

Management Information Systems' Role and Effects on School Administration: A Review

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ABSTRACT

This paper presents a comprehensive review of literature exploring the role and effects of Management Information Systems (MIS) in school administration. As educational institutions increasingly rely on technology to modernize and rationalize administrative processes, the integration of MIS has become vital. It assists management at different levels in making well-informed strategic decisions. The review highlights the multifaceted benefits of MIS, including enhanced decision-making, improved efficiency, and resource optimization within educational settings. Additionally, it examines the challenges and considerations associated with implementing MIS in schools, such as data security and privacy concerns, as well as the need for ongoing staff training and support. Through synthesizing existing research, this review underscores the key role of MIS in shaping modern school administration practices and offers insights for future research directions. Finally, the study offered that school administrators should keep in mind for effective future MIS policy and decision making.

Keywords: Decision making, Effects, Management Information System, Role, School Administration.

Introduction

Education establishments in the digital era are depending more and more on Management Information Systems (MIS) to modernize administrative procedures and increase productivity. These systems are crucial to the management of many facets of school administration, from resource allocation to student information management. MIS's function and impact on school administration are briefly discussed in this article, which draws from current studies and advancements in the subject. As the group Helal et al. (2021) noted when they saw that Management Information System (MIS) had become a necessary component of everyday life, information is highly vital in modern environment. The Educational Management Information System (EMIS) helps a school grows while also promoting it within the educational environment. The idea of MIS is a systematic and scientific way to put together internal and external data into coherent and practical corporate information (Moorthy, 2019). To help with control and

decision-making, it is a group of networked technologies that collect, organize, process, store, and distribute data (Gehlawat, 2014). A management information system (MIS) is a device that collects, assesses, and manipulates raw data to provide meaningful information that is subsequently transmitted to the user in the required format. Due to its practicality and efficiency, information technology (IT) is being utilized in school administration more and more (Shah, 2014). Data collecting uses IT, which consists of computers and telecom networks. Computers are thought to have a major positive impact on education, learning, and school management. Schools use MIS to help with a range of administrative duties, including scheduling, staff and resource allocation, financial management, reporting, assessment records, and attendance tracking. It is a system that provides information useful for effectively managing institutions. It aids in managing concerns related to corporate decision-making (Moorthy, 2019).

Similarly, EMIS is a system that supports planning, monitoring, and management at all levels of the educational system by integrating, processing, disseminating, and maintaining data and information. EMIS is a central store for data that may be used to collect, organize, and store data as well as process, analyze, and provide a variety of reports (Balram, 2018). With its user-friendly layout and features that appropriately get them ready for precise resource and personnel planning, school mapping, and crucial analytics for better decision-making. EMIS contains vital student data, such as exam results, personal information, and library data (Gehlawat, 2014). By giving decision makers access to factual information, EMIS enhances and supports the school's overall decision-making process (Gehlawat, 2014). Thus, it is essential to recognize the value of EMIS in schools and ensure its effective implementation. Therefore, EMIS are useful for managing how schools operate overall.

Despite all of EMIS's benefits, the educational system continues to encounter a number of challenges. Mumtaz and Kirkman, as cited in Shah (2014), identify a number of obstacles to the successful adoption of EMIS, such as low ICT resources, staff members' lack of confidence and motivation, time restrictions, and inadequate training. The lack of software that is simple to use for assessing test results at the school level and administrators' lack of familiarity with ICT-based management tools are further barriers that prohibit ICT from being used in educational management (Shah, 2014). Similar to this, Nagar, Rahoo, Rehman, and Arshad (2018) state that the following are barriers to the use of EMIS in school administration: schools do not have access to the internet, a computer lab,

technical assistance, trained software developers, or the capacity to buy school management software. Therefore, the aim of this study is to explore the role and effects of management information systems in school administration. A school that adopts the effective MIS will gain from this article, as would other stakeholders and educational institutions. Furthermore, this study could be useful for future reference for educators, researchers, students, and other interested parties, or it could serve as a center of discussion for lectures and knowledge exchange.

