

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH

2022, Vol. 3, No. 8, 1389 – 1398

<http://dx.doi.org/10.11594/ijmaber.03.08.01>

Research Article

Education Management Information System (EMIS) and Its Implications to Educational Policy: A Mini-Review

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Article history:

Submission August 2022

Revised August 2022

Accepted August 2022

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ABSTRACT

This paper intends to show the importance of the Education Management Information System (EMIS) as well as the trends, challenges, and implications to educational policy. To achieve this, the proponents did a mini-review. The paper searched the internet for relevant and timely research papers and articles mainly focusing on the education management information system. After garnering enough materials for the mini-review, the tedious task of evaluating and analyzing the concepts and contexts of each material took place. Based on the evaluation, this paper found that some studies have shown promising results and positive experiences with the implementation education management information system (EMIS) in their institution. However, some did not execute well due to several reasons and factors. In addition, some research papers provided essential recommendations and suggestions that will help solve these different problems of EMIS. In the end, the paper concluded and shared some significant implications that school administrators can use for future references for policy and decision-making.

Keywords: *education management information system, educational policy, trends and challenges, mini-review*

Introduction

With the fast pace and changes going on with our education process, information management in educational institutions is part and parcel of the organization's functions and responsibilities. As different authors defined management information systems, it all boils down to how an organization or institution tries its best to manage and organize the data and translate them into information.

The world is highly dependent on information, as the group Helal et al. (2021) perceived that EMIS had become a critical component of our everyday living. In the context of education, the EMIS contributes to and assists at the same time for a school's growth. Depending on the level of educational institution, the bulk of information can drastically impact how the administration will come up and deal following their operation and service prospects. As

How to cite:

Asio, J. M. R., Leva, E. F., Lucero, L. C., & Cabrera, W. C. (2022). Education Management Information System (EMIS) and Its Implications to Educational Policy: A Mini-Review. *International Journal of Multidisciplinary: Applied Business and Education Research*. 3 (8), 1389 – 1398. doi: 10.11594/ijmaber.03.08.01

discussed by Borkar (2021), the term EMIS is a system that monitors the performance of education programs offered by the institution and manages, distributes, and allocates their educational resources. In this perspective, the EMIS provides a critical function that will help adequately distribute the appropriate workload for each area of concern. The use of information technology (IT) in educational management has increased because it is efficient and practical simultaneously (Shah, 2014). The value of management information systems, especially in education, has created a more significant avenue for data and information organization. It is easier for schools to tap different stored information in their data banks. Shah (2014) also emphasized that MIS positively impacts school administration and management. It also includes the accessibility of information, efficient administration, high usage of school resources, reduced workloads, better time management, and improved quality of reports.

There are advantages and challenges of EMIS as well. Martins et al. (2019b) stated that one advantage is EMIS's information and service quality determinants of net benefits. Stamenkov and Zhaku-Hani (2021) also proposed the perceived benefits of an education management information system. Furthermore, Ugwude and Ugwude (2020) mentioned several advantages of EMIS: it helps in student attendance records and examination management. In another article, Kuswara et al. (2021) also emphasized another benefit of EMIS, which is the improvement of learning services provided by the school. As for the challenges, several studies also mentioned their plights. In the argument of Nwakesiri (2022), a significant challenge for educational progress is the lack of credible and timely data needed for policy-making and planning. In addition, effective performance monitoring and feedback and quality advocacy were setbacks and became a challenge on their own. The EMIS functions to collect, integrate, process, maintain, and disseminate data and information to support decision-making, planning, analysis, monitoring, and evaluation of all education system levels. Arroyan and Subekti (2021) also discussed that the organization must improve EMIS development with innovations. Non-implementation of

EMIS is also a significant challenge among secondary schools, like what has been reported by the papers of Okeke and Ikediugwu (2021), Nwankwo (2020), and Shah 2018.

These ideas were just a few to mention and consider in this write-up since other literature was not readily available and accessible simultaneously. Regardless of the setup, one can deduce that EMIS has more significant potential and has a lot to offer in an organization or institution. It only needs some time to work out and get assigned to an appropriate area or prospect to function to its full potential and capabilities.

