PPSDP International Journal of Education
Volume 3 (2) (Special Issue) 22 October 2024, 197-212
2nd PPSDP International Conference on Educational Sciences (IConEds 2024)
E-ISSN 2829-5196, P-ISSN 2830-3229

Utilizing Technology and Artificial Intelligence in Educational Administration to Enhance School Performance at Junior High School

Sari Hutami[1]
[1]Universitas Bengkulu, Bengkulu, Indonesia,

Corresponding author e-mail: sarihutami3@gmail.com

Article History: Received on 18 August 2024, Revised on 19 October 2024, Published on 9 November 2024

Abstract: This study aims to explore the use of technology and artificial intelligence (AI) in education administration to improve school performance. In the growing digital era, demands for efficiency and effectiveness in education administration are increasing, especially with the development of school information management systems (SIMS) and AI-based technologies. This research examines how these technologies can automate routine tasks such as class scheduling, student data management, as well as improve data-driven decision-making that is more accurate and efficient. The research method used in this study is descriptive qualitative, with the process of collecting data through in-depth interviews, observation, and document analysis directly from several schools that have adopted this technology. In analyzing the data, I used Miles and Hubberman's data triangulation technique in the form of data reduction, data analysis, and conclusion drawing. The results show that the implementation of technology and AI has improved operational efficiency, accelerated administrative processes, and facilitated the monitoring of student and staff performance. However, the study also found challenges in technology adoption, including limited infrastructure, resistance to change, and concerns regarding data privacy. To overcome these obstacles, a holistic strategy is needed, including the development of supportive policies, digital skills training for staff, and improvement of technology infrastructure in schools. This research concludes that although the application of technology and AI in education administration faces various barriers, the potential benefits are significant, especially in terms of improving the efficiency, transparency and overall quality of school performance.

Keywords: Artificial Intelligence, Educational Administration, School Performance, Utilizing Technology

A. Introduction

The integration of technology and artificial intelligence (AI) in educational administration has emerged as a significant global trend in addressing the issues of modernization within the education sector (Eppard et al., 2021). Digital technology offers solutions to enhance the efficiency and efficacy of school management,

encompassing student data management, financial administration, and learning planning. The use of school information management systems (SIMS) integrated with AI can facilitate rapid and precise data processing, enhance decision-making, and promote timely and efficient reporting. Furthermore, AI possesses the capability to automate monotonous administrative functions, including class scheduling, resource distribution, and communication among the school, parents, and students. The time efficiencies derived from this automation enable school personnel to concentrate more on enhancing the quality of education (Liu, 2016).

Nonetheless, despite the significant promise presented by technology and AI in school administration, several challenges underscore the necessity of this research. A primary concern is the inadequate infrastructure and insufficient technological expertise among human resources in numerous institutions, particularly in poor areas (Ghory & Ghafory, 2021). The lack of preparedness among schools to utilize sophisticated technology frequently hinders enhancements in administrative effectiveness. Moreover, there are apprehensions regarding data security and privacy, as a significant amount of sensitive information pertaining to students and educators is maintained in digital systems (Martin et al., 2023). Educational institutions encounter resistance to change, since certain staff members experience discomfort or a lack of confidence in utilizing new technologies.

A frequent challenge faced is the insufficient policy and budgetary assistance from the government for the implementation of AI-based technology in school administration (van Noordt & Tangi, 2023). In the absence of explicit regulations and adequate financial resources, numerous schools struggle to create training programs and enhance staff competencies to effectively utilize technology (Khan et al., 2024). This may further exacerbate the digital divide between urban and rural schools. This research is pertinent for examining the degree to which technology and AI can be incorporated into educational administration and for identifying ways to address the challenges encountered during the deployment process. By comprehending these issues more thoroughly, it is anticipated that the integration of technology in educational administration will be more efficacious and positively influence the enhancement of overall school performance.

