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ARTIFICIAL INTELEGENCE TRENDS IN EDUCATION AMONG SCHOOL ADMINISTRATORS IN MALAYSIA.

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ABSTRACT

In recent years, artificial intelligence (AI) has gained significant attention in the education sector in Malaysia. With the rapid advancement of technology, school administrators are recognizing the potential of AI to improve student learning outcomes and streamline administrative processes. In this narrative overview, we will discuss some of the AI trends in education that are currently being implemented or considered by school administrators in Malaysia. The awareness of the importance of digital learning are very much needed to be emphasize because without it, students will be left behind in terms of education. The main objective of this research is to identify the prospective impact of artificial technologies among school administrators in Malaysian schools with personalized learning, chatbots, predictive analytics, intelligent tutoring systems, and automated grading. This study also conducted to examine the level of competence of school administrators on the technology management and instructional technology using artificial technologies. The respondents of this study consisted of 40 secondary schools from Malaysia. Using the method of questionnaire survey and interview this study takes the entire education system of Malaysia as an example to explore the effect of AI on role cognition in the education system to streamline administrative processes. The findings of the study show that the level of competence among school administrators in technology management and instructional technology in leveraging AI to improve student outcomes and streamline administrative processes to the study process and to predict possible changes in educational landscape is at a moderate level. Therefore, school administrators need to give their full commitment to the use of instructional technology in order to increase productivity in teaching and learning as well as school management with the impact of artificial intelligence. This research will provide appropriate knowledge for all school administrators to adopt technology leadership features to enhance the school administration system and teacher teaching implementation at a higher level.

Keywords: *Artificial intelligence, personalized learning, chatbots, predictive analytics, intelligent tutoring systems, and automated grading.*

1. INTRODUCTION

In recent years, the integration of Artificial Intelligence (AI) has become a transformative trend in the education sector, and school administrators are at the forefront of embracing this technological revolution. AI's potential to enhance the learning experience and streamline administrative tasks has caught the attention of educational institutions worldwide. One prominent trend among school administrators is the adoption of AI-powered personalized learning platforms. These platforms leverage machine learning algorithms to analyse students' individual learning patterns, preferences, and strengths, enabling educators to tailor educational content and activities accordingly (Reiss, 2021). This personalization not only fosters better student engagement but also facilitates a more inclusive and effective learning environment.

Another key AI trend among school administrators is the implementation of AI-driven data analytics and predictive modelling. By harnessing the power of AI, administrators can collect and analyse vast amounts of data on student performance, attendance, and behaviour. This data-driven approach allows them to identify early warning signs of academic challenges or potential dropouts, enabling timely interventions and targeted support to at-risk students. Furthermore, AI-powered virtual tutors and educational chatbots are gaining popularity as essential tools in modern classrooms (Southgate, 2020). These virtual assistants can respond to students' questions, provide real-time feedback, and offer additional learning resources, fostering a more self-directed and interactive learning experience. School administrators recognize the potential of such AI tools to alleviate the workload on teachers and empower students to take ownership of their learning journey.

As AI trends continue to evolve in education, school administrators are also addressing concerns related to data privacy, security, and ethics. They are actively collaborating with experts in the field to ensure that AI applications comply with legal regulations and prioritize the protection of students' sensitive information. AI trends in education are captivating school administrators by promising improved learning outcomes, data-driven decision-making, and increased administrative efficiency. The adoption of AI technologies in educational institutions is undoubtedly set to reshape the landscape of modern learning and equip students with the skills needed to thrive in the ever-evolving world (Picciano, 2019).

The prospective impact of artificial technologies among school administrators in Malaysian schools holds great promise for revolutionizing the education landscape. With the integration of artificial intelligence (AI) and automation, school administrators can streamline administrative tasks and improve overall efficiency (Karsenti, 2018) AI-powered systems can handle routine administrative duties such as scheduling, data management, and student records, enabling administrators to focus more on strategic decision-making and fostering a conducive learning environment.

AI-driven analytics can provide valuable insights into student performance and learning trends, allowing administrators to identify areas of improvement and tailor educational programs to meet individual student needs. Predictive analytics can also help identify at-risk students, enabling early intervention strategies to address learning difficulties. Furthermore, the implementation of AI chatbots can enhance communication between administrators, teachers, parents, and students. These chatbots can provide instant responses to common queries, reducing the burden on administrative staff and enhancing the overall user experience (Korn, 2016).