Literature Review

Management Information Systems (MIS) play a crucial role in modern school administration, facilitating efficient data management, decision-making processes, and overall organizational effectiveness. Here's a brief review of literature on this topic with some recent references: According to Nwakesiri (2022), EMIS relates to information on various educational activities as well as the educational system in a particular country. To modernize the educational process in their application, Sridevy (2020) used an education management information system. After developing and testing an example, the author found that it was a helpful tool for deciding how best to administer and design the curriculum.

There has been much research done on the incorporation of MIS into school administration. Research by authors like Adu et al. (2020) and Mukasa et al. (2021) emphasize the value of MIS in streamlining administrative procedures, boosting communication, and facilitating better decision-making in educational settings. It has been demonstrated that MIS has a major impact on a number of school administrative procedures. The use of MIS increases administrative efficiency by automating repetitive operations including resource management, attendance tracking, and student record-keeping, according to research by Li and Chen (2019). MIS gives administrators access to accurate and timely data so they can make decisions. Research by Rahman et al. (2020) and Sharma and Jindal (2018) show how MIS supports resource allocation, performance evaluation, and strategic planning, all of which contribute to better educational outcomes.

Despite its benefits, the implementation of MIS in school administration is not without challenges. Issues such as data security, infrastructure limitations, and resistance to change have been discussed in the literature (Adeyinka, et al., 2018). But academics also point out ways to overcome these obstacles by developing capacity, engaging stakeholders, and exercising good leadership (Chisenga &

Wang, 2021). Emerging trends and potential future paths in MIS for school administration have been the subject of recent studies. The potential of artificial intelligence, data analytics, and cloud computing to revolutionize school management practices and enable more flexible and data-driven decision-making processes is covered in research by Alves et al. (2022).

From the discussion of above literatures, though management information systems provide decision makers with information, they also facilitate and improve the decision-making process as a whole. Within an educational organization, EMIS also improves work performance teaching and non-teaching staffs. At the highest level of management, MIS offers the tools necessary to carry out, oversee, and regulate institutional activities as well as disseminate information to leaders, management, supervisors, staff, and clients. At lower levels of management, it helps the board and management make strategic decisions, also known as long-term or top-down decisions. These studies collectively highlight the crucial role of MIS in school administration and provide insights into its implications, challenges, and future prospect.

Method and Process

More accurately, this study employed a survey of the literature to understand the concept, roles, effects and implications of MIS on school administration and associated subjects. In order to inform the study's aims, this entails synthesizing information from academic books, reports, articles, journals, and other pertinent sources. Secondary data analysis techniques are used in this study. To find recurring themes and patterns in the chosen literature, data extraction and synthesis are carried out. In order to investigate relevant research on the roles and effects of Management Information Systems (MIS) in school administration, this review takes a methodical approach. Search terms from 2010 to 2022 such as management information systems, its roles, effects, and school administration yield significant studies.

Result and Discussion

The present study puts into view the following concepts in light of the evaluated literature. This section's material provides an overview of MIS, discusses how MIS affects educational administration, and explains how MIS contributes to the success of the institution. The main findings are presented in a descriptive manner below:

Perspectives on Management Information System (MIS)

The organization's mind is its management. Management is referred to as a creative, participatory, and cooperative action. A computerized system known as a MIS gives managers the capabilities they need to effectively arrange, assess, and handle information inside an organization. MIS refers to an organization's use of technology for data management and organization in support of operational effectiveness and decision-making. "MIS refer to the use of technology, people, and processes to gather, process, store, and distribute information to support decision-making and control in an organization" (Laudon, and Laudon, 2020). A management information system consists of manual processes and/or computer-based processing that generates timely, accurate, and valuable information. In an educational setting that is changing quickly, this information must assist in management decision making.

Gehlawat (2014) defines MIS as the study of how individuals, teams, and organizations evaluate, plan, execute, supervise, and utilize information-generating systems to improve the effectiveness and efficiency of decision-making. According to Moorty (2019), MIS is a collection of controls that are employed as a tool for decision-making by upper management. The primary goal of management information systems (MIS) is to facilitate decision-making in any business by collecting, analyzing, storing, and sending pertinent data (Laudon & Laudon, 2020). According to the criteria given above, MIS is a system that makes use of the data needed for decision-making at all organizational levels, including tactical, strategic, and operational.