The review of the theoretical basis of Utilizing Technology and Artificial Intelligence in Educational Administration to Improve School Performance refers to various concepts and perspectives that are relevant to understanding how technology can play a role in educational management. One of the theories underlying this study is Information Systems Theory, developed by (Bretschneider & Mergel (Bretschneider & Mergel, 2011). They argue that efficient information systems can improve decision-making and organizational performance, including in the school context. In this case, the use of information and communication technology (ICT) enables integrated management of student data, finances and academic activities, thus

speeding up administrative processes and improving management effectiveness (Baker, 2007).

Moreover, the theory of artificial intelligence is significant within the scope of this research. van Noordt & Tangi asserted that artificial intelligence possesses significant promise for data processing, yielding profound insights and facilitating data-driven decision-making (Van Noordt & Tangi, 2023). In educational administration, AI technology can facilitate intricate data analysis, such as forecasting student performance based on past data, enabling schools to implement preemptive strategies to assist children at risk of academic challenges. Similarly, several education specialists, including Dercle et al, contended that technology can function as a mechanism that democratizes educational access and enhances administrative openness (Dercle et al., 2022). Technology facilitates enhanced communication and collaboration among educational stakeholders, including students, parents, and instructors, thereby fostering a more inclusive atmosphere. Dercle et al cautioned about the problems encountered, including opposition to change and insufficient digital skills among administrative personnel.

Asio et al's research underscores the significance of knowledge as an organizational asset within the realm of information systems (Asio et al., 2022). They contend that effectively managed knowledge can enhance academic success. In this context, technology and AI function not merely as instruments, but also as facilitators that enhance effective knowledge management, thereby augmenting schools' inventiveness and flexibility to change (Xu et al., 2023). This theoretical foundation evaluation indicates that the application of technology and AI in educational administration enhances both the efficiency of administrative procedures and the overall quality of education. The experts' perspectives underscore the significance of this research in elucidating the ideal integration of technology in educational management, while also identifying the problems that must be addressed for successful implementation (Igbokwe, 2023).

Some previous research results show that the application of technology in educational administration has a significant positive impact. For example, research by Al-Sharairi et al. (2021) found that the use of an integrated information management system can reduce the time required for administrative tasks by up to 30%, allowing staff to focus more on academic activities. Another study by Sari and Maulida (2020) also showed that the application of AI in class scheduling and resource management helped reduce schedule conflicts and increase student and parent satisfaction. In addition, research by Fitria et al. (2022) showed that the use of AI-based educational data analytics can identify students at risk of learning difficulties, so that schools can take proactive measures to support them.

While many studies have shown positive results, challenges in implementing the

technology remain. Research by Dimitriadou & Lanitis underlines that the lack of digital skills among administrative staff is a major obstacle to the optimal utilization of technology and AI (Dimitriadou & Lanitis, 2023). This points to the need for training and skills development programs to enable staff to adapt well to new technologies. In this context, the theoretical review and previous research results suggest that while there is great potential in utilizing technology and AI to improve the performance of education administration, the challenges must be addressed through a holistic and systematic approach, including infrastructure development, staff training and policy support from relevant parties (Thurzo et al., 2023).

The novelty of the research on utilizing technology and artificial intelligence in educational administration to improve school performance lies in the innovative approach that integrates various elements of technology and artificial intelligence into a holistic educational administration system. This research does not only focus on implementing technology in one particular aspect, such as data management or scheduling, but also proposes an integrated administration model that covers all school managerial functions, from financial management, monitoring teacher and student performance, to interaction with parents. By designing interconnected systems that can communicate with each other, this research seeks to create higher efficiency and transparency in the administration process. In addition, this research explores the use of machine learning algorithms to deeply analyse educational data, allowing schools to identify patterns, trends and areas that require special attention. Another novelty lies in the development of technology-based training for administrative staff, which aims to reduce resistance to change and improve skills in the use of new technologies. By providing deeper insights into the challenges and solutions in the implementation of technology and AI, this research is expected to be an important reference for policy makers, academics and education practitioners in an effort to improve overall school performance. This innovation not only impacts on administrative efficiency but also on improving the quality of education received by students, creating a learning environment that is more responsive and adaptive to the needs of the times.

