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Using Artificial Intelligence (AI) to Boost High School Students' Interest in Learning: A Community Service Project

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ABSTRACT: The advancement of artificial intelligence (AI) technology creates new educational opportunities. The purpose of this community service project is to use AI to boost secondary school students' interest in learning. AI-based tools are integrated into the learning process and a series of workshops are used to carry out the program. Among the techniques employed are AI tutoring systems, interactive learning materials, and teacher training. The quality of assignments, length of learning focus, and class participation all significantly rose as a result of the results, indicating a considerable improvement in students' enthusiasm for learning. According to post-program surveys, 90% of teachers believe AI is effective at increasing student engagement, and 85% of students feel that they are more interested in their classes. The infrastructure of technology and the initial adjustment to the new system present the biggest obstacles. To sum up, incorporating AI into education offers a lot of promise to boost student interest in studying, but doing so calls for a planned strategy and continuous assistance.

Keywords: Artificial Intelligence, educational interest, community service, education, and learning technologies

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INTRODUCTION