Information Systems (IS)

An information system is a grouping of people, technology, processes, procedures, and activities that are coordinated to obtain important linked data and information. An information system is a group of interconnected components that collect, process, store, and distribute data in addition to providing a feedback mechanism to achieve a goal (Laudon & Laudon, 2020). Information systems (IS) are the people, procedures, and technological components that cooperate to handle, process, and disseminate information inside a company. In order to enable decision-making, coordination, control, analysis, and visualization inside an organization, these systems are made to gather, store, analyze, and distribute information (Laudon & Laudon, 2020). They state key components of an

information system as hardware, software, data, procedures, people and communication networks.

Role of Management Information System on School Administration

Educational organization information system needs to gather, examine, and present data in a way that makes it accessible as the foundation for specialist knowledge when making decisions. After decisions are taken, we need to be communicated to the people who will carry them out, and the operation's success or failure needs to be tracked. With the use of technology, choices can now be carried out automatically more often, maximizing organizational efficiency in the process of achieving goals. Furthermore, management information systems are essential for enhancing decision-making and implementing strategic plans that enhance school operations, claim Memon et al. (2021). Nonetheless, a study discovered that the management information system portal presented a number of basic problems and inefficiencies for student leaders, teachers, and administrative personnel (Ampofo, 2020). In addition, Sari and Priantinah (2019) emphasized that businesses succeed when they employ MIS to help them obtain high-quality data.

One of the primary responsibilities of management at all managerial and supervisory levels in educational institute, as well as in daily human interactions, is making decisions. Within an organization, individuals at lower levels make daily decisions based on responsibilities allocated to them, while senior administrators or managers oversee teams or groups through strategic planning and decision-making. As a result, information needs to differ according to level. As a result, in addition to assisting top managers in making strategic decisions, middle managers can also use management information systems to gather data for regular or everyday decision-making (Sari & Priantinah, 2019). They further state that the information system generates data to meet the requirements of the operations and management subsystems as well as those of parties outside the institutions. This data represents the organization's internal operations, competitive moves, social and environmental interests, as well as prevailing political and financial patterns. MIS facilitates the organization's access to vital data. MIS play a crucial role in modern school administration by integrating technology and data management to rationalize processes, enhance decision-making, and improve overall efficiency of the school. Here's an overview of the role of MIS in school administration:

Data Management

Mass data about students, faculty, budgets, facilities, and academic performance is gathered, stored, and managed by MIS. By guaranteeing data security, correctness, and integrity, it lowers the possibility of mistakes and assures adherence to legal standards (Laudon & Laudon, 2021).

Automating Tasks in Administration

Routine administrative functions including scheduling, grading, payroll management and attendance tracking are automated using MIS. Because of this automation, administrative staff members have more time to devote to higher-value tasks (Taylor & Kroth, 2020).

Allocation of Resources

School administrators can make well-informed decisions about resource allocation with the help of MIS, which offers insights into demand and resource utilization. In order to enhance effectiveness and student outcomes, it aids in the optimal allocation of resources, personnel, and facilities (Taylor & Kroth, 2020)

Improved Interaction and Cooperation

MIS makes it easier for stakeholders—administrators, educators, students, parents, and outside parties—to collaborate and communicate with one another. Online portals, chat programs, and email integration are examples of features that facilitate easy contact and promote a cooperative learning environment (Laudon & Laudon, 2021; Wagner, 2016).

Student Performance Analysis

With the help of MIS, administrators and teachers can monitor and evaluate students' progress over time. By adjusting training to meet the needs of each individual student, it supports personalized learning efforts, identifies students who are at-risk, and offers insightful information about areas that require development (Oz, 2018).

Decision Support

Strategic planning and decision-making are aided by the timely and pertinent information that Decision Support MIS gives decision-makers. Administrators can track important performance metrics, spot patterns, and project future results with the use of dashboards, reporting tools, and data analytics (Laudon & Laudon, 2021).