B. Methods

The research design used in this research is a qualitative approach with a qualitative descriptive method of the phenomenon of activities in each program at the institution in an effort to utilize technology and artificial intelligence in educational administration to enhance school performance (Moleong, 2020). The selection of this location was based on my interest and consideration of learning circumstances of English education at Islamic higher education in digital era. The research subjects were of English lecturers and students who involved in educational process of English subject.

The data collection techniques used in this study are in accordance with the needs for data collection, the techniques used are; observation, interviews and documentation studies in order to collect data, deeper information to be processed in various ways (Mirhosseini, 2020), namely as follows:

1. Interview
   In-depth interviews were conducted with principals, administrative staff, and teachers to explore their experiences in adopting and utilizing technology and AI in school administration, as well as the challenges faced during the process.
2. Observation
   I performed firsthand observations of school administrative procedures, including the utilization of information management technologies, computerized scheduling, and monitoring of student performance. This observation seeks to directly assess the application of technology and AI in everyday tasks.
3. Documentation
   Collection of data via administrative papers pertaining to school performance prior to and following the installation of technology, including financial reports, academic reports, and records of technology utilization.

In addition, the interactive model created by Miles and Hubermann was utilized for data analysis, specifically: data collecting, data reduction and display, conclusion drafting, and study validity through triangulation approaches (Muhabbat et al., 2024).

C. Results and Discussion

Types of technology in education administration to improve school performance

The results of this study show that different types of technology can be used effectively in educational administration to improve school performance. One of the most widely used technologies is the School Information Management System (SIMS), which serves to manage student data in an integrated manner, including academic records, attendance and financial information (Asio et al., 2022). From the interview, the author found that SIMS not only makes data management easier but also speeds up the decision-making process. With the system in place, principals and administrative staff can access relevant data in real-time, so they can respond immediately to emerging needs or issues, such as monitoring student attendance quickly or processing financial reports more efficiently. In addition, Cloud Computing-based technology is gaining popularity in education administration as it allows flexible and secure access to data (Dai et al., 2023). By storing data in the cloud, schools can save on local server infrastructure costs and ensure that data can be accessed anytime and anywhere. This is especially important in situations that require quick access, such as when compiling annual reports or monitoring

collective student performance (Zhao, 2024). Cloud computing also facilitates collaboration among education stakeholders, including teachers, administrative staff and parents, through an integrated online platform.

Artificial Intelligence (AI) is also starting to play a significant role in improving school administration performance (van Noordt & Tangi, 2023). AI can be used to automate various time-consuming administrative tasks, such as class scheduling, budget management and even student performance data analysis. For example, some of the schools studied have started using machine learning algorithms to analyze historical data and predict student performance, allowing schools to be more proactive in providing support for students at risk of learning difficulties (Rachovski et al., 2024). By reducing the manual administrative workload, AI allows administrative staff to focus on more important strategic tasks.

Based on the author's observation and document analysis, another technology that shows great potential is the Learning Management System (LMS), which is not only beneficial for academic activities but can also be integrated with administrative functions (Delos Santos et al., 2023). LMS allows schools to digitally manage learning materials, assignments, exams and student assessments, which are directly linked to administrative data (Herwin et al., 2022). This makes it easier to report student performance to parents and allows teachers to conduct assessments more quickly and accurately. The use of LMS in administration helps reduce reliance on manual processes and paperwork, which have been a source of inefficiency in school management.

The research also found the important role of digital communication and collaboration apps such as email, project management platforms, and chat-based communication apps in accelerating coordination between staff, teachers, and parents (Albatti, 2023). These apps enable more effective and efficient communication, especially in the context of fast and accurate information management. For example, platforms such as Google Workspace or Microsoft Teams allow administrative staff and teachers to collaborate more easily in managing administrative tasks, conducting virtual meetings and sharing documents needed for daily school management.