To sum it all up, when used, the education management information system delivers appropriate services leading to net benefits and user satisfaction (Danso et al., 2021). There is a shortage of local literature on EMIS in the country. However, one particular study published by Cuartero and Role in 2018 provided a glimpse of the country's EMIS status at the primary level. They disclosed that regardless of the type of public school, they implement EMIS modules. However, the finance MIS found that it needs further enrichment in planning, implementation, and evaluation. Another study from Zulueta et al. (2021) also discussed the challenges encountered by Philippine private and public educational institutions with an existing management information system. They divulged that these participating schools have an excellent way to systematize and organize a work in progress encompassing all institutional services.

Therefore, in this paper, the authors aim to unravel the different trends, challenges, and implications to the educational policy and other circumstances of the educational management information system (EMIS). Also, this paper tries to elicit gaps in the different contributions of EMIS and its impact on the educational policy of the various institutions.

This paper will benefit educational institutions, administrators, and other stakeholders once a school implements the EMIS. In addition, teachers, instructors, students, researchers, and other interested individuals may find this paper helpful as future references for their interest or as a form of a locus in their lectures and knowledge sharing.

Methods

The proponents of this paper used a qualitative type of research. Specifically, this study used a literature review to understand the latest trends, challenges, and implications of educational management of information systems to educational policy. To attain the main objective of this paper, the proponents collected dozens of pieces of literature using the Google Scholar search engine since this search engine indexed the majority of different research articles worldwide. The proponents used the following keywords to narrow the search: “educational management of information system,” “EMIS,” and “management of information system.” From the search engine, the study further narrowed its search based on the year of its publication and only considered those published in five (5) years. After downloading all of the research articles necessary for the study, the tedious task of analyzing began and later presented the valuable results intended for educational policy implications.

Results and Discussion

Based on the reviewed materials, the current study presents the following ideas. The content of this section offers the following discussion about the EMIS overview, the impact of EMIS on educational policy, the contribution of EMIS to the institution's success and finally, the different implications of EMIS to institutions.

Overview of Education Management Information System

Several studies have shown the great potential and effectivity of the EMIS on different occasions.

For instance, in terms of application, the group of Kuswara (2021) endorsed the full utilization of EMIS in learning. In this manner, the institution's move will improve the quality of education, leading to upgrading teachers and students. However, even though the purpose of such activity is excellent and beneficial, there is still some incidence that the application of EMIS is not well known. The study by Chilonga (2019) mentioned that there was no clear understanding of the educational management information system applicability in the library

section. Therefore, although it may seem that EMIS is a practical tool that can function in any manner, there are some misconceptions and challenges. The author also strongly recommends fostering comprehension of EMIS to use its full potential, especially in our fast-changing environment.

Additionally, the team of Helal (2021) disclosed that the concern of EMIS is the management of a huge amount of data and information that an individual can access, process, analyze and disseminate. However, related papers also recommended different solutions and means to adapt and use EMIS to its full potential, where the institutions benefit greatly. For example, Akinwole et al. (2019) suggested organizing training and retraining for the EMIS users to enhance their skills. On the other hand, Ali et al. (2021) recommend that top and middle-level management afford the necessary human and financial resources for effective use of the EMIS data. Ugwude and Ugwude (2020) suggested solutions to challenges by implementing EMIS like seeking help and involving donors, awareness of the benefit of EMIS, and organizing seminars and conferences on EMIS for teachers and school administrators.

EMIS in the Higher Education

Data and information are all over the place, especially in educational institutions. The bulk and its means to be processed and stored is essential. Nowadays, higher education institutions look forward to implementing comprehensive education management solutions to align processes and deliver a satisfactory student campus experience (Borkar, 2021). An article by Martins et al. (2019a) disclosed that in higher education, the multifaceted and complex work environment for the school and students allow the integration of education management information system to produce relevant, organized, and structured information. This necessity is evident for the institution; however, from the overwhelming number of literatures, no one focused on the context of student success (Martins et al., 2019a). In 2019, the team Bravo corroborated that their study intends to broaden the knowledge about the importance of the educational management information system (EMIS) for accountability for

higher education institutions. The article projected the determination of the relationship between quality management (QM), the use of EMIS, and responsibility. The investigators found a close relationship between the reviewed documents from the review. From this result, we realize the significance of EMIS with other factors of an organization like quality management and accountability which run in the vein of every personnel working towards the goal set up by the institution.

