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Can Artificial Intelligence Replace Teachers? Perspectives from Pre-Service Teachers in Elementary Education

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ABSTRACT

Advancements in educational technology are transforming the way we learn, and one of the technologies that is becoming increasingly used as an educational tool is artificial intelligence (AI), where the use of technology will significantly increase efficiencies in both teaching and learning. In Malaysia, AI will potentially be able to assist teachers by decreasing their workload and automating some of the instructional processes involved in teaching. However, the question

still exists if AI can substitute for teachers in the classroom. The purpose of this research is to investigate elementary school teacher's perspectives toward using AI as an integrated part of their teaching practices. Interviews were conducted with six elementary school teachers; qualitative data were gathered during the interviews and thematically analyzed to identify benefits, challenges, and limitations associated with integrating AI in the classroom. The results of the research highlighted how currently AI is being used in elementary classrooms, the differences in how well students can interact with AI-based learning activities, and the degree to which AI systems align with KSSR curriculum standards in public elementary schools and subsequently impact student learning outcomes. The study provides insight into how artificial intelligence may be applied practically within elementary education while also acknowledging that AI cannot replace all of the human components of teaching. Ultimately, the findings of this study provide useful information to educators and policymakers who wish to implement AI in classrooms in such a manner that it enhances the teaching process, rather than replaces it.

Keywords: Artificial Intelligence, Elementary School, KSSR

INTRODUCTION

The emergence of artificial intelligence (AI) has dramatically transformed educational technology and is increasingly shaping teaching and learning practices in contemporary classrooms (Ifenthaler et al., 2024; Memarian & Doleck, 2024). With the integration of AI, teachers and students now have access to tools that improve instructional efficiency, support personalized learning, and enhance overall educational outcomes (Garzón et al., 2025). Specifically, AI enables teachers to design tailored instructional approaches that address the diverse needs of learners, thereby fostering more individualized and effective learning experiences (AlBlooshi, 2025). In addition, AI can reduce teachers' workload by automating administrative tasks and assisting with lesson planning and assessment development (Garzón et al., 2025).

The implementation of AI in Malaysian education began gaining momentum in the mid-2010s in alignment with national initiatives, particularly the Malaysia Education Blueprint 2013–2025, which emphasizes digital transformation in education. According to the Malaysian Investment Development Authority (MIDA) in 2025, in recent years, this momentum has been further strengthened through national policies such as the National Artificial Intelligence Roadmap 2021–2025 and the Digital Education Policy, which promote the integration of AI technologies across teaching, learning, and institutional practices

Although there have been advances in the use of AI in education, many teachers and students continue to experience challenges when using AI in an educational setting. Teachers are finding it difficult to alter their pedagogical practices to accommodate AI-based tools (Aljemely, 2024; Gravino et al., 2025) and many students are having difficulty becoming engaged in the use of these technologies (Liew & Kamrozzaman, 2024). To identify this gap, this study explores the experiences of practicum teachers who utilize AI in an elementary classroom setting, examining the perceived benefits, limitations, and challenges of incorporating AI-based tools into 21st-century teaching and learning practices.

Problem Statement

The use of Artificial Intelligence (AI) in elementary classrooms is an exciting possibility for transforming how teachers teach and how students learn; however, the integration of AI in Malaysian education is currently in its early stages, and much about its effectiveness is yet to be studied. While AI technology tools such as Wordwall, Edmodo, Quipper School, Duolingo, Kahoot, and Google Read Along (Bolo), are available and have the opportunity to provide for personalized learning, many elementary classroom teachers are struggling to implement new and different instruction techniques with these AI technologies due to limited training, confidence, and institutional support as effective integration requires the intersection of technological, pedagogical, and content knowledge (Mishra & Koehler, 2006, as cited in Mishra, 2023). Similarly, students also experience challenges in navigating the various platforms developed for AI-based educational systems effectively, which could negatively impact their engagement in the learning process and ultimately affect student achievement.

