

The Role of Information Technology in Improving the Effectiveness of Education Management

Muhammad Sani Kurniawan

Politeknik APP Jakarta, Jl. Timbul No.34, RW.5, Cipedak, Kec. Jagakarsa, Kota Jakarta Selatan, Daerah Khusus Ibukota Jakarta 12630
msanik1610@gmail.com

Abstract

Education is one of the important sectors in the development of a country. To achieve optimal education goals, effective and efficient education management is needed. However, the increasingly complex challenges in education management demand innovation and information technology as a solution. The purpose of this study is to explain the role of information technology in improving the effectiveness of education management in order to provide solutions and recommendations for the development of education in the future. The focus here is on qualitative analysis. Listening to and recording pertinent information was an integral part of data collection, which was followed by data reduction, data display, and inference. This study found that information technology plays an important role in improving the effectiveness of education management. In today's digital era, the use of information technology can help education management to obtain accurate, fast and easily accessible information, as well as facilitate distance learning and increase the accessibility and flexibility of learning. So, for various parties involved in education, it is necessary to improve digital literacy, including learners, educators, and education management.

Keywords: Information Technology, Effectiveness, Management, Education

Abstrak

Pendidikan merupakan salah satu sektor penting dalam pembangunan suatu negara. Untuk mencapai tujuan pendidikan yang optimal, diperlukan manajemen pendidikan yang efektif dan efisien. Namun, tantangan dalam manajemen pendidikan yang semakin kompleks menuntut adanya inovasi dan teknologi informasi sebagai solusi. Tujuan penelitian ini untuk menjelaskan peran teknologi informasi dalam meningkatkan efektivitas manajemen pendidikan guna memberikan solusi dan rekomendasi bagi pengembangan pendidikan di masa yang akan datang. Fokus studi ini adalah pada analisis kualitatif. Mendengarkan dan mencatat informasi yang relevan merupakan bagian integral dari pengumpulan data, yang diikuti dengan reduksi data, tampilan data, dan kesimpulan. Studi ini menemui hasil bahwa teknologi informasi memainkan peran yang penting dalam meningkatkan efektivitas manajemen pendidikan. Dalam era digital saat ini, penggunaan teknologi informasi dapat membantu manajemen pendidikan untuk memperoleh informasi yang akurat, cepat, dan mudah diakses, serta memfasilitasi pembelajaran jarak jauh dan meningkatkan aksesibilitas dan fleksibilitas pembelajaran. Maka, bagi berbagai pihak yang terlibat dalam pendidikan, perlu meningkatkan literasi digital, termasuk peserta didik, tenaga pendidik, dan manajemen pendidikan.

Kata Kunci: Teknologi Informasi, Efektivitas, Manajemen, Pendidikan

Copyright (c) 2022 Muhammad Sani Kurniawan

Corresponding author: Muhammad Sani Kurniawan

Email Address: msanik1610@gmail.com (Jl. Timbul No.34, RW.5, Cipedak, Kec. Jagakarsa, Kota Jakarta Selatan)

Received 15 Agustus 2022, Accepted 30 Agustus 2022, Published 30 Agustus 2022

INTRODUCTION

Education is one of the important sectors in the development of a country (Ausat, 2022). To achieve optimal education goals, effective and efficient education management is needed (Setia &

Nasrudin, 2020). However, the increasingly complex challenges in education management demand innovation and information technology as a solution (Boon & Edler, 2018).

The utilisation of information technology in education management has the potential to improve the effectiveness of education management (Bisaso et al., 2008). Information technology can be used to facilitate administrative processes, data processing, communication and learning that can have an impact on improving the quality of education (Sunu, 2022).

However, in its implementation, there are still some obstacles faced in the use of information technology in education management, such as limited infrastructure, human resources who are less skilled in the use of information technology, and lack of support from related parties (Haleem et al., 2022). Therefore, research on the role of information technology in improving the effectiveness of education management is very important to do in order to provide solutions and recommendations for the development of education in the future.

METHOD

In this study, instead of going out into the field to collect data, researchers did desk research, in which they reviewed a variety of reference sources to ensure the study ran smoothly. Online media and databases from journal portals were scoured for relevant literature using the terms "information technology," "effectiveness," and "education management," all of which are crucial to the present subject. The author does not restrict themselves to using only Emerald Insight, ResearchGate, or Elsevier's journal portals to find relevant references; instead, they take a more holistic approach. In this article, the author narrows the scope of her research by focusing on specific keywords related to IT in education and educational administration. The search focused primarily on scholarly journals and articles published between 2015 and the present. We used keyword searches on several online databases to find the references we needed. While many papers, journals, and publications will be downloaded, only those most relevant to enhancing education via management will be used. A total of 22 references were interpolated into this article.