It is equally important to realize that EMIS is slowly being accepted not only by educational institutions but also the society itself. A related article showed that management information system is an important aspect which helps the technical institutes improve their quality of education management (Jalal, 2019). This concept is appropriate since the community itself provides all of the necessary data intended for the EMIS to process and makes use of its potential. In connection to this idea, another paper also disclosed that good university governance affects the education management information system, excellent service, and direct student trust (Faraasyatul'Alam et al., 2021). An educational institution with such a trait can provide services wherein its stakeholders are generally well-satisfied and meet their needs accordingly. In addition, the same paper also detailed that good university governance practices have a significant indirect positive effect on student trust through the education management information system and excellent service. Although, in one particular study, a group of researchers determined some factors that may contribute to the low adoption of educational management information systems (EMIS). It includes the lack of skills and competencies of the user communication problems institution's size, lack of access to modern computing and communication technology, lack of acceptance of technology and unfavorable political structure of the government (Akinwole et al., 2019). This premise is directly related to many other reasons why adopting EMIS in other countries is quite challenging or delayed for a considerable time. There is a great need for the government, institutions, and stakeholders to work hand in hand to adopt such a mechanism to manage all of the available

data and information for the country's education system. As mentioned in the previous discussion, we abide by the notion that administrators should base critical decision-making on solid and reliable data and information. In this manner, we can predict some necessary circumstances and unforeseen conditions that may come along the way.

EMIS in the Secondary and Primary Schools

Unlike in higher education, the educational management information system (EMIS) has its own perceived impact and relations to the services provided by the lower level of the education system. Ali et al. (2021) stated that secondary school head teachers perceived EMIS as applicable to enhance organizational performance. In the investigation of Kasimiri et al. (2021), the group assessed the level of preparedness of secondary school principals to foresee if adopting the National Education Management Information System (NEMIS) is possible. As mentioned earlier, EMIS is not a simple mechanism since this is an integrated system focusing on management and learning (Martins et al., 2019b). One needs to be adept and knowledgeable because data and information are essential commodities that help in decision-making and planning the most appropriate action. As for the primary schools, Ugwude and Ugwude (2020) related the different benefits of EMIS, including pupils' attendance records and examination management. However, the authors also added in their findings that lack of technical support, inadequate user-friendly software, lack of ICT support center and awareness are the challenges of EMIS in primary school administration.

Viveiros et al. (2018) investigated the usefulness and quality of implementing an Open EMIS software. At the same time, the paper intends to determine the software's success in the decision-making improvement of the education department. The results showed that using the Open EMIS system within the department contributed significantly and increased the employees' performance, as well as better decision making and superior goal achievement of the organization. The level of preparedness in the context of acceptance, training, skills, and ICT infrastructure contributes

significantly and positively affects the adoption of education management information systems in secondary schools (Kasmiri et al., 2021). This finding is essential for planning, especially for the department or agency intended for the education management in the government. Providing sound and timely research-based policy making is very important to impose and endorse for the government for accurate appropriation and allocation of essential resources. However, a similar study by Okeke and Ikediugwu (2021) disclosed a different story. In their article, principals of the secondary schools in their place do not implement EMIS, especially in planning staff personnel issues as well as the students' personnel issues. Therefore, in-service training ensures the proper and smooth implementation of the EMIS in the secondary institution to address this disadvantage for future reference. Another article reported by Nwankwo (2020) revealed that even in their area that does not implement EMIS is staff personnel management. This idea is quite perplexing and, at the same time, engaging in the context that EMIS has been around already. Yet, its implementation in other regions and countries is recognized. This concept is an issue that needs addressing. We are already in the digital age and era where everything is almost at the tip of your finger. Technology is a prime mover of essential commodities, especially data and information, which everyone needs to acquire and process from time to time.

