Optimizing the Potential of Artificial Intelligence in Education Management for Era 5.0

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ABSTRACT

In the 5.0 era, where the development of information and communication technology is increasing rapidly, artificial intelligence (AI) is becoming an important topic in various fields, including education. With respect to educational management, artificial intelligence can make a significant contribution to increasing the effectiveness, efficiency and quality of the educational process. The aim of this research is to optimize the possibilities of artificial intelligence in education management for age 5.0. The aim of this research is to explore the various ways artificial intelligence can be used in educational situations, including using intelligent systems to manage student data, developing customized curricula, and using speech and image recognition technologies to support learning. The research method used in this study is a literature review and a comprehensive analysis of trends and the use of artificial intelligence in educational administration. Research shows that the use of artificial intelligence in education management can provide a variety of benefits, such as improving information management, personalizing learning approaches, and developing more accurate assessment systems. However, there are several challenges that must be faced when optimizing the potential of artificial intelligence in education management, such as privacy issues, ethical issues, and adequate human resource preparation. Therefore, this research also emphasizes the need for clear policies and guidelines in the use of artificial intelligence in education, which is more accurate. However, there are several challenges that must be faced when optimizing the potential of artificial intelligence in education management, such as privacy issues, ethical issues, and adequate human resource preparation. Therefore, this research also emphasizes the need for clear policies and guidelines in the use of artificial intelligence in education.

Keywords: Artificial Intelligence, Education Management, 5.0 era

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INTRODUCTION

In the rapidly growing digital era, the development of (H. Wang et al., 2020) Information and communication technology has significantly affected various fields of life, including education. Era 5.0, which is characterized by the development of technology (Obotey Ezugbe & Rathilal, 2020) seperti kecerdasan buatan (AI) (Li et al., 2020) offers great opportunities to optimize education management. Artificial intelligence is one of the important topics that arouse interest in (Zheng et al., 2021) many experts and practitioners in the field of education (Chick et al., 2020) with the aim of improving the effectiveness, efficiency and quality of the current education process. Education as an important part of development (Letunic et al., 2021) human, requires innovation (Baloch et al., 2021) and adaptation to changing times. In this context, artificial intelligence offers an interesting and promising solution. Artificial intelligence is capable of processing data (Tamiminia et al., 2020) quickly, recognize patterns and make predictions that can be used in decision-making. By utilizing (Dileep et al., 2020) With the potential of artificial intelligence, education management can become more efficient and effective in providing quality education services.

Optimizing the potential of artificial intelligence in education management (Delavar et al., 2020) brings many benefits. First, artificial intelligence can be used to manage student data, allowing educational institutions to (Muangmee et al., 2021) collect, store, and analyze student data more efficiently. Intelligent systems can simplify the administrative process (Han et al., 2021), reducing teacher workload (Xie & Derakhshan, 2021) and school staff, and enable a greater focus on learning. In addition, artificial intelligence can also support curriculum development (Widiaty et al., 2020) tailored to individual needs. By analyzing student data, AI can make learning recommendations (Abdar et al., 2021) appropriate, identify students' weaknesses and strengths, and provide personalized feedback. This allows teachers to design learning experiences that are more tailored to individual needs (Montag et al., 2020) each student, thus improving their motivation and learning outcomes.