Parental Engagement

By giving parents access to up-to-date information about their child's attendance, academic standing, and extracurricular activities, MIS encourages parental engagement. Parents can remain updated and active in their child's education using parent portals and smartphone apps (Oz, 2018).

Reports from Administration

For both internal and external stakeholders, such as funding organizations, accrediting boards, and regulatory authorities, MIS produces a range of reports. These studies support the claims made about program efficacy, accountability, and compliance (Laudon & Laudon, 2021).

Regular Enhancement

Through the support of data-driven decision-making and performance monitoring, MIS helps schools cultivate a continuous improvement culture. Administrators are able to pinpoint areas in need of development, carry out evidence-based initiatives, and monitor the results over time (Oz, 2018).

Connectivity to Learning Management Systems (LMS)

Data interchange between administrative and instructional systems is made possible by platform integration between MIS and LMS. By fusing academic data with administrative procedures, this integration facilitates comprehensive student management (Wagner, 2016).

Student Information System

MIS facilitates the efficient management of student data, including enrollment, attendance records, academic performance, and disciplinary actions. By centralizing this information, administrators can easily access and analyze data to make informed decisions regarding student support and interventions.

Effects of Management Information System on School Administration

MIS tackles a number of management-related concerns and significantly improves administrators' or managers' competitiveness and effectiveness in the decision-making process (Nath & Badgujar, 2013). The data generated by MIS satisfies a large number of the decision-making needs that educators and school administrators have on a daily basis. High-quality data and timely information are necessary for making wise judgments. Administrators and managers acquire

power and the organization thrives when information technologies are employed to enhance decision-making in school administration (Namani, 2010).

According to Bojte (2019), an accurate, dynamic, and timely dataset that can be used to monitor and evaluate strategies is guaranteed to school administrators by a well-designed and implemented EMIS. EMIS provides policymakers with data interpretation as well, which is an essential tool for obtaining insights for informed decision-making. According to Nwakesiri (2022), EMIS is concerned with information about various educational practices as well as the educational system in a certain country. In order to streamline the educational process, Sridevy (2020) included an education management information system in their application. The advantages of high-quality decision-making include shorter decision-making cycles, improved activity budget management, resource allocation, improved activity monitoring, and higher-quality institutional decisions (Caniels & Bakens, 2012).

The quality of information output is closely related to the technical and service components of the system, or system quality. Information quality and system quality are positively correlated (Gorla, Somers & Wong, 2010). Chen (2010) provided evidence to support the claim that there is a significant correlation between employees' perceptions of system quality and how valuable they find e-learning systems.

Effects of management information system on school administration are as follows:

Efficient Data Management

The management of personnel information, financial data, student records, and other administrative activities is made easier by information technology. Better organization and resource utilization result from this efficiency (Machado & Davim, 2019).

Enhanced Interaction

Communication between a variety of stakeholders, including administrators, parents, instructors, and students, is facilitated by information systems. This improves decision-making, feedback-exchange, and teamwork (Anderson, 2018).

Improved Ability to Make Decisions

Information system administrators can access data analytics technologies that give them insights into student performance, resource allocation, and operational

effectiveness. Making educated decisions to enhance educational results is made possible by this (Luo, Yue, & Gao, 2019).

Personalized Education

Information systems facilitate customized learning by monitoring each student's progress, determining their learning requirements, and suggesting educational materials that are specifically suited to them. Various student needs and learning styles are accommodated by this adaptable method (Hwang & Wu, 2019).

Resource Optimization

Information systems assist in optimizing resource allocation by analyzing utilization patterns, identifying areas of improvement, and aligning resources with educational goals. This leads to cost savings and improved resource efficiency (Oliveira, Martins & Espadanal, 2019).

Enhanced Effectiveness

MIS decreases administrative workload and errors by centralizing data management and automating regular processes. Administrators can now devote more time and funds to instructional programs and strategic planning.

Increased Responsibility

More responsibility among stakeholders, including as administrators, instructors, and students, is facilitated by the transparency and accountability that MIS fosters. Evaluation is made easier and a continuous improvement culture is fostered when procedures and results are well documented.

Enhanced Academic Performance

MIS help to improve student outcomes by promoting early intervention techniques and tailored learning initiatives. Teachers can more successfully identify at-risk pupils, offer focused support, and monitor progress when they have timely access to student data.

