]

SECTION B: RESEARCH QUESTION DATA

Information on level of education management information systems (EMIS) implementation in public secondary schools. Tick (√) where appropriate "SD= Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree"

	Question	**SD**	**D**	**N**	**A**	**SA**
1	The EMIS system is fully implemented and operational in our school.					
2	The school effectively uses EMIS for student data management, including admissions, enrolment, and student profiles.					
3	EMIS is widely utilized for teacher data management, such as attendance records and professional development tracking.					
4	The EMIS system is effectively utilized for tracking student academic performance and assessments.					
6	The school utilizes EMIS to manage curriculum and Subjects taught effectively.					
7	EMIS is actively used for generating various reports and data analyses to support decision-making processes in school management.					
8	Teachers and administrators receive adequate training on EMIS usage, including regular updates on new features and functionalities.					
9	The school effectively integrates EMIS data with other school management systems (e.g., Learning Management Systems or Student Information Systems).					

10	Overall, the implementation of EMIS has positively impacted school management processes in our institution.					

2. How does the implementation of EMIS impact the efficiency and effectiveness of administrative tasks, in public secondary schools? Tick (√) where appropriate "SD= Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree."

	Question	**SD**	**D**	**N**	**A**	**SA**
1	The implementation of EMIS has streamlined administrative processes in our school.					
2	EMIS has reduced the time and effort required for administrative tasks.					
3	EMIS has improved the accuracy and reliability of administrative data in our school.					
4	EMIS has enhanced the accessibility of real-time data for administrative decision-making.					
5	The use of EMIS has led to better coordination and communication among different administrative departments.					
6	EMIS has improved the efficiency of student enrollment and admission processes in our school.					
7	The implementation of EMIS has positively influenced financial management tasks, such as budget tracking and resource allocation.					
8	EMIS-generated reports and data analyses have been valuable in supporting administrative decision-making.					
9	The use of EMIS has improved administrative efficiency in					

	handling teacher-related tasks, such as attendance tracking and performance evaluations.					
10	Overall, the implementation of EMIS has significantly enhanced the effectiveness of administrative tasks in our school.					

3. How does the implementation of Education Management Information Systems (EMIS) influence management practices in public secondary schools? Tick (√) where appropriate "SD= Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree."

	Question	**SD**	**D**	**N**	**A**	**SA**
1.	The implementation of EMIS has improved the efficiency of curriculum management processes in our school.					
2.	EMIS has facilitated the student admission and registration process, making it more streamlined and organized.					
3.	The use of EMIS has contributed to better staff recruitment and management, leading to more effective hiring decisions and performance evaluations.					
4	EMIS has significantly improved the efficiency of timetable creation and management in our school.					
5	The implementation of EMIS has positively influenced student discipline management and enforcement of school rules and policies.					
6	EMIS has been effective in facilitating school finance and budgeting processes, resulting in better resource allocation and financial reporting.					
7	The use of EMIS has contributed to improved school infrastructure maintenance and upkeep.					
8	EMIS has played a significant role in enhancing student					

	welfare and support services in our school.					
9	The implementation of EMIS has improved parent-teacher communication and increased parental involvement in school activities					
10	EMIS has effectively coordinated examination processes, including national and internal school examinations.					
11	The use of EMIS has contributed to better planning and organization of school events and extracurricular activities.					
12	EMIS has positively impacted safety and security measures in our school, leading to a safer environment for students and staff.					
13	The implementation of EMIS has improved the maintenance of accurate school records and efficient reporting.					
14	EMIS has contributed to better compliance with government and regulatory requirements in our school.					
15	The use of EMIS has positively influenced community relations, fostering better engagement with the local community and stakeholders.					

4.Explore the impact of EMIS on education administrators' professional development. Tick (√) where appropriate "SD= Strongly Disagree, D=Disagree,

N=Neutral, A=Agree, SA=Strongly Agree."

	Question	**SD**	**D**	**N**	**A**	**SA**
1	The EMIS has provided valuable opportunities for teachers and staff to enhance their skills.					
2	The EMIS has contributed to a more personalized and targeted approach to professional growth.					
3	The EMIS has positively impacted the overall learning culture among teachers and staff.					
4	The EMIS has facilitated the implementation of best practices through professional development.					
5	The professional development opportunities provided by the school effectively address the utilization of EMIS for improved school management.					
6	I believe there is a clear understanding among administrators and teachers of how to use EMIS effectively for various management tasks.					
7	The current professional development programs adequately cover the necessary skills and knowledge required to utilize EMIS optimally.					
8	Administrators and teachers are encouraged and supported in seeking additional training or resources to enhance their capacity in using EMIS.					
9	I am satisfied with the level of professional development offered to administrators and teachers regarding the effective utilization of EMIS.					
10	The school regularly assesses the effectiveness of professional development strategies aimed at improving EMIS utilization.					