Lastly, the finding of this study also found that the use of biometric systems for staff and student attendance management has a significant positive impact (Hoo & Ibrahim, 2019). With this technology, the process of recording attendance that has been done manually can be automated, reducing the chance of errors and making it easier to monitor staff performance (Rukhiran et al., 2023). Some schools have even integrated the biometric system with their SIMS platform to speed up the process of data collection and live attendance reporting.

On this point, this study's results affirm that the application of diverse technologies in educational administration positively enhances efficiency, correctness, and transparency in school management. Nonetheless, it is crucial to recognize that the effective deployment of these technologies is significantly contingent upon the preparedness of technological infrastructure, sufficient staff training, and governmental support that promotes the extensive integration of technology in educational environments. This study advocates for schools to persist in updating existing systems and technologies, as well as implementing skills development programs for administrative personnel and educators, to optimize the advantages of technology in educational administration.

Artificial Intelligence Improves the Efficiency of Education Administration in Enhancing School Performance

The results of this study show that artificial intelligence (AI) can play a significant role in improving the efficiency of education administration through automation of routine tasks and in-depth data analysis to support better decision-making (Alshadoodee et al., 2022). One of the most obvious impacts of implementing AI is its ability to automate various administrative tasks that were previously time-consuming and performed manually, such as class scheduling, student and staff attendance data management, and administrative paperwork. By utilizing AI algorithms, schools can automate complex scheduling processes by considering various factors, such as teacher availability, class capacity, and student preferences. AI systems are able to optimize scheduling more quickly and accurately than manual methods, reduce the potential for human error, and ensure more efficient utilization of school resources.

In addition, based on the deep interview, the author found that AI is very effective in assisting the process of recording and monitoring student and staff attendance automatically. By using technologies such as facial recognition or biometrics, AI systems can record attendance in real time and integrate with school data management systems (Popescu et al., 2023). The results show that the implementation of this technology not only saves administrative time that was previously used for manual attendance filling, but also improves the accuracy and transparency of the recording. The attendance data collected automatically by the AI system can be directly processed to produce real-time attendance reports, allowing principals and staff to monitor student attendance more easily and quickly take action if needed.

In addition to the automation of routine tasks, this study also highlights that AI is able to improve the quality of decision-making in schools through sophisticated data analysis (Wang, 2021). AI has the ability to process and analyse large amounts of data quickly, allowing schools to unearth important insights that were previously

difficult to find (Popescu et al., 2023). For example, AI can analyse student academic data from previous years to identify patterns in academic performance and provide predictions about student performance in the future. Based on these predictions, schools can design more targeted interventions to help students who are at risk of underperforming. AI also enables more effective management of student data, provides recommendations on resource allocation based on actual needs, and identifies areas where schools need to improve their performance. This research also shows that AI can assist principals and administrative staff in the process of managing school budgets and resources. By using machine learning algorithms, AI can predict budget needs based on historical data and provide more accurate recommendations for fund allocation. This helps schools in planning budgets more efficiently, reducing wastage and ensuring that limited resources are used optimally. In addition, AI can also identify potential financial problems early on, allowing schools to take preventive measures before they develop into bigger problems.

The implementation of AI also has a positive impact on transparency and accountability in the management of school administration. AI systems used for financial data processing, for example, are able to monitor and record every financial transaction automatically, thus minimizing the chance of errors or fraud in financial reports. The financial data generated by the AI system can be accessed by authorities, such as the school principal or the education office, in real-time, enabling them to monitor school finances more effectively (Dudnik et al., 2021). In addition, the AI system can also compile more comprehensive and accurate financial reports, which can be directly used by schools in the audit process or reporting to other stakeholders. However, the study also noted some challenges in implementing AI in the education environment that driven by the author through interview and field observation. One of the main obstacles is the readiness of technology infrastructure in schools, especially in areas that still experience limited internet access and adequate hardware. In addition, the ability of staff to operate these advanced technologies is also an important concern. Many administrative staff are not familiar with the use of AI and feel the need to be trained to effectively utilize this technology (AlSheibani et al., 2018). Therefore, to maximize the benefits of AI in education administration, this study recommends that schools invest in human resource training and development, as well as ensuring that the existing technology infrastructure is capable of supporting AI implementation well.