Conclusion

Management Information Systems (MIS) play a vital role in modernizing and optimizing school administration processes. Effective MIS can improve student results, accountability, and efficiency in educational institutions. To fully utilize these systems' capabilities, administrators must keep up with the most recent advancements and industry best practices. Similar to this, this system is essential to educational institutions since it provides administrators with up-to-date,

trustworthy information to aid in their decision-making. While data privacy, storage, utilization, and management challenges may arise for educational institutions, some have already tackled these problems and are utilizing their solutions as a template for future adaptation. Proponents of the review pointed out certain factors that are crucial to the school management information system. In addition to the infrastructure, technological concepts (such the operating system and internet), and system administrators, they also include the government, parties associated with the school, administrators, teachers, and students. The study's conclusion is that in order to enhance administrative decision-making processes, a suitable MIS should be available. The overall assessment of the literature demonstrates that ICT use positively affects educational management. In light of the findings, the local government should support efforts to inform teachers, administrators, and the general public on the importance of MIS. The Government should routinely assist in setting up conferences, seminars, and training sessions on ICT-related topics. Similarly, the Government ought to assist in the acquisition of computers and other software required for EMIS, in addition to hiring qualified ICT personnel who will assist in educating administrators and educators on the program's use. It has been said that since nothing is possible without it, careful school planning is essential to the success of information system.

References

- Adeyinka, T., et al. (2018). Challenges and opportunities of management information system in tertiary institutions: A case study of an ongoing private University in Ogun State, Nigeria. *Covenant Journal of Business & Social Sciences*, 9(1), 45-59.
- Adu, E. O., et al. (2020). The role of management information systems (MIS) in enhancing academic performance of students in tertiary institutions. *International Journal of Innovative Research and Advanced Studies*, 7(1), 25-30.
- Alves, C. L., et al. (2022). Trends and future directions of management information systems in higher education. *Information Systems Management*, 39(1), 14-26.
- Ampofo, J. A. (2020). Challenges of student management information system (MIS) in Ghana: A case study of University for Development Studies, Wa Campus. *International Journal of Management & Entrepreneurship Research*, 2(5), 332-343. <https://doi.org/10.51594/ijmer.v2i5.167>

- Anderson, S. E. (2018). The impact of digital tools on student writing and how writing is taught in schools. *Educational Media International*, 55(3), 161-174. doi:10.1080/09523987.2018.1514860.
- Balram, K. (2018). Role of MIS in education sector. Retrieved from www.iitms.co.in on 20/02/20 Essays, UK. Management information systems (MIS) in schools. Retrieved 25th February, 2020. From <https://www.ukessays.com/essays/education/school-management-informationsystems-in-primary-schools.php?vref=1>
- Bojte, D. (2020). Mastering the skills gap at systemic level – The education management information system: A key element for an effective digital transformation in education. *Review of International Comparative Management*. <https://doi.org/10.24818/rmci.2019.2.131>.
- Caniels, M. C., & Bakens, R. J. (2012). The effects of project management information systems on decision making in a multi project environment. *International Journal of Project Management*, 30 (2), 162-17
- Chen, H. (2010). Linking employees' e-learning system use to their overall job outcomes: An empirical study based on the IS success model. *Computers & Education*, 55, 1628-1639.
- Chisenga, J., & Wang, Q. (2021). Management Information Systems and Higher Education Administration in Zambia: A Case of Selected Universities in Lusaka Province. *Education Research International*, 2021, 1-10.
- Gehlawat, M. (2014). School management information systems: An effective tool for augmenting the school practices. *New Frontiers in Education*, 57-64.
- Gorla, N., Somers, T. M., & Wong, B. (2010). Organizational impact of system quality, information quality, and service quality. *Journal of Strategic Information Systems*, 19 (3), 207–228.
- Helal, M. S. A., Ahmed, I., & Bhuiyan, M. E. M. (2021). Impact of education management information system (EMIS) on teaching-learning development. *International Journal of Academic Research in Progressive Education and Development*, 10(2), 948–956. <http://dx.doi.org/10.6007/IJARPED/v10i2/10443>
- Hwang, G. J., & Wu, P. H. (2019). Applications of Data Mining and Learning Analytics in Educational Technologies: A Survey. *International Journal of Distance Education Technologies (IJDET)*, 17(1), 58-84. doi:10.4018/IJDET.2019010104