This research is a sort of qualitative research. To build a picture of the literature study that will be developed in this research, data collection processes include listening to and recording crucial information, followed by data analysis via data reduction, data display, and conclusion drawing. In order for the data to be useful and facilitate inference, it must first be simplified, classified, and any unnecessary information removed. For this reason, the reduction stage is essential for data analysis due to the sheer volume and complexity of the data. In this elimination phase, we determined which pieces of information were most useful in achieving our objective. There were initially 54 references that we were able to acquire. However, after this preliminary procedure, the number changed to 22. After that, we'll proceed to the data display. This step is a continuation of the data reduction stage, which is an activity when a set of data is arranged systematically so that it is easier to interpret, therefore enabling the potential of making conclusions. Information is presented in a narrative format

(in the form of field notes). Our ability to organize and arrange data according to a relationship pattern will be facilitated by this data presentation. The final step is to draw inferences from the data. This step is the end of the qualitative data analysis technique that we use by looking at the outcomes of data reduction and data display, so that it still pertains to the analysis objectives to be attained. This stage seeks to identify the significance of the obtained data by looking for links, similarities, or contrasts to develop conclusions as answers to existing problems. The sources we rely on are trustworthy, so we can draw reliable judgments. This is an attempt at locating reliable conclusions in the interest of clarity.

RESULTS AND DISCUSSION

Education is one of the most important fields for the development of society, as it is the foundation for creating individuals who have adequate quality and competence (Faisal & Kisman, 2020). Education management has a very important role in achieving these educational goals, and information technology can be a very effective tool to improve the effectiveness of education management (Leidner & Jarvenpaa, 1995).

One of the roles of information technology in education management is as a tool to accelerate and improve the efficiency of data and information processing (Liu et al., 2021). In education management, there is a lot of data and information that must be processed, such as student data, teacher data, curriculum data and financial data. In processing these data, information technology can help accelerate and improve the efficiency of data and information processing, so that education management can run more effectively (He et al., 2021).

In addition, information technology can also be used as a tool to improve transparency and accountability in education management. In education management, transparency and accountability are essential to ensure that resources used for education are utilised properly and effectively (Gaspar et al., 2022). With information technology, data and information can be accessed easily and quickly by all interested parties, such as teachers, students, parents and the community, so that all parties can monitor and evaluate the performance of education management.

Furthermore, information technology can also be used as a tool to improve the effectiveness of communication and collaboration between all parties involved in education management. In education management, communication and collaboration between teachers, students, parents and other parties are essential to achieve educational goals (Adams et al., 2016). With information technology, communication and collaboration can be done more easily and quickly, so that all parties can work together effectively to achieve educational goals.

On the other hand, information technology can also be used as a tool to facilitate distance learning. In this digital era, distance learning is becoming increasingly popular and an effective alternative to face-to-face learning. With information technology, distance learning can be done more effectively, because information technology can help facilitate interaction between teachers and

students, as well as facilitate the use of more diverse and easily accessible learning resources (Hidayat et al., 2022).

Overall, information technology has a very important role in improving the effectiveness of education management. With information technology, data and information processing can be done more efficiently, transparency and accountability can be enhanced, communication and collaboration between all parties can be improved, and distance learning can be an effective alternative for learning. Furthermore, information technology can also help education management to adopt the latest technology and innovations in education (Granić, 2022). For example, the use of virtual reality and augmented reality technology in learning, or the use of game-based learning applications that can make the learning process more interactive and fun.

Not only that, but information technology can also help education management overcome challenges and barriers such as logistics and accessibility issues. In some cases, education management in remote or isolated areas may experience difficulties in obtaining adequate educational resources, such as textbooks or learning materials (Mishra et al., 2020). In this case, information technology can help education management to overcome these barriers by providing digitalised educational resources that can be accessed remotely.

However, the use of information technology in education management also has challenges and risks that need to be watched out for. One possible risk is the digital divide, where some areas or groups of society do not have adequate access to information technology. Therefore, education management needs to take steps to ensure that information technology can be accessed and used equally by all parties involved in education (Fu, 2013).