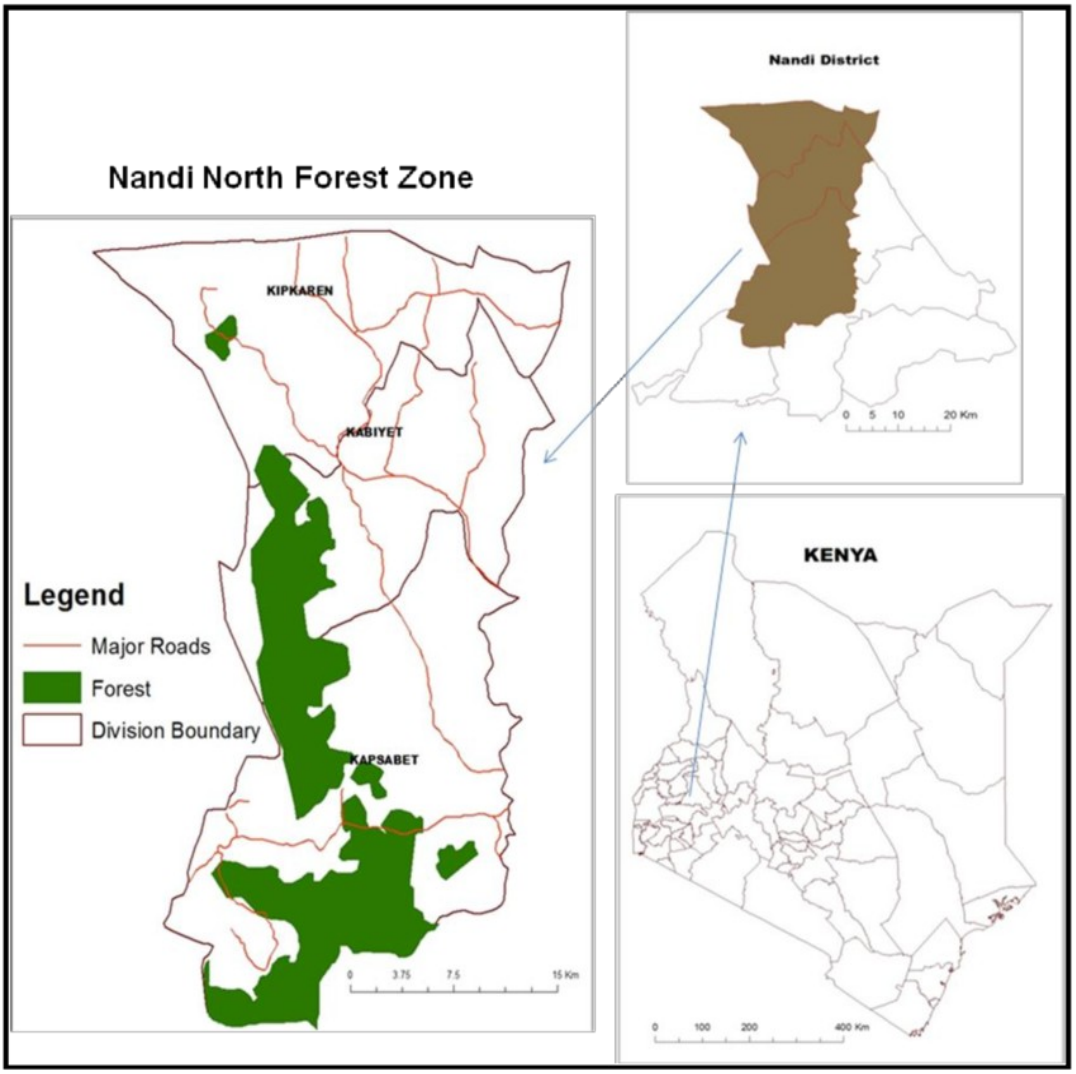
11	There are opportunities for administrators and teachers to participate in workshops or webinars focused on advanced EMIS features and functionalities.					
12	I believe the school should establish a mentorship program to support teachers and administrators in developing their EMIS skills.					
13	Encouraging collaborative learning and knowledge sharing among educators regarding EMIS usage would be beneficial for capacity enhancement.					
14	The school should consider partnering with external organizations or experts to provide specialized training in EMIS utilization.					

APPENDIX II: PRINCIPALS/DEPUTY PRINCIPALS INTERVIEW GUIDE

1. On a scale of 1 to 5, with 1 being "Not Implemented" and 5 being "Fully Implemented," how would you rate the level of National Education Management Information Systems (NEMIS) implementation in your school?
2. How extensively is NEMIS utilized in various school management processes? (e.g., student data management, attendance tracking, assessment analysis, etc.)
3. What are the main components of NEMIS that you find most beneficial for school management?
4. How has the implementation of NEMIS influenced the efficiency and effectiveness of administrative tasks in your school?

5. In what ways has NEMIS changed the approach to decision-making and planning for administrative tasks in your school?
6. What professional development opportunities do you believe are necessary to enhance the capacity of administrators and teachers in effectively utilizing NEMIS
7. In your view, what strategies can be employed to motivate administrators and teachers to embrace EMIS and incorporate it effectively into their daily routines?
8. On a scale of 1 to 10, with 1 being "Not Effective" and 10 being "Highly Effective," how would you rate the impact of current professional development initiatives on NEMIS usage?

APPENDIX III: MAP OF NANDI



APPENDIX IV: CERTIFICATE OF PLAGIARISM

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