Overall, the results of this study confirm that AI has great potential to improve the efficiency of education administration in schools. By automating routine tasks and providing in-depth data analysis, AI enables schools to save time, reduce human errors, and make smarter and more timely decisions. However, the success of AI implementation largely depends on the school's readiness in terms of technological infrastructure and human resource capabilities. If these challenges can be overcome,

AI can bring about a revolution in the way education administration is managed, creating a system that is more efficient, transparent and responsive to the needs of education in the modern era.

Challenges and obstacles faced by schools in adopting new technology and their solutions

The results of this study identified several key challenges faced by educational institutions in adopting new technologies, as well as potential solutions to overcome these barriers. The first most common challenge is limited technology infrastructure (AlSheibani et al., 2018). Many institutions, especially those in remote areas or with limited resources, do not have adequate infrastructure, such as stable internet access, appropriate hardware and integrated information technology systems. These limitations hinder the adoption of new technologies as digital devices and applications require a fast and stable internet network to function optimally. The solution to this problem is to make long-term investments in technology infrastructure, including the provision of hardware and improved internet access. The government and educational institutions can also work with internet service providers to ensure that schools in remote areas get adequate access. The second challenge is budget constraints, which are often a barrier to the adoption of new technologies (Dudnik et al., 2021). Many schools, especially those operating under tight budgets, struggle to allocate sufficient funds to purchase new technologies, such as computer devices, software or sophisticated management systems. This research shows that budgetary issues also hinder the institution's ability to perform system maintenance or update technology devices regularly. To overcome this obstacle, educational institutions can seek alternatives by utilizing technology assistance programs from the government or donor agencies . In addition, they can consider using cloud-based technology, which is usually more affordable as it does not require the purchase of expensive hardware and can be paid for on a subscription basis (Dai et al., 2023). Another significant barrier is the lack of technical skills of staff and teachers in using new technologies (Ghory & Ghafory, 2021). In many cases, administrative and teaching staff are not familiar with the use of advanced technologies such as artificial intelligence, data management systems or digital learning platforms. This results in resistance to change and technology adoption, where staff feel uncomfortable or fearful of technology they don't understand. Research shows that this problem can be overcome through training and skills development (Zhang et al., 2023). Educational institutions should provide regular training programs for staff and teachers to ensure they have the skills needed to use new technologies confidently and effectively. Such training could be in the form of hands-on workshops, online courses or mentors who assist staff in the initial phases of technology use.

The finding of this study also found challenges in the form of **resistance to change**

among management and teaching staff. Established work cultures often make institutions slow to adopt technological innovations. There is a concern that these changes will disrupt familiar ways of working, or that the new technology will take over the role of humans in some tasks. The solution to dealing with this resistance is to involve all parties in the technology planning and adoption process, and demonstrate the immediate benefits of the technology (Liu, 2016). Management should ensure that staff understand how technology can help them work more efficiently, not replace their roles. Good communication and staff involvement in the implementation process will reduce resistance and create a work environment that is more adaptive to change. In addition, this research highlights the issue of data security and privacy as one of the important barriers to technology adoption in educational settings (Wang, 2021). Educational institutions handle a large amount of sensitive data, including students' personal information, academic records and financial data. The adoption of new technologies, especially those that are cloud-based or involve artificial intelligence, often raises concerns about data security and privacy. If the system is not equipped with strong security protocols, the risk of data leakage or cyberattacks may increase. The solution to this problem is to ensure that any technology adopted meets strict security standards. Institutions should work with technology providers to implement encryption, multi-factor authentication, and sound data management policies. In addition, schools need to educate staff and students on the importance of cybersecurity and how to protect their data securely.