Impact of EMIS in the Educational Policy

Several studies have shown remarkable stories of success and triumphs where the education management information system (EMIS) significantly contributes to the policy-making capacity of the institution. Since technology affects both students' and universities' perceived education (Martins et al., 2019b), its perceived impact on students and the universities are strong determinants of continuous use of EMIS and student satisfaction. As Bojte (2019) introduced, a properly designed and implemented EMIS assures school administrators precise, fluid, and timely datasets one can use to monitor and evaluate strategies. Furthermore, for policymakers, EMIS interprets data, an essential tool to extract insights for appropriate

decision-making. In the perception of Nwakesiri (2022), EMIS is about information about the educational system in one's particular country and other procedures relating to education. In application, Sridevy (2020) used an education management information system for education workflow. The author developed a prototype, executed it and found it to be an effective tool for decision-making towards education planning and management. Still, challenges constantly confront the adoption of such a mechanism, especially if difficulties and financial constraints rumble along. It is also equally important to mention that the use of EMIS has a problem, and the data collection for education management can also be a burden. Thus, an appropriate means should solve this issue, like quality control and related data collection strategies (Nwakesiri (2022).

In the article by Shah (2018), EMIS is a tool that can help both the private and government schools and the government and aid in the everyday function of the school administration. To achieve this, improving the efficacy of current EMIS tools through proper investigation of user interactions in the education sector is a must. However, Sintayehu and Menber (2019) posited that the current practices of an educational management information system are low. This finding is due to a lack of qualified and trained individuals related to the field. In addition, positions for the EMIS were dominated by those who were not qualified, and some institutions do not have EMIS experts. This situation seriously affects the quality of data collection, dissemination, and management of the information in the schools due to the shortage of professionals qualified to do the job at hand. Another challenge confronting institution today is the selection of an appropriate research paradigm (Hokroh, 2022). Although interpretivism and pragmatism paradigms seemed to be the most emphasized approach, these approaches focus on the context of triangulation.

Another study by Ugwu et al. (2021) showed how university administrators use the management information system (MIS) feedback mechanism for their decision-making responsibilities. Based on the results, the universities decision-making process accepted the nine data feedback mechanisms enumerated in

the survey. Statistical analysis also revealed that there was no significant difference in the responses of the administrators and MIS experts regarding the feedback mechanism. To add, management information systems aim to help in decision-making in an organization (Sari & Priantina, 2019). Furthermore, Memon et al. (2021) believed that management information systems play a significant role in enhancing decision-making and implementing strategic approaches for improving organization functions. However, a study identified some inefficiency and fundamental challenges that administrative staff, lecturers and student leaders experienced in their management information system portal (Ampofo, 2020). Nevertheless, the study recommended Information and Communication Technology experts in management information systems and computer engineering to ensure the appropriate functioning of the MIS unit.

Contribution of EMIS to the Success of an Institution

EMIS are integrated information systems which focus on management and learning, thus characterizing success from students' perspectives (Martins et al., 2019b). Further findings also indicated that EMIS use and student satisfaction are net benefits predictors. In addition, Shniekat et al. (2021) also examined the efficiency and influence of management information systems (MIS). They found a positive relationship between MIS efficiency and the technical dimension of the management system in the study. In the study of Sakr and Muhammed (2022) on the impact of management information systems on improving employee performance, they exhibited a statistically significant finding. Gadgets' efficacy significantly influences the productivity of staff in the Ministry.