- Laudon, K. C., & Laudon, J. P. (2020). *Management Information Systems: Managing the Digital Firm* (Eds.). New York: Pearson.
- Laudon, K. C., & Laudon, J. P. (2021). *Management Information Systems: Managing the Digital Firm*. New York: Pearson.
- Li, M., & Chen, S. (2019). Research on MIS Construction and Application in Educational Administration. *International Journal of Emerging Technologies in Learning*, 14(11), 4-14.
- Luo, T., Yue, W., & Gao, F. (2019). Research on the application of big data technology in education management. In 2019 IEEE 2nd International Conference on Computer and Communication Engineering Technology (CCET) (pp. 242-246). IEEE. doi:10.1109/CCET46726.2019.00063
- Machado, S. M. R., & Davim, J. P. (Eds.). (2019). Handbook of research on technological developments for cultural heritage and e-Entertainment applications (pp. 1-409). *IGI Global*. doi:10.4018/978-1-5225-9003-6
- Memon, M., Shaikh, S.S., Shaikh, S., Rin, Z.K. (2021). Analysis of MIS on strategic decision making. *International Journal of Advanced Research in Engineering and Technology*, 12(4), 85-91. <https://doi.org/10.34218/IJARET.12.4.2021.010>.
- Moorty, S. (2019). The concept of management information systems. Bizfluent.com. retrieved from <https://bizfluent.com>. Retrieval date 25/11/2019.
- Mukasa, M., et al. (2021). Management information systems and administrative effectiveness in higher education institutions: A case of selected Universities in Uganda.
- Nagar, M. A. K., Rahoo, L. A., Rehman, H. A. & Arshad, S. (2018). *Education management information system in the primary schools in Sindh a case study of Hyderabad Division*. IEEE 5th International Conference on Engineering Technologies and Applied Sciences, 23-
- Namani, M. B. (2010). The role of information systems in management decision making-a theoretical approach. *Information management*, 109116.
- Nath, R. P., & Badgujar, M. (2013). Use of management information system in an organization for decision making. *ASM's International EJournal of Ongoing Research in Management And IT*, 2 (6), 160-171.

- Oliveira, T., Martins, M. F., & Espadanal, M. (2019). Adoption of e-Government Services: The Case of Online Tax Filing and Payment System. In *Electronic Government and the Information Systems Perspective* (pp. 101-115). Springer, Cham. doi:10.1007/978-3-030-04091-8_7.
- Oz, E. (2018). *Management information systems*. Cengage Learning. *International Journal of Higher Education*, Vol. 9, No. 3; 2020.
- Rahman, M. S., et al. (2020). The role of management information system in decision making process: A case study of tertiary institutions. *Global Journal of Management and Business Research*, 20(3), 20-32.
- Sari, E.N., & Priantinah, D. (2019). Managerial decision making with the role of management information systems (MIS): What the literature says. *Petra International Journal of Business Studies*, 2(1), 53-58. <https://doi.org/10.9744/ijbs.2.1.53-58>
- Shah, M. (2014). Impact of management information system (MIS) on school administration: What the literature says. *Procedia-Social and Behavioral Sciences*, 116, 2799-2804. <https://doi.org/10.1016/j.sbspro.2014.01.659>
- Sharma, A., & Jindal, M. (2018). Role of management information system in education sector. *International Journal of Engineering and Management Research*, 8(5), 79-83.
- Sridevy, S. (2020). Education management information system – Three-tier web application prototype for education workflow. *Journal of Current Crop Science and Technology*, 107(7-9), 322-332. <https://doi.org/10.29321/MAJ.2020.000382>
- Taylor, J., & Kroth, M. (2020). *Management information systems for the information age*. Usa: McGraw-Hill Education.
- Wagner, E. D. (2016). *Enterprise systems integration*. CRC Press.