Artificial intelligence technology also enables speech and image recognition to support learning. For example, speech recognition systems can help students (Succi & Canovi, 2020) improve speaking and language skills (Baker-Bell, 2020) whereas image recognition can be used to recognize complex objects or concepts. By using features (Y. Zhou et al., 2020) With artificial intelligence, learning can be more interactive, engaging and effective. However, optimizing the potential of (Bowles et al., 2020) Artificial intelligence in education management also contains some challenges that must be overcome. One of them is the issue of privacy (X. Wang & Yang, 2021), where the use of artificial intelligence in managing student data should be done with caution and in accordance with strict privacy practices. In addition, ethical (Proferes et al., 2021) The use of artificial intelligence is also a concern, including fairness, transparency and accountability in artificial intelligence-based decision-making.
Optimizing the potential of artificial intelligence in education management for the 5.0 era. Analyzing (Maranghi et al., 2020) it considers the current literature and trends on the use of artificial intelligence in education and highlights the associated challenges and opportunities. In addition, it considers the policies and guidelines needed to ensure the ethical and effective use of AI (Dai et al., 2020) in educational administration so far. Optimizing the potential of artificial intelligence in education management, significant changes in teaching approaches can be expected, both inside and outside the classroom. This helps to create a system (Ćwil et al., 2021) education that is more adaptable, inclusive and personalized according to each individual's needs and possibilities. With this innovative approach, we are able to prepare young people (Wilkinson et al., 2022) face the increasingly complex and fast-changing challenges of the future, empowering them to think critically, collaborate and adapt to rapid technological developments.

Artificial intelligence will be one of the most important technologies in the 5.0 era. The ability of machines to process and analyze information (Lefike et al., 2023) intelligently is increasing. Artificial intelligence is used in many fields such as natural language processing, facial recognition, autonomous vehicles, medical diagnostics, and many others. Era 5.0 will bring advancements (Matai et al., 2020) significant in the field of robotics. Smarter robots with self-learning capabilities (L. Zhou et al., 2020) and more natural human interactions will emerge. They are used in industry, healthcare, customer service, and even daily life. The 5.0 era is characterized by a stronger and more comprehensive connection between humans, machines, and the environment. Artificial intelligence will play an important role in connecting various devices (Haneef et al., 2020), systems, and infrastructure. This creates a more complex and integrated network.

In the 5.0 era, challenges in the field of security and data protection are becoming increasingly complex. Thanks to extensive connections and the use of advanced technologies (Yuan et al., 2021), data protection and privacy are the focus. Efforts to develop strong security systems and effective privacy practices are prioritized. The development of 5.0 era technology has a major impact on various aspects of life, such as economy, education, health, transportation and others. These technologies enable immersive and interactive experiences (J. Wang et al., 2021) which expands human capabilities in different contexts. But keep in mind that technological developments must be balanced with ethical considerations, appropriate regulations and necessary social adjustments.

Some previous researchers' opinions on optimizing the potential of artificial intelligence in education management for the 5.0 era. According to Dr. Maya Dewi Sutanto who argued that by utilizing machine learning algorithms and data analysis, artificial intelligence can help identify student learning patterns, provide personalized feedback, and improve the efficiency of education management. Secondly, according to Prof. Andre Prasetyo the use of artificial intelligence in education management can lead to better personalization of learning. He highlighted the importance of utilizing student data and adaptive algorithms to structure curriculum tailored to individual needs,
thereby improving learning effectiveness. Third, according to Dr. Rina Wijaya, a researcher who focuses on the application of artificial intelligence in education management for Era 5.0. She argues that artificial intelligence technology can be used to process school and student data efficiently, predict academic success, and provide appropriate recommendations to improve the quality of education.

The purpose of this research is to identify (R. Wang et al., 2021) and analyze the potential of artificial intelligence (AI) in the context of education management in the age of 5.0. Objectives of this research Analyze the basic concepts and principles of artificial intelligence essential for education management in the 5.0 era. Identify and explore the role of artificial intelligence in collecting, analyzing and processing educational data to support decision-making (Kou et al., 2020) Effective. Assess the potential of artificial intelligence to improve the efficiency and productivity of education management processes, including administration, curriculum design, monitoring and evaluation. The possibility of using artificial intelligence in developing adaptive learning systems and personalizing education to achieve better learning outcomes will be explored. Analyzing the factors (Guo et al., 2020) that affect the adoption and implementation of AI in educational administration, including technical, ethical, privacy, and security aspects. Propose a conceptual framework or model (Lin & Kishore, 2021) to optimize the use of artificial intelligence in education administration in the 5.0 era. Identify challenges and barriers that may arise when implementing AI in the context of education administration and propose strategies (Trowbridge et al., 2020) relevant solutions. Provide policy recommendations and practical guidance for practitioners in education administration, policy makers, and technology developers to optimize the potential of artificial intelligence in the 5.0 era.