No matter what the challenges and other prominent obstacles along the way, it is never a doubt that the educational management information system (EMIS) is a significant factor and mechanism to be included in the educational system and the institution's management schemes. Odusanya (2019) stated that EMIS is helpful for effective planning. For instance, for the distance learning education programs of

universities and colleges, there is substantial evidence of a relationship between EMIS and quality distance learning education delivery. However, along the way, the investigator also suggested a need for reengineering and integrating the EMIS with learning management system software for institutions who intend to adopt such arrangements. Additionally, Sari and Priantina (2019) emphasized that organizations are successful if the quality of data collection is high with the help of MIS. The proponents also highlighted that MIS plays a significant role in decision-making in the organization. In the local context, Ching and Patimo (2021) presented the effectiveness of the MIS units in their article. The study's proponents relayed that the MIS units' satisfaction and effectiveness were very satisfactory, which means that the MIS operation was effective.

Saad and Daud (2020) detailed that using an online EMIS to manage data and information in school can elicit the relationships of usability, acceptance, ease of use, and attitude toward the satisfaction of data and information (DI) teachers. They showed that all the evaluations of the four variables were high. Also, they suggested that the acceptance of the EMIS by the DI teachers is suggestively high. Furthermore, the study found positive correlations between usability, ease of use, attitude, and user satisfaction of DI teachers using the online EMIS. The investigators then suggested that the usability and ease of use were critical factors in influencing attitude, affecting user satisfaction of DI teachers to accept such an online system.

The study of Stamenkov and Zhaku-Hani (2021) presented another contribution of EMIS. They explored and analyzed the technological knowledge, external ICT, environment, perceived ease of use, usefulness, compatibility, complexity, and government support and linked it to the post-adoption usage of EMIS. Based on their study, six factors contribute to the indirect effects of the post-adoption, and only two support the direct impacts on post-adoption use. Moreover, Baharun (2019) stated that the management information system improved the competitiveness of the university, as well as accelerated the communication and information, delivered messages, provided attraction to customers, saved

operational costs and increased community participation.

In the article of Khairi and Tawarish (2018), they exposed that essential leadership's unaware process relies on data. The course of action has enormous information, yet they need data to consider on a choice or decision. The authors also suggested some ideas for enhancing the decision-making process at the managerial level in the education sector with the help of EMIS. The study of Muyesu (2016) revealed that organizational and social factors explained the drastic change in the educational management information system (EMIS). Strategic and economic factors explained the significant difference in the implementation of EMIS.

Implication of Education Management Information System to Institutions

As mentioned and reviewed in several works of literature worldwide, the implementation and capability of the EMIS are essential in the current era. It is undeniably a process that is inevitable for a school administration not to adopt sooner or later and be part of their system. We cannot argue further that from the shared experiences of other institutions, we learned one way or another. We intend to adopt the recommendations or apply their suggestions to have a smooth transition in implementing EMIS.

The proponents identified several factors in the review that plays a significant role in the education management information system. They are the government, school stakeholders, school administrators, teachers, students, the infrastructure, technical concepts (e.g., internet, operating system), and professionals running the system. These were just a few players; however, the school needs to give them the proper and appropriate attention for the EMIS to work efficiently. There are challenges along the way, especially in the operation of the EMIS. However, this idea should not be the reason for the school to stop, instead, find an appropriate solution for it. Later, the authors believed that the institution would reap the rewards, and recognition would be due soon. Significant improvement in the workload and positive satisfaction will come along afterwards.

The school, administrator, teachers, students, and other stakeholders, as well as the community, should work hand in hand to facilitate the optimum potential of the EMIS for the institution. Proper authority should address the problems accordingly, like adequate budget allocation, timely planning, consultation of professionals, and commitment from the staff and personnel. In this manner, the utilization of the system will be inevitable. The bottom line of an excellent working EMIS will surely be a success for the school afterwards.

Conclusion

The education management of information systems created a world of its own. It understands the diversity of information and how you manage it leads to a certain degree of advantages for the institution. Although it may seem that the use of EMIS in every institution in the country is still quite unimaginable, it will come to a realization sooner or later. Data is everywhere, and managing them to some extent is quite helpful, especially in line with the work in the educational field (e.g. policy making). Although data privacy, storage, utilization, and management can pose challenges to educational institutions, some schools have already solved them and used them as a benchmark for future adaptation. We still got a long way to run before we can harness the full potential and usefulness of EMIS in our educational institutions; however, we are slowly going there.

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