In addition, education management also needs to pay attention to privacy and data security issues in the use of information technology (Hoel & Chen, 2018). In processing data and information, education management must ensure that the data and information processed are safe and confidential from unauthorised access. Therefore, there needs to be clear policies and standards related to data privacy and security in the use of information technology in education management.

In essence, information technology has a very important role in improving the effectiveness of education management. Information technology can be used to accelerate and improve the efficiency of data and information processing, increase transparency and accountability, improve communication and collaboration between all parties involved, facilitate distance learning, adopt the latest technology and innovations, and overcome various challenges and obstacles in education (Abdulrahman et al., 2020). However, it is necessary to be aware of the risks and challenges that may occur, such as the digital divide and data privacy and security issues. Therefore, education management needs to take appropriate measures in the use of information technology to achieve better and more effective educational goals.

Some examples of the use of information technology in education management include:

1. *Education Management Information System*: Education Management Information System is a management information system specifically designed to manage education data in an integrated manner, ranging from student data, teaching staff, to financial data (Khamdamov et al., 2020). By using an Education Management Information System, education management can obtain information that is accurate, fast and easily accessible, so that it can help make decisions more effectively and efficiently.
2. *E-learning*: E-learning is online learning, which allows learners to learn remotely via the internet. E-learning can be used to access digital educational resources, such as learning videos, interactive learning materials, and online discussion forums. E-learning can help education management to facilitate distance learning, thus increasing the accessibility and flexibility of learning for learners (Petretto et al., 2021).
3. *Geographic Information System (GIS)*. Education Geographic Information System is an information system that uses information and mapping technology to manage and analyse education data spatially (Supuwingsih & Malau Pase, 2022). By using Education GIS, education management can visualise education data in the form of maps, which can help in making strategic decisions related to school placement, student transportation management, and allocation of other education resources.
4. *Mobile Application*: Mobile applications are applications specifically designed to be installed on mobile devices, such as smartphones and tablets (Ausat & Suherlan, 2021). Mobile applications can be used for various purposes, including in the field of education. Education management can develop mobile applications to facilitate communication between students, educators, and parents/guardians. In addition, mobile apps can also be used to monitor and access information related to the teaching-learning process, such as lesson schedules, assignments, and grades.

In essence, information technology can make a significant contribution to improving the effectiveness of education management. However, the use of information technology must be done carefully and wisely, taking into account the risks and challenges that may occur. Education management needs to develop appropriate strategies and policies in the use of information technology, so that it can provide maximum benefits for all parties involved in education.

CONCLUSION

Information technology plays an important role in improving the effectiveness of education management. In today's digital era, the use of information technology can help education management to obtain accurate, fast and easily accessible information, as well as facilitate distance learning and increase the accessibility and flexibility of learning. However, the use of information technology must be done carefully and wisely, taking into account the risks and challenges that may occur. Education management needs to develop appropriate strategies and policies in the use of information technology, so that it can provide maximum benefits for all parties involved in education.

In order to improve the effectiveness of education management through the use of information technology, several actions need to be taken, among others: Firstly, improving the digital literacy of all parties involved in education, including learners, educators and education management. Secondly, developing adequate information technology infrastructure and ensuring its security. Third, developing integrated systems and applications to facilitate efficient education data management. Fourth, provide training and technical support for information technology users. Finally, regularly monitor and evaluate the use of information technology to ensure that it provides maximum benefits for all parties involved in education.