The adoption of artificial technologies in Malaysian schools also raises certain challenges. Data privacy and security concerns must be addressed to safeguard sensitive student information. Moreover, there may be resistance to change from traditional administrative practices, requiring comprehensive training and support to ensure successful integration. The potential impact of artificial technologies among school administrators in Malaysian schools is vast, with the capacity to streamline administrative processes, promote personalized learning, and improve overall educational outcomes. By embracing AI responsibly and addressing potential challenges, schools can empower their administrators to become more effective and responsive in shaping a brighter future for their students.

2. LITERATURE REVIEW

Many other publications highlight opportunities of using AI to conduct online teaching. For example (Ouyang & Jiao, 2021) proposed that AI could facilitate teachers' generation of repetitive questions, and offer students learner-instruction connections, just-in-time personalized support and meaningful automatic communication for classmates. Torda (2020) used AI, an artificial intelligence system, as an example to reach larger audiences easily and enable more condensed access to experts. The AI-driven system could enhance instructor or machine-student interaction through the chat features. Moreover, AI elements provide high computational power, which simulates authentic environments. Zhao & Liu, 2019) "Artificial technology has brought many positive changes in various fields, including in the education sector. Among school administrators in Malaysian schools, artificial technology has had a significant prospective impact. Here are some examples of how artificial technology has influenced school administrators in Malaysia in the context of personalized learning, chatbots, predictive analytics, smart tutoring systems, and automated grading S. Jaskarn (2018).

Figure 1 shows The DigCompEdu framework, which stands for "Digital Competence Framework for Educators," is an initiative by the European Commission that aims to promote digital competence in education. It was designed to empower educators with the necessary skills and competencies to effectively integrate digital technologies into their teaching practices and enhance students' digital literacy (Iqbal, 2018). As AI (Artificial Intelligence) continues to play an increasingly significant role in various aspects of our lives, including education, it's reasonable to assume that the DigCompEdu framework for teachers' AI competency would focus on how educators can effectively use AI tools and applications in their teaching practices. The specific details of the

framework would likely include guidelines, examples, and training materials to help teachers understand AI concepts, identify appropriate AI-based tools for education, integrate AI technologies into their teaching, and ensure responsible and ethical use of AI in the classroom.

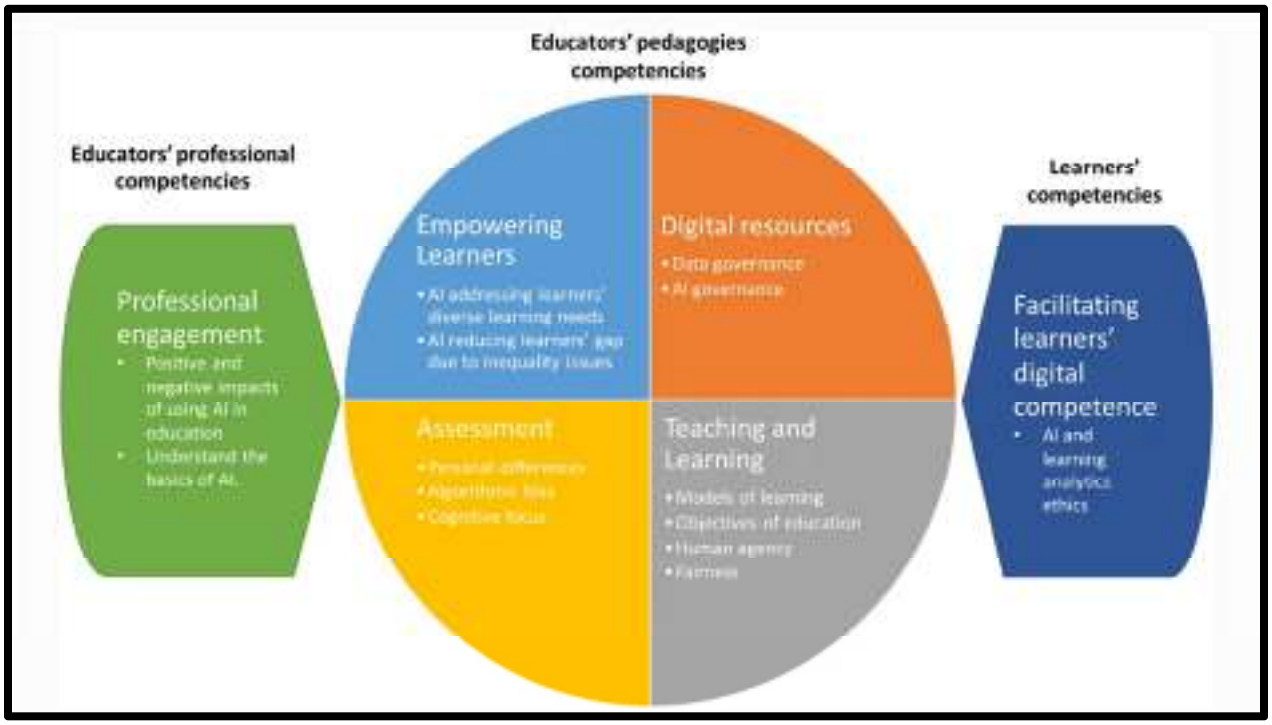

Figure 1: **Digcompedu Framework for Teachers' AI Competency (European Commission, 2022)**