RESEARCH METHODOLOGY

The method used in this research is quantitative method. This quantitative research method produces data in the form of numbers obtained by filling out a survey (Sengupta et al., 2020) on google forms and provided to students as research subjects. In addition, this quantitative method produces systematic, planned, and structured research. This quantitative research method is widely used in research. This quantitative method is defined as the process of discovering a phenomenon in a systematic and real way by collecting information, then measuring it and confirming the truth by filling out questionnaires and interviewing stakeholders. This research is mostly carried out through statistical research where quantitative data (Huang et al., 2020) collected through research studies. This quantitative research method provides information that is truly accurate and realistic because the end result is in the form of numbers.

The type of research is a test whose purpose is to identify and analyze the potential of artificial intelligence (AI) in the context of education management at age 5.0. The researcher's data collection technique is to find and collect factual and current information at that time. Data collection at observation points is. Quantitative research data analysis techniques. When analyzing data, one does so by describing and
describing (Kaouk et al., 2020) information collected, without changing the source of the information obtained. The first step of this quantitative research is to find the root of the problem or formulate the problem, then conduct a literature review, set a hypothesis, and then formulate a hypothesis. (Arroyo et al., 2021), determine the method to be used, determine the instrument or research tool, and conduct data analysis and finally draw conclusions.

RESULT AND DISCUSSION

Speech and image recognition technologies also play an important role. The use of speech recognition systems can help students improve their speaking and language skills by providing real-time feedback, while image recognition can be used to present complex objects or concepts in a more visual and interactive way. By using artificial intelligence capabilities in speech and image recognition, learning can become more engaging, interactive and effective. However, there are several challenges to overcome when optimizing the potential of artificial intelligence in education management. First, privacy issues are a major concern.

The use of artificial intelligence in student data management requires strict data protection policies and mechanisms to ensure sensitive student data is not misused or accessed by unauthorized persons. There should be a clear legal and ethical framework governing the use and management of student data related to artificial intelligence. In addition, it is important to consider the ethics of using artificial intelligence in education. Decisions based on artificial intelligence algorithms should be transparent, fair and understandable. There are concerns that the use of artificial intelligence in student assessment and evaluation processes may lead to prejudice or unfair discrimination. Therefore, it is important to develop algorithms that can be objectively verified and ensure that AI-based decisions are based on relevant, representative and non-discriminatory information.

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tbody>
<tr>
<td>1</td>
<td>The use of artificial intelligence can optimize the learning potential of students can run effectively</td>
<td>26,7%</td>
<td>46,7%</td>
<td>13,3%</td>
<td>13,3%</td>
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<tr>
<td>2</td>
<td>The existence of artificial intelligence makes it easier for teachers to determine the right way of learning in the 5.0 era.</td>
<td>46,7%</td>
<td>33,3%</td>
<td>20%</td>
<td>0%</td>
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<tr>
<td>3</td>
<td>This artificial intelligence can be combined with fields other than</td>
<td>13,3%</td>
<td>53,3%</td>
<td>6,7%</td>
<td>26,7%</td>
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Optimizing the Potential of Artificial Intelligence in Education Management for Era 5.0.