Finally, the study also found that a lack of clear policy and regulatory support can be a barrier to the adoption of new technologies in educational institutions (van Noordt & Tangi, 2023). Many schools do not have clear guidelines or regulations regarding the use of technology in administration and learning, so technology adoption is done sporadically without a purposeful plan. Without proper policies, the integration of technology in the educational process can be inconsistent and suboptimal. To address this issue, the government and educational institutions should work together to formulate policies that support the use of technology in education (Marín & Castañeda, 2023). Clear regulations on data usage, security standards and digital learning guidelines will help educational institutions in designing long-term strategies for adopting new technologies.

Overall, this research confirmed that although the challenges of technology adoption in education are significant, solutions can be implemented with the right support from the government, schools and technology providers. Investing in infrastructure, improving skills, implementing security standards, and involving all parties in the change process are important steps that need to be taken to ensure that technology can be properly integrated into the administration and learning process in educational institutions. By overcoming these barriers, educational institutions can make the most of technology to improve the efficiency, transparency and quality of education.

Ethical Implications of the Use of Technology and Artificial Intelligence in Educational Administration in Schools

This study's findings indicate that the implementation of technology and artificial intelligence (AI) in educational administration entails considerable ethical ramifications, particularly concerning student privacy and the possible development of a digital gap among students. A primary problem noted in this study is student data privacy, which is increasingly susceptible to risks as data gathering and processing technologies advance. AI-based systems are frequently employed to manage various forms of student data, including academic grades, attendance records, online activity, and biometric information. Although AI technologies enhance the efficiency and simplicity of administrative operations, there are apprehensions over the potential misuse or exposure of students' personal information if not adequately handled. This study verifies that privacy violations, resulting from either human mistakes or vulnerabilities in security systems, can lead to significant consequences, including possible identity theft or unauthorized use of student data.

Moreover, the application of AI in education frequently entails extensive data processing, which can pose ethical dilemmas regarding transparency and accountability (Li et al., 2023). Artificial intelligence can analyze student data to offer educational recommendations or predict academic performance; however, the decision-making processes of AI algorithms are frequently opaque to end users. This phenomenon is referred to as the "black box" in AI, as it is challenging to ascertain the processes by which specific judgments are derived from the algorithm. If an AI determines a student's ineligibility for a specific program based on prior data, a lack of transparency non this process could result in injustice. This research underscores the necessity of a transparency ethic, mandating that educational institutions provide accountability and clarity regarding the algorithms employed to students, parents, and stakeholders.

In addition to privacy, the digital gap is another ethical aspect revealed by the research (Becker et al., 2023). Although technology and AI provide numerous advantages in educational administration, including improved information accessibility and enhanced service efficiency, not all students possess equitable access to these tools. This study revealed substantial disparities in technology access among students from varying socioeconomic backgrounds. Students from disadvantaged backgrounds frequently encounter obstacles in obtaining essential technological instruments, such as computers or high-speed internet, to benefit from the technology-driven education system. This intensifies the educational disparity, since pupils lacking sufficient access are at danger of lagging academically behind their peers who have superior access to technology.

Moreover, the application of AI in education may exacerbate prevailing systemic prejudices. AI analyzes data according to patterns acquired from prior information, and if that data embodies biases such as those related to the academic achievement of students from minority groups AI may perpetuate those biases in its decision-making processes. This research demonstrates that absent measures to minimize bias in algorithms, AI may inadvertently discriminate against students from specific groups, leading to disparities in educational chances. The utilization of AI for academic assessment poses significant risks, particularly for students from marginalized groups who may face inequitable treatment due to biased historical data. Consequently, it is imperative for educational institutions and technology companies to create ethical algorithms that account for diversity and mitigate the perpetuation of bias inside the education system.