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Personal Learning

Artificial technology allows school administrators to provide a more personalized learning experience to each student. By using data collected through analytics and artificial intelligence, the learning system can identify the strengths and weaknesses of each individual student. This allows school administrators to tailor instruction, offer learning materials tailored to each student's needs, and strengthen their abilities to achieve higher levels of achievement (Stuart & Peter,1995).

Chatbots

The use of chatbots among school administrators in Malaysia can help provide information and support to students, parents, and teachers immediately. Chatbots equipped with artificial intelligence can provide quick responses to routine inquiries and provide relevant guidance to students on various academic and non-academic issues, (Chandra & Prihastomo, 2012). This helps reduce the workload of school administrators and speeds up the process of getting the desired information.

Predictive Analytics

According to Murphy (2019), by collecting data on student attendance, academic achievement, and behaviour, predictive analytics using artificial intelligence can help school administrators identify trends and patterns in student behaviour. By understanding this data, school administrators can take proactive steps to overcome problems that may arise in school control and achieve better academic achievement.

Smart Tutoring System

Artificial technology enables the development of intelligent tutoring systems that can monitor student performance as they access digital learning materials. This system can identify difficulties faced by students and provide additional support in the form of guidance or recommendations for appropriate learning materials. In addition, smart tutoring systems can also provide feedback to teachers on ways to improve their teaching to be more effective (2019).

Automatic Grading

Artificial technology has made possible the development of automated grading for exams and assignments. Automated grading uses artificial intelligence algorithms to evaluate student answers objectively and consistently. This can reduce the teacher's workload in grading many assignments and exams, as well as ensure that grading is fair and accurate, Zhang, K., & Aslan, A. B. (2021). Overall, artificial technology has given a great prospective effect among school administrators in Malaysian schools. It opens up opportunities to optimize the learning process and improve academic performance as well as strengthen the country's education system. However, it is also necessary to note data privacy issues and ethical concerns related to the use of artificial technology in the education sector.

3. METHODS

The study will explore how these technologies have influenced administrative processes, decision-making, and overall school management. A mixed-methods approach will be employed, involving surveys and interviews with school administrators, as well as data analysis of relevant educational indicators. The research will involve collecting data from educational institutions that have implement artificial technologies among school administrators in Malaysian schools with personalized learning, chatbots, predictive analytics, intelligent tutoring systems, and automated grading. This study also conducted to examine the level of competence of school administrators on the technology management and instructional technology using artificial technologies. The questionnaire sorted out a total of 40 descriptions and thematic analysis for interview sessions with personalized learning, chatbots, predictive analytics, intelligent tutoring systems, and automated grading. The feedback received is dependent on sincerity or the honesty of the study respondents answering the study questions.

Analysis

Semi-structured interviews will be conducted with a subset of school administrators to gain a deeper understanding of their experiences with these technologies. The interviews explore specific instances where these technologies have been utilized and their impact on decision-making processes, resource allocation, and student engagement. Quantitative data obtained from the survey was analysed using descriptive statistics and inferential methods. This analysis provides a comprehensive overview of administrators' perspectives on each technology, highlighting their perceived impact on efficiency, student outcomes, and administrative decision-making.

4. RESULTS & DISCUSSION

The results were presented, analyzing the statistical data, and identifying trends and patterns among the various artificial technologies. Additionally, the qualitative insights from interviews will be incorporated to provide a more comprehensive understanding of the technologies' impact. The findings will highlight the strengths and limitations of each technology as perceived by school administrators, addressing the extent to which they enhance administrative tasks, improve student performance, and contribute to a more efficient education system.

Table 1. AI Applications Trends in Education Among School Administrators in Malaysia.

	Min	SD	Percentage
Personalized learning	71.4	4.43	76

Predictive analytics	66.2	3.72	55
Intelligent tutoring systems	61.8	3.05	67
Automated grading	66.5	3.81	71
Chatbots	70.1	4.36	73

Referring to Table 1, Artificial intelligence applications trends in education among school administrators in Malaysia in education carries significant implications in four main aspects. Personalized learning shows highest rate of 76%. However, one of the main limitations is the loss of human interaction between teachers and students as well as among students.