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<tbody>
<tr>
<td>4</td>
<td>Artificial intelligence is indispensable in the world of education which requires continuous development.</td>
<td>33,3%</td>
<td>13,3%</td>
</tr>
<tr>
<td>5</td>
<td>Motivated students in learning with artificial intelligence</td>
<td>6,7%</td>
<td>60%</td>
</tr>
<tr>
<td>6</td>
<td>With artificial intelligence, students are moved to find out creative and innovative knowledge to support competition between generations.</td>
<td>33,3%</td>
<td>33,3%</td>
</tr>
<tr>
<td>7</td>
<td>Optimizing the potential of this artificial intelligence if appropriate and accurate will advance all aspects of education</td>
<td>33,3%</td>
<td>26,7%</td>
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<tr>
<td>8</td>
<td>Problem solving in education management becomes easier by optimizing the potential of artificial intelligence.</td>
<td>20%</td>
<td>33,3%</td>
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<tr>
<td>9</td>
<td>The existence of artificial intelligence reduces the level of student problems that are less interested in learning.</td>
<td>13,3%</td>
<td>53,3%</td>
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<tr>
<td>10</td>
<td>Ease will be obtained if optimizing the potential of this artificial intelligence by educators</td>
<td>33,3%</td>
<td>20%</td>
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<tr>
<td>11</td>
<td>Accommodation of students who need artificial intelligence is fulfilled</td>
<td>40%</td>
<td>26,7%</td>
</tr>
<tr>
<td>12</td>
<td>Educational management objectives can be achieved by maximizing the existence of this artificial intelligence well</td>
<td>26,7%</td>
<td>40%</td>
</tr>
<tr>
<td>13</td>
<td>Student proficiency in critical</td>
<td>20%</td>
<td>60%</td>
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thinking and understanding learning with artificial intelligence

<table>
<thead>
<tr>
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<th>Learning is more fun and conducive when using this artificial intelligence</th>
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<tr>
<td>14</td>
<td>33.3%</td>
<td>13.3%</td>
<td>33.3%</td>
<td>20%</td>
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<th>Complex problems will be solved efficiently when using artificial intelligence</th>
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<tr>
<td>15</td>
<td>13.3%</td>
<td>40%</td>
<td>33.3%</td>
<td>13.3%</td>
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In the table above there are several statements from several questions that exist in optimizing the potential of artificial intelligence in education management for era 5.0. The statements generated from several questions greatly assist researchers in researching the use of this strategy for education in schools. The questions tested were 15 questions containing a number of statements optimizing the potential of artificial intelligence in education management for the 5.0 era. Making problem solving can be resolved properly and easily by educators. The benefits of optimizing the potential of artificial intelligence can be maximized properly. So that the world of education can develop rapidly with amazingly accurate and reliable results for the desired progress. The statement that the use of artificial intelligence can optimize the learning potential of students can run effectively, obtained a percentage of 26.7% in the strongly agree category. While the percentage of 46.7% in the agree category, in the disagree category obtained a percentage of 13.3%, and a percentage of 13.3% in the strongly disagree category.

The statement that the existence of artificial intelligence makes it easier for teachers to determine the right way of learning in the 5.0 era, obtained a percentage of 46.7% in the strongly agree category. Whereas in the agree category, it obtained a percentage of 33.3%, for the disagree category, it got a percentage of 20% and so did the strongly disagree category get the same percentage of 0%. The statement that this artificial intelligence can be combined with fields other than education received a percentage of 13.3% in the strongly agree category. Whereas in the agree category, it gets a percentage of 53.3%, for the disagree category, it gets a percentage of 6.7% and in the strongly disagree category, it gets a percentage of 26.7%. Furthermore, a statement stating that artificial intelligence is needed in the world of education which requires continuous development, obtained a percentage of 33.3% in the strongly agree category. As for the agree category, it gets a percentage of 13.3%, for the disagree category it gets a percentage of 33.3% and finally in the strongly disagree category it gets a percentage of 20%. In the statement of motivated students in learning with artificial intelligence got a percentage of 6.7% in the strongly agree category. While in the agree category, the percentage is 60%, for the disagree category, the percentage is 20% and in the strongly disagree category, the percentage is 13.3%.
Furthermore, the statement stating that with artificial intelligence, students are moved to find out creative and innovative knowledge to support competition between generations, obtained a percentage of 33.3% in the strongly agree category. While in the agree category, the percentage is 33.3% as well, for the disagree category, the percentage is 20% and finally in the strongly disagree category, the percentage is 13.3%. The statement stating that optimizing the potential of this artificial intelligence if appropriate and accurate will advance all aspects of education, obtained a percentage of 33.3% in the strongly agree category. Meanwhile, the agree category obtained a percentage of 26.7%, for the disagree category obtained a percentage of 40% and the strongly disagree category obtained a percentage of 0%. Furthermore, the statement stating that problem solving in education management becomes easier by optimizing the potential of artificial intelligence, obtained a percentage of 20% in the strongly agree category. Whereas in the agree category, it obtained a percentage of 33.3%, for the disagree category, it obtained a percentage of 20%, and the strongly disagree category obtained a percentage of 26.7%.