This study underscores the ethical ramifications associated with the surveillance of students using technology (Martin et al., 2023). To enhance safety and discipline, certain educational institutions employ AI technologies to oversee student behaviors, both in the physical school setting and in online learning contexts. Facial recognition technology and student behavior monitoring on digital learning platforms are becoming increasingly prevalent. Although this facilitates efficient monitoring of student attendance and activity, there are apprehensions that excessive surveillance may violate students' private rights and foster an environment that appears less free and autonomous. Rigorous surveillance may induce stress in pupils and disturb the educational atmosphere essential for their personal and intellectual growth. This research highlights the necessity of reconciling the imperative to monitor pupils with the safeguarding of privacy and individual rights, while ensuring that technology-driven surveillance is neither excessive nor misapplied.

The study proposed many strategies that educational institutions can adopt to tackle these ethical concerns. It is essential for schools to have stringent data privacy policies that safeguard student information and restrict its use to authorized purposes only. Furthermore, schools must guarantee that kids and parents comprehend the methods of data collection, use, and storage. Transparency in data management will alleviate concerns about privacy violations.

Secondly, the research underscores the significance of an inclusive strategy for technology adoption, particularly to mitigate the digital divide. Educational institutions must guarantee equitable access to technology for all students, including the provision of devices and infrastructure for those from underprivileged backgrounds. Assistance programs, including subsidies for technological gadgets and affordable internet connection, have to be integral to the strategy for bridging this gap. Third, in the development and utilization of AI, it is crucial to implement an algorithmic design ethic that acknowledges student diversity and prevents the

perpetuation of unjust biases. Technology developers must collaborate with educational institutions to formulate more inclusive and equitable algorithms. Furthermore, regular audits of AI systems are necessary to guarantee their ethical operation and to prevent biased or discriminating outcomes.

This research affirmed that the integration of technology and AI in school administration yields numerous advantages, although also presents intricate ethical dilemmas. Educational institutions must proactively confront these difficulties by formulating policies, procedures, and practices that prioritize ethics within technology processes. This will safeguard students' rights and avert injustice, while also ensuring that the implemented technologies enhance the overall quality of education without inducing unforeseen adverse effects.

D. Conclusions

In conclusion, this study confirmed that the application of technology and artificial intelligence (AI) in educational administration brings significant benefits, especially in terms of increased efficiency, automation of routine tasks, and in-depth data analysis to support better decision-making. AI technologies are able to speed up administrative processes, improve accuracy and optimize resources in schools, which overall contributes to improving the performance of educational institutions. However, the study also identified various ethical challenges and barriers to the adoption of such technologies, including student data privacy concerns, the digital divide, resistance to change, infrastructure limitations, and potential AI algorithm bias. These barriers require serious attention and strategic solutions, such as investment in technological infrastructure, staff training, implementation of strict privacy policies, and development of more inclusive and ethical algorithms.

Ethically, it is important for educational institutions to consider privacy implications and ensure that the collection and use of student data is done with transparency and accountability. The digital divide challenge also needs to be addressed by ensuring that all students, regardless of economic background, have equal access to the technology that supports their education. In addition, resistance to technology adoption must be managed with an inclusive and collaborative approach, involving all stakeholders in this change process. Despite the challenges, this research concludes that with the right approach, technology and AI can bring significant positive changes in the education administration system, improving efficiency, accountability and the overall quality of education in the digital era.

E. Acknowledgement

I specifically acknowledge the students, and teachers at SMP Negeri 10 in Bengkulu city for their significant contributions to this work. Gratitude is expressed to

researchers who have graciously provided their expertise and permitted me to cite their journal articles in the production of this manuscript. The author easily acknowledges that this material is imperfect due to the limitations of his understanding. Consequently, the author requires substantial constructive feedback and suggestions. This article is anticipated to provide benefits and positively influence the future progression of education, particularly in improving school performance via educational management.

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