REFERENCES

- Abdulrahman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., Imam-Fulani, Y. O., Fahm, A. O., & Azeez, A. L. (2020). Multimedia tools in the teaching and learning processes: A systematic review. *Heliyon*, 6(11), e05312. <https://doi.org/10.1016/j.heliyon.2020.e05312>
- Adams, D., Harris, A., & Jones, M. S. (2016). Teacher-Parent Collaboration for an Inclusive Classroom: Success for Every Child. *Malaysian Online Journal of Educational Sciences*, 4(3), 58–72.
- Ausat, A. M. A. (2022). Positive Impact of The Covid-19 Pandemic on The World of Education. *Jurnal Pendidikan*, 23(2), 107–117. <https://doi.org/10.33830/JP.V23I2.3048.2022>
- Ausat, A. M. A., & Suherlan, S. (2021). Obstacles and Solutions of MSMEs in Electronic Commerce during Covid-19 Pandemic: Evidence from Indonesia. *BASKARA: Journal of Business and Entrepreneurship*, 4(1), 11–19. <https://doi.org/10.54268/BASKARA.4.1.11-19>
- Bisaso, R., Kereteletswe, O., Selwood, I., & Visscher, A. (2008). The use of information technology for educational management in Uganda and Botswana. *International Journal of Educational Development*, 28(6), 656–668. <https://doi.org/10.1016/j.ijedudev.2007.09.008>
- Boon, W., & Edler, J. (2018). Demand, challenges, and innovation. Making sense of new trends in innovation policy. *Science and Public Policy*, 45(4), 435–447. <https://doi.org/10.1093/scipol/scy014>
- Faisal, P., & Kisman, Z. (2020). Information and communication technology utilization effectiveness in distance education systems. *International Journal of Engineering Business Management*, 12, 1. <https://doi.org/10.1177/1847979020911872>
- Fu, J. S. (2013). ICT in Education: A Critical Literature Review and Its Implications. *International Journal of Education and Development Using Information and Communication Technology*, 9(1), 112–125.
- Gaspar, M. R., Gabriel, J. P., Manuel, M. B., Ladrillo, D. S., Gabriel, E. R., & Gabriel, A. G. (2022). Transparency and Accountability of Managing School Financial Resources. *Journal of Public Administration and Governance*, 12(2), 102–115. <https://doi.org/10.5296/jpag.v12i2.20146>

- Granić, A. (2022). Educational Technology Adoption: A systematic review. *Education and Information Technologies*, 27(7), 9725–9744. <https://doi.org/10.1007/s10639-022-10951-7>
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3, 275–285. <https://doi.org/10.1016/j.susoc.2022.05.004>
- He, W., Zhang, Z. (Justin), & Li, W. (2021). Information technology solutions, challenges, and suggestions for tackling the COVID-19 pandemic. *International Journal of Information Management*, 57, 102287. <https://doi.org/10.1016/j.ijinfomgt.2020.102287>
- Hidayat, D. N., Lee, J. Y., Mason, J., & Khaerudin, T. (2022). Digital technology supporting English learning among Indonesian university students. *Research and Practice in Technology Enhanced Learning*, 17(1), 23. <https://doi.org/10.1186/s41039-022-00198-8>
- Hoel, T., & Chen, W. (2018). Privacy and data protection in learning analytics should be motivated by an educational maxim—towards a proposal. *Research and Practice in Technology Enhanced Learning*, 13(1), 20. <https://doi.org/10.1186/s41039-018-0086-8>
- Khamdamov, U., Abdullaev, A., Elov, J., & Sultanov, D. (2020). Conceptual Model of the Education Management Information System for Higher Education Institutions. *International Journal of Advanced Trends in Computer Science and Engineering*, 9(5), 7295–7300. <https://doi.org/10.30534/ijatcse/2020/59952020>
- Leidner, D. E., & Jarvenpaa, S. L. (1995). The Use of Information Technology to Enhance Management School Education: A Theoretical View. *MIS Quarterly*, 19(3), 265. <https://doi.org/10.2307/249596>
- Liu, J., Wang, C., & Xiao, X. (2021). Internet of Things (IoT) Technology for the Development of Intelligent Decision Support Education Platform. *Scientific Programming*, 2021, 1–12. <https://doi.org/10.1155/2021/6482088>
- Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, 1, 100012. <https://doi.org/10.1016/j.ijedro.2020.100012>
- Petretto, D. R., Carta, S. M., Cataudella, S., Masala, I., Mascia, M. L., Penna, M. P., Piras, P., Pistis, I., & Masala, C. (2021). The Use of Distance Learning and E-learning in Students with Learning Disabilities: A Review on the Effects and some Hint of Analysis on the Use during COVID-19 Outbreak. *Clinical Practice & Epidemiology in Mental Health*, 17(1), 92–102. <https://doi.org/10.2174/1745017902117010092>
- Setia, R., & Nasrudin, D. (2020). School Management: The Optimization of Learning Facilities to Improve the Quality of Vocational Schools. *Jurnal Pendidikan Vokasi*, 10(2), 150–158.
- Sunu, I. G. K. A. (2022). Youth Teachers Program in Information Technology Management. *Jurnal Pedagogi Dan Pembelajaran*, 5(3), 365–372. <https://doi.org/10.23887/jp2.v5i3.53014>

Supuwiningsih, N. N., & Malau Pase, A. S. M. (2022). Geographic Information System Mapping Senior High School and Vocational High School in Bali Island Based Internet by Using Google My Maps. *International Journal of Engineering Technologies and Management Research*, 9(12). <https://doi.org/10.29121/ijetmr.v9.i12.2022.1259>