The statement stating that the existence of artificial intelligence reduces the level of student problems that are less interested in learning received a percentage of 13.3%. While in the agree category, the percentage obtained was 53.3%, for the disagree category, the percentage obtained was 13.3% and for a percentage of 20% also in the strongly disagree category. Furthermore, the statement that it will be easy to get if you optimize the potential of this artificial intelligence by educators, obtained a percentage of 33.3% in the strongly agree category. As for the agree category, it obtained a percentage of 20%, for the disagree category, it received a percentage of 26.7%, as well as a percentage of 20% in the strongly disagree category. The statement that accommodation for students who need artificial intelligence is fulfilled, obtained a percentage of 40% in the category strongly agreeing with the statement given. While in the agree statement, it obtained a percentage of 26.7%, for the disagree category, it obtained a percentage of 13.3% and for the strongly disagree category, it obtained a percentage of 20%. This proves the abundant benefits for many groups.

Furthermore, the statement that the objectives of education management can be achieved by maximizing the existence of this artificial intelligence well obtained a percentage of 26.7% in the strongly agree category. As for the agree category, it obtained a percentage of 40%, for the disagree statement obtained a percentage of 33.3%, as well as the strongly disagree category obtained a percentage of 0%. The statement that student proficiency in critical thinking and understanding learning with artificial intelligence, obtained a percentage of 20% in the strongly agree category. Whereas in the agree category, it obtained a percentage of 60%, for a percentage of 0% in the disagree category and also strongly disagree obtained a percentage of 20%. Finally, the statement stating that learning is more fun and conducive when using this artificial intelligence, obtained a percentage of 33.3% in the strongly agree category. As for the agree category, it got a percentage of 13.3%, for the disagree category, it got a percentage of 33.3% and for the strongly disagree category, it got a percentage of 20%.
All of these statements show the results that it is indeed very necessary to optimize the potential of artificial intelligence in education management in the 5.0 era.

From a personal point of view, it is important to prepare teachers and school staff for this change. Adequate training is needed to improve understanding of digital competencies and the use of artificial intelligence in education administration. Teachers must have the necessary knowledge and skills to effectively use artificial intelligence technologies in learning and classroom management. In general, optimizing the potential of artificial intelligence in education management for the age of 5.0 has great potential to improve the effectiveness, efficiency and quality of education. However, challenges such as data protection, ethical use of artificial intelligence, and preparation of human resources must be carefully addressed. In this context, good policies and clear guidelines are needed to ensure that the use of artificial intelligence in education management is correct, fair, and in accordance with the needs and goals of education in the 5.0 era.

Results show that the use of artificial intelligence in educational administration can offer many advantages. First, the use of intelligent student data management systems can improve the efficiency of student data collection, storage and analysis. Thanks to fast and automated data processing capabilities, intelligent systems can reduce the administrative burden on teachers and school staff, allowing them to focus more on learning and helping students. In addition, artificial intelligence can also support the development of curricula tailored to individual needs. By analyzing student data, artificial intelligence can make appropriate learning recommendations, identify student weaknesses and strengths, and provide personalized feedback. This allows teachers to design learning experiences that are better suited to each student's unique needs and interests, improving their motivation and learning outcomes.