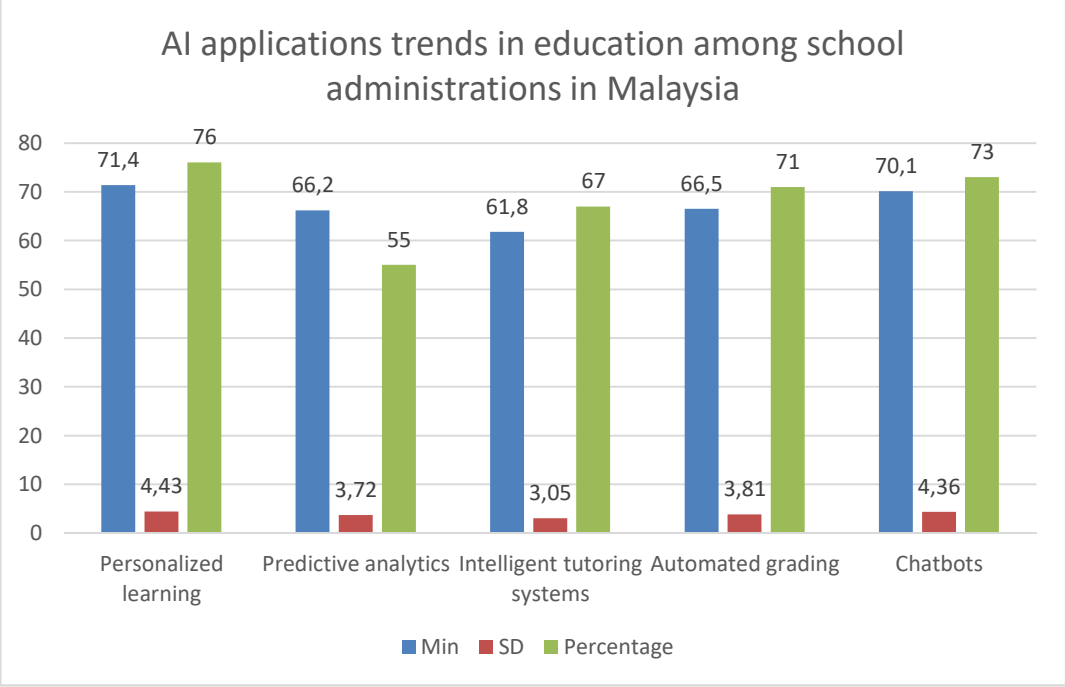

Figure 2: AI Applications Trends in Education Among School Administrators in Malaysia

Based on the study's outcomes, implications for educational policymakers and school administrators will be discussed, focusing on areas that require attention for successful implementation. Recommendations will be provided to optimize the integration of these technologies and maximize their potential benefits, Xu, B. (2021).

In Malaysia, the adoption of AI applications in education carries significant implications and recommendations for school administrators. As AI-driven technologies gain traction, administrators can leverage them to enhance personalized learning experiences, streamline administrative tasks, and gather insights into student performance. However, successful integration requires careful planning, professional development for educators, and robust data privacy measures. School administrators should prioritize investing in AI tools that align with their institution's specific needs and goals. Regular assessment and adaptation of AI strategies are essential to ensure continuous improvement and alignment with educational objectives. By embracing these

recommendations, Malaysian school administrators can harness the potential of AI to create a more efficient, effective, and student-centered learning environment.

5. CONCLUSION

This statistical analysis will offer valuable insights into the impact of personalized learning, chatbots, predictive analytics, intelligent tutoring systems, and automated grading on school administrators in Malaysian schools. By understanding the experiences and perspectives of administrators, this study aims to inform future decisions regarding the adoption and utilization of artificial technologies in the Malaysian education system. There is also a growing emphasis on personalized learning, where AI algorithms provide tailored educational content based on individual student needs and learning styles. This approach is proving beneficial in addressing diverse learning abilities and bridging educational gaps. Furthermore, Malaysian school administrators are exploring AI in enhancing teacher professional development, using AI-driven platforms for training and skill enhancement.

The trend also reflects a proactive stance towards preparing students for a future dominated by AI and technology. Schools are incorporating AI-related subjects and skills into their curricula, emphasizing critical thinking, problem-solving, and digital literacy. However, challenges such as ensuring equitable access to technology, addressing privacy concerns, and providing adequate training for educators in AI utilization remain. Despite these challenges, the trend indicates a positive movement towards a more innovative, efficient, and personalized educational system in Malaysia, driven by AI advancements.

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