Existing studies on AI in education have primarily focused on higher education and secondary school contexts, particularly in urban settings (Holmes et al., 2022; Zawacki-Richter et al., 2019). Consequently, there is a lack of research examining the experiences of elementary school teachers, especially within the Malaysian context. Elementary educators are essential in developing the foundational skills and attitudes toward learning in students. Thus, without proper research-backed and evidence-driven support and resources, the potential for AI to improve student learning will likely not be realized by educators, and the challenges associated with integrating AI into their classrooms may further hinder successful implementation of AI educational technology. Furthermore, practicum teachers represent a critical group for investigation as they are in the transitional phase between theory and practice. During their practicum, these teachers are actively experimenting with pedagogical approaches and integrating new technologies into real classroom settings (Singh & Kaur, 2025). However, they often have limited experience, support, and training in using AI-based tools effectively. Investigating their experiences can provide valuable insights into the practical challenges, readiness, and support needed for successful AI integration in elementary education.

Therefore, the purpose of this study was to examine the experiences of elementary school teachers who participated in a practicum in the utilization of AI for teaching and learning in order to identify the benefits, limitations, and challenges associated with the application of AI to teaching and learning in the 21st century elementary education setting. Through the completion of this study, it is anticipated that findings will contribute to the development of effective training programs for teachers, policies for implementing AI in elementary education, and the successful application of AI in the Malaysian elementary education system.

Artificial Intelligence in Education

Artificial Intelligence (AI) is increasingly transforming educational practices worldwide by enhancing teaching, learning, and administrative efficiency. AI technologies provide opportunities for personalized instruction, adaptive learning, and data-driven assessment, enabling teachers to cater to the diverse needs of students (Luckin et al., 2021; Holmes et al., 2021). In the Malaysian context, AI adoption in education aligns with national initiatives, such as

the Malaysia Education Blueprint 2013–2025, emphasizing digital transformation and 21st-century learning skills development (Ministry of Education Malaysia, 2013).

Common AI-powered educational platforms used in Malaysian schools include Wordwall, Edmodo, Duolingo, Quipper School, Kahoot, and Google Read Along (Bolo). These platforms support formative assessment, gamified learning, and personalized practice, thereby fostering critical thinking, problem-solving, and engagement (Jamaluddin et al., 2024). Despite these advantages, studies have identified challenges, including teachers' limited technological proficiency, students' difficulties navigating AI platforms, and alignment issues with the curriculum (Ng et al., 2023). In addition, existing research highlights that many teachers still lack AI-specific pedagogical knowledge and confidence, which hinders meaningful adoption of AI tools in classroom instruction (Saharuddin et al., 2025; Yue et al., 2024). Furthermore, limited access to resources and insufficient professional development have been shown to exacerbate implementation challenges, particularly in primary school contexts where foundational teaching practices are established (Aliyyah & Amalia, 2025). Research focusing on AI usage in elementary schools has also pointed to ongoing barriers related to infrastructure, time constraints, and tailoring AI applications to diverse learner needs (Aliyyah & Amalia, 2025), underscoring the need for targeted support and evidence-based strategies to enhance effectiveness.

Teacher Perspectives on AI Integration

Teachers' experience and attitudes significantly influence how effectively AI is integrated into classroom settings. Research has shown that teachers generally believe AI has the potential to positively impact students' achievement outcomes, but they frequently encounter challenges related to insufficient training, increased preparation time, and uncertainty about how to align AI with pedagogical goals (Tlili et al., 2023; Saharuddin et al., 2025). In elementary classrooms, where foundational skills and knowledge are being developed, teachers must balance the use of technology with hands-on, interactive, and student-centered activities in order to support deep learning and engagement (Li et al., 2025; Chiu, 2023). Previous studies have highlighted that overly technology-centric instruction may unintentionally reduce opportunities for collaborative, inquiry-based learning experiences that are essential in early schooling (Li et al., 2025).

While AI has been found to reduce teachers' administrative workload, enabling them to concentrate more on instructional design and student support (Garzón et al., 2025; Adil, 2025), effective integration requires sustained, pedagogically focused professional development programs that build teachers' technical skills and pedagogical strategies for AI-assisted instruction (Yue et al., 2024; Saharuddin et al., 2025). Without these supports, AI tools risk being used superficially or in ways that fail to promote enhanced student learning outcomes (Yue et al., 2024; Garzón et al., 2025).

Research examining teachers' perspectives on AI integration in practicum or field contexts suggests that student teachers and in-service teachers often vary in their readiness, with practicum teachers expressing particular concerns about preparedness, classroom management, and applying AI tools meaningfully in authentic teaching environments (Ayyoub et al., 2025; Kasneci et al., 2023). These studies indicate that practicum experiences influence teachers' confidence, instructional decision-making, and beliefs about the role of AI, highlighting the need

for targeted support and mentorship during teacher preparation and early career stages (Ayyoub et al., 2025).

Student Engagement and Learning Outcomes with AI

AI has a positive effect on both student engagement and achievement when it is properly implemented. Kahoot and Duolingo are examples of interactive applications that help foster a desire for learning through game-based learning, which can motivate students to continue engaging in language and literacy development activities over time (Jamaluddin et al., 2024). Research on elementary classrooms further suggests that adaptive AI learning systems are capable of tailoring feedback and learning pace to individual students, thereby supporting foundational literacy and numeracy skills while accommodating diverse learning needs and reducing knowledge gaps (Li et al., 2025). In addition, recent systematic literature reviews indicate that AI-based personalised learning can enhance student engagement, support data-driven instructional adjustments, and promote more inclusive and flexible learning environments across various educational settings (Farhood et al., 2025).

Although AI systems offer many potential benefits in schools, students may still encounter challenges when using them due to limited digital literacy and difficulties with self-directed learning. Therefore, teacher support remains essential in helping students effectively engage with AI-based instructional tools and technology-enhanced learning environments (Pan & Chen, 2021). Teachers must also ensure that AI-based instructional materials are aligned with the KSSR curriculum and national learning standards, as inconsistencies between AI-generated content and curriculum objectives may affect the effectiveness of students' learning outcomes (Wong & Fong, 2025). In addition, Hasmadi and Zaini (2026) argue that for AI to be effective, it must support the specific objectives of the KSSR curriculum, such as helping students master abstract concepts that are often difficult to grasp through conventional teaching.

Studies investigating practicum school teachers' experiences with AI indicate that early-career educators often struggle to integrate AI tools into meaningful engagement strategies, even when students show interest, due to limited familiarity with adaptive technologies and concerns about classroom management (Ayyoub et al., 2025; Kasneci et al., 2023). These findings highlight the need for targeted support structures that not only build students' digital competencies but also prepare practicum teachers to leverage AI tools effectively to enhance engagement and achievement in elementary settings.

METHODOLOGY

This study examines elementary school teachers' views about using artificial intelligence (AI) in teaching and learning. Since this study will be an exploratory type of study; a qualitative research design was considered to best capture the participants' experiences and attitudes toward AI. A case study method of data collection was used to gain an in-depth look at the application and implications of AI in elementary education. The data were collected from six practicum teachers who currently utilize AI in their classroom by way of semi-structured interviews.

Participants of the Study

The study was conducted with six elementary school practicum teachers to provide evidence that the results of this study are valid and reliable. The decision to include six elementary school practicum teachers in this study was guided by well-established qualitative research practices that prioritize depth of understanding over large sample sizes. In qualitative research, particularly phenomenological and exploratory studies, smaller samples are often considered appropriate when the goal is to gain rich, detailed insights into participants' lived experiences and perceptions (Creswell & Poth, 2018; Guest, Bunce, & Johnson, 2020). For example, Guest, Bunce, and Johnson (2020) note that small sample sizes (often 5–10 participants) can provide sufficient information power to uncover patterns and themes when the research questions are narrow and the participants are highly relevant to the phenomenon of interest.

Respondents were selected from Al Bukhary International University and the Institute of Teacher Education (IPG) Darul Aman, Jitra, Kedah. All of the respondents were female; all of them had previous experiences with applying AI applications in their teaching and learning practices.

Table 1. Respondents' Background and AI Applications

Respondent	Gender	Practicum Experience	Subject Taught	AI Applications Frequently Used
1	Female	First Practicum, Government School	English, Maths	Plikers
2	Female	Second Practicum, Private School	Science	Quizizz
3	Female	Both Schools, Government/Private	Islamic Education	ChatGPT, Quizizz
4	Female	First Practicum, Government School	English, Science	Kahoot, Quizizz
5	Female	First Practicum, Government School	English, Science	Kahoot, Quizizz, ChatGPT, Canva
6	Female	First Practicum, Government School	Islamic Education	Kahoot, Quizizz

Data Collection Procedure and Data Analysis

Voice recordings from online interviews were used to gather responses. Respondents 1–3 conducted their interviews in English; respondents 4–6 conducted their interviews in Bahasa

Melayu. Each interview was recorded, then transcribed and systematically arranged to ensure both transparency and reliability (Braun & Clarke, 2022; Nowell et al., 2017). Each respondent completed a set of semi-structured interview questions, developed based on the three research objectives of this study, which allowed for flexibility and in-depth exploration of participants' perspectives (Kallio et al., 2016).

The transcribed interviews were analyzed using thematic analysis, following the guidance of Braun and Clarke (2022). Initial coding for the thematic analysis was guided by the research objectives, and then through identifying common patterns and themes that emerged from the data. The identified themes were further clarified to represent the participants' views as accurately as possible.

Emergent Themes:

I. AI Enhances Creativity and Student Engagement

II. Limitations of AI in Supporting Young Learners' Development

III. Misalignment of AI with the KSSR Curriculum

IV. AI Cannot Replace the Role of Teachers

The thematic analysis provided insight into the practical benefits, challenges and limitations of implementing AI in elementary school classrooms as well as the attitudes of teachers regarding how AI impacted both the teaching and learning processes (Braun & Clarke, 2022; Nowell et al., 2017).

Prior to participating in the study, participants were informed of the purpose of the study and gave consent. Participants were assured of confidentiality and anonymity, and could have withdrawn at any time during the study.

Limitation of the Study

Despite its contributions, this study is subject to several limitations. First, the sample is limited to pre-service teachers, which may restrict the generalizability of the findings to other populations such as in-service teachers or educators in different professional contexts. Pre-service teachers are still in the process of developing their pedagogical knowledge and professional identity; therefore, their perceptions and behaviors may differ from those with actual classroom experience. Second, the study may be constrained by its reliance on self-reported data, which is susceptible to social desirability bias and subjective interpretation. Participants may provide responses they perceive as favorable rather than reflecting their true beliefs or practices.

RESULTS AND DISCUSSION

AI Enhancing Creativity and Engagement in Student Learning

All of the survey participants agreed that AI is important for enhancing creativity and increasing student engagement with their learning. This was reflected by the participants as being able to create an educational experience that is dynamic, interactive, and innovative.

Respondent A:
". . . AI offers many benefits, particularly making learning more engaging and interactive."

Respondent B:
". . .During my second practicum, AI can make the class more interesting and Cambridge is something new for me and I would like to try more engaging activities."

Respondent C:
". . .using AI is good because it gives very many benefits to me. Sometimes, I need good and creative ideas in teaching to make your class not boring because on this day we cannot teach students, just only teach. We need to have some game, activities that can make them enjoyable. To have many ideas I will use AI."

Respondent D:
". . .One of the benefits I have experienced is being able to personalize learning according to each student's level. Every student has different levels of understanding and learning pace, so AI can adapt teaching based on individual needs. For instance, AI can assist in preparing personalized exercises for students."

Respondent E:
". . .AI offers numerous benefits for primary school students, particularly in helping create engaging and creative learning materials."

In addition, AI has the ability to enhance education through individualized learning experiences and to keep students engaged. The participants stated that AI allows teachers to be able to provide customized learning opportunities for students based on each student's level of understanding, which creates a more engaging and interactive learning environment. AI also allows for students to complete customized learning experiences and for teachers to create customized and creative lesson plans.

According to the study Artificial Intelligence in Education: A Review by Chen et al. (2020), AI tracks students' progress, adapts the curriculum to meet individual learning needs, and enhances knowledge retention. More recent studies further support these findings, indicating that AI-driven adaptive learning systems significantly improve student engagement, personalization, and learning outcomes by providing real-time feedback and tailored instructional pathways (Garzón et al., 2025). Some of the tools that are being utilized to increase student engagement and focus include Kahoot, Gamilab, Quizizz, and Canva. This evidence highlights the beneficial effects of AI on contemporary educational systems.

Limitations of AI in Supporting Young Learners' Development

Four of the six participants felt that AI lacked the capability to assist children with their developmental needs such as emotional support, social interaction and critical thinking. They emphasized that while AI can aid learning, it cannot replace human connection or provide the guidance young students need to develop these essential skills.

Respondent A:
". . .One of the weaknesses of using AI for teaching elementary students is the lack of personalized emotional support while AI can provide instant feedback and adaptive learning experiences. It cannot address students emotionally or motivation effectively."

Respondent B:
". . . Okay for my opinion, as we all know elementary students are young child.For public school the age of 7 -12 years old, but for international school more younger than that. So, I believe that using AI actually makes the student dependent on technology. I think AI makes the student do not develop correctly because they depend on it, they don't have critical thinking on it."

Respondent C:
". . . In my opinion, I don't have any kind of weaknesses in using AI because I am really helpful to the teacher, to create new ideas, generate games, and to produce a good lesson for the student. And somehow AI is actually helpful."

Respondent D:
". . .As I mentioned earlier, one of the weaknesses of AI when involving primary school students is the lack of social elements and human interaction. AI cannot replace the relationship between teachers and students, which is crucial for social and emotional development, especially at a young age."

Respondent E:
". . .One weakness of AI, such as ChatGPT and Gemini, is that they require accurate prompts to generate correct responses."

Respondent F:
". . . there are still some weaknesses of using AI in primary school education. As I mentioned earlier, AI involves extensive digital interaction, which may lead to misuse if students cannot differentiate between appropriate and inappropriate online content. The internet is filled with unfiltered information, including fake news, misinformation, and harmful content, which young students may struggle to evaluate correctly."

AI in education has its challenges, especially in primary school settings. Participants noted that AI does not possess the capability to offer emotional support or motivate students as effectively as human teachers, nor can it replicate the teacher–student relationship, which is a crucial element of social and emotional development. This limitation is widely acknowledged in recent studies, which emphasize that AI lacks the socio-emotional intelligence necessary to support holistic student development (Kasneci et al., 2023; Zhu et al., 2025). Some believe that AI may

lead to overdependence on technology, potentially limiting students' critical thinking and independent learning skills (Chiu, 2023). Others raised concerns about digital safety, as young students may struggle to evaluate online content critically and could unknowingly share personal data, raising issues of privacy and security (Zhu et al., 2025). According to Yang (2023), AI relies on algorithms rather than human intuition, making it difficult to fully understand students' emotional and cognitive needs. These findings highlight the limitations of AI in primary education.

Artificial Intelligence (AI) is not aligned with the KSSR Syllabus

Four out of six respondents in this research mentioned and disagreed that the use of AI in teaching and learning aligns with the KSSR syllabus.

Respondent A:
". . .As for the KSSR syllabus, AI tools can sometimes fail to align fully with the curriculum especially if they are not specially designed for the Malaysian Education context. Teachers often need to adapt or supplement the tools to ensure they make the syllabus to requirements."

Respondent B:
". . .AI actually helps in the content but as we all know the KSSR syllabus is more earlier just not focused on the content but more to the holistic. It also develops the emotion of students or their spirit. I would say it's a match but not too much. We could use AI to help us in teaching but not fully depend on it."

Respondent C:
". . .It's not aligned with KSSR syllabus but somehow AI is actually helpful."

Respondent D:
". . .Additionally, AI may not always align with the KSSR syllabus, which emphasizes experiential and activity-based learning. This syllabus requires more interactive and project-based learning, which necessitates the presence of teachers directly."

Respondent E:
".. .If we input incorrect prompts, the output may not align with the KSSR syllabus."

Respondent F:
". . .Regarding the alignment with the KSSR (Primary School Standard Curriculum) syllabus, I believe AI is compatible because the syllabus includes technology and digital literacy components. The Ministry of Education (KPM) also aims to nurture a digitally literate generation with strong technological and digital intelligence, preparing students for a digital world."

The findings show that opinions on AI's role in the KSSR syllabus are mixed. Four out of six respondents agreed that AI can be helpful in teaching but has its limitations. Some mentioned that AI tools are not specifically designed for Malaysia's curriculum, so teachers have to adjust them. Others pointed out that while AI can assist with content delivery, the KSSR syllabus also focuses on social and emotional development, which AI cannot fully support.

AI cannot Replace the Roles of the Teachers in the Future

All respondents in this research agreed that AI cannot replace teachers in the future, based on their experiences during their teaching practicum.

Respondent A:
". . .In my opinion AI cannot fully replace the roles of a teacher, teachers not only give an impact to knowledge but also play a crucial role in guiding and providing emotional support and shaping students' character. AI can be a complementary tool but the human connections between teacher and student cannot be replaced by technology."

Respondent B:
". . .In my perspective, I actually disagree that AI can replace a teacher because you see, a teacher is not about the teaching and learning process, I feel like a real teacher is a human having this. Humans have feelings while AI is not."

Respondent C:
". . .For me somehow I can say not because I think AI cannot replace a teacher because for me the students need a good explanation. For example, if the student dont understand, AI sometimes is not given a good answer for the student to understand because the student is just an elementary student."

Respondent D:
"..For me, AI is very helpful for teachers in improving and enhancing various aspects of teaching. However, I do not agree that AI can replace teachers in the future because AI cannot replace the human element in teaching, such as providing emotional support, guiding students, and understanding their needs in a holistic manner."

Respondent E:
". . .This is a very interesting question. However, I do not believe AI can completely replace teachers. AI can support teaching, but we still need teachers to guide, motivate, and understand students' emotions. As an Islamic education teacher, I also believe that we must cultivate moral values in students, in line with the National Education Philosophy. Teachers play a crucial role in shaping students' ethics and character, something AI cannot fully achieve."

Respondent F:
". . .AI cannot fully replace teachers. This is because teaching is not just about delivering knowledge, it involves various teaching strategies and approaches tailored to students' different learning levels."

The research shows that all respondents agreed with the idea that teachers will never be replaced by AI completely in the future. A large part of what teachers do goes beyond simply teaching students; teachers also provide emotional support, offer guidance, and assist students in developing their overall character. AI is helpful when used as an educational tool, but it cannot replace the relational and humanistic aspects of teaching, particularly the teacher–student relationship, which is essential for effective learning. Several participants indicated that AI

systems often cannot provide sufficiently clear explanations for younger learners. Teachers also play a critical role in teaching morals and ethics, areas that AI is currently unable to address meaningfully. Furthermore, teaching involves the use of diverse instructional strategies tailored to individual student needs, which AI cannot fully replicate. Despite being available for decades, AI continues to have significant limitations in education, particularly in areas requiring interpersonal interaction and inspiration (Louis & Elazab, 2023). Recent research further supports this view, emphasizing that AI lacks human judgment, empathy, and contextual understanding, making it unsuitable as a replacement for teachers but valuable as a complementary tool (Kasneci et al., 2023).

CONCLUSION AND RECOMMENDATION

The study found that the use of AI in learning enhanced engagement, interaction, and personalization, particularly for practicum teachers who are navigating the transition from theory to practice. AI tools assist these teachers in designing and delivering lessons more efficiently, providing immediate feedback to students, and managing classroom tasks, which is especially valuable for teachers with limited experience in real classroom environments. These tools allow practicum teachers to experiment with different teaching strategies and tailor learning experiences to individual student needs, fostering both engagement and active participation.

However, AI is unable to fully replace teachers, particularly in the practicum context, due to its inability to provide emotional support, form human bonds with students, or offer the nuanced guidance necessary to develop students' critical thinking, problem-solving, and social skills. Practicum teachers, who are still developing their professional identity and pedagogical expertise, rely heavily on these interpersonal interactions to shape classroom dynamics, build rapport with students, and adapt instruction in real time.

One notable challenge highlighted by practicum teachers is that current AI tools do not align fully with the KSSR syllabus, which emphasizes holistic development beyond academic content. While AI can support content delivery, practicum teachers must adapt AI-generated materials to ensure that lessons also address students' emotional, social, and cognitive growth. Schools and teachers face additional implementation challenges, including limited access to technology, concerns about over-reliance on AI reducing independent student thinking, and data privacy risks associated with AI systems. Overall, AI should be viewed as a supportive pedagogical tool for practicum teachers, enhancing lesson engagement, providing instant feedback, and reducing workload, while keeping educators central to guiding students' cognitive, social, and emotional development.

Based on the findings, it is recommended that AI be integrated as a supportive tool to enhance lesson engagement, provide instant feedback, and reduce teachers' workload, while ensuring that educators remain central to guiding students' cognitive, social, and emotional development. Teachers need ongoing professional development in order to appropriately utilize AI and modify AI generated materials to align with the KSSR curriculum and achieve the KSSR's holistic learning goals. Schools, especially those located in rural areas, must upgrade their technology systems so that all students have equal access to computers, internet access, and technical

assistance. Data protection policies also need to be implemented as well as an approach to utilizing AI that is balanced so students are able to develop the ability to think independently, creatively and solve problems on their own. If these challenges are addressed, then AI will be able to assist both teachers and students in enhancing the learning process while at the same time ensuring that the essential roles of teachers are maintained and that high-quality education continues to occur.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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Authors' Contributions

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