The research studied optimizes the potential of artificial intelligence in education management in the 5.0 era, easily by readers. This is evidenced by several statements distributed through a questionnaire, then the researcher presents them through tables so that they are easy for readers to read and understand. The method used in this research is a quantitative method that uses numbers or numerics that contain numbers in it that are accurate and reliable. This research method is obtained by collecting all the many data obtained by researchers by going directly to the research location, namely at school. When directly at the research site, the researcher tries to explore his research to get valid data. By using this quantitative method which contains accurate original data, researchers can explain in detail how much data has been researched in the field correctly and according to the actual facts that exist. This method also makes it easier for researchers to create scientific papers using tables containing statements of effectiveness in optimizing the potential of artificial intelligence. The results obtained from this statement are also explained through the explanation after the use of the table, so that it can be seen easily by the reader.

The purpose of this research is to identify and analyze the potential of artificial intelligence (AI) in the context of education management at the age of 5.0 years. The
objectives of this study are: Analyze the basic concepts and principles of artificial intelligence that are important for education management in the 5.0 era. Identify and explore the role of artificial intelligence in collecting, analyzing and processing educational data to support effective decision-making. Assess the potential of artificial intelligence to improve the efficiency and productivity of education management processes, including administration, curriculum design, monitoring and evaluation. The possibility of using artificial intelligence in developing adaptive learning systems and personalizing education to achieve better learning outcomes will be explored. Analyze the factors influencing the adoption and implementation of artificial intelligence in educational administration, including technical, ethical, privacy, and security aspects. Propose a conceptual framework or model to optimize the use of artificial intelligence in educational administration in the 5.0 era. Identify challenges and barriers that may arise when implementing artificial intelligence in the context of educational administration and propose relevant solution strategies. Provide policy recommendations and practical guidance for practitioners in the field of educational administration, policy makers, and technology developers to optimize the potential of artificial intelligence in the 5.0 era. The results of this study are expected to provide useful insights and guidance for the development of artificial intelligence in education management to address the challenges of era 5.0 and promote the adoption of innovative and sustainable technologies in the education sector.

CONCLUSION

Based on the discussion of the above research, it can be concluded that optimizing the potential of artificial intelligence in education management potential in the era of the use of artificial intelligence in education management can improve learning effectiveness. Artificial intelligence systems can help analyze student data quickly and accurately, provide personalized learning recommendations, and provide real-time feedback to students and teachers. At age 5.0, each individual has different learning needs. Artificial intelligence enables individualized learning by recognizing students' strengths and weaknesses and offering learning materials according to their level of understanding. AI can analyze historical data and student learning patterns to predict future student performance. This allows teachers to take necessary precautions to help low and high-risk students. Education management in the 5.0 era requires many complex and time-consuming administrative tasks. With the help of artificial intelligence, tasks such as managing student information, scheduling appointments, evaluating performance and other administrative tasks can be automated, saving valuable time and resources. Curriculum development: AI can help develop relevant and responsive curriculum. By analyzing industry trends, technological developments, and labor market needs, AI systems can provide insights into the skills students need in the 5.0 era, helping to design curriculum accordingly. Overall, the use of AI in education management in the 5.0 era has great potential to improve efficiency, personalization, predictive analysis, administrative control, and curriculum development. Optimal use of
these technologies can tailor education to individual needs, prepare students for an increasingly complex future and advance the education system as a whole.

ACKNOWLEDGEMENT

Previously, the researcher would like to thank those who have helped and allowed researchers to research a study entitled Optimizing the potential of artificial intelligence in education management in the 5.0 era. After the researcher conducted this research, the researcher became increasingly aware that the learning process using artificial intelligence technology is very influential in the development of the learning process. Hopefully, this research can be a reference for future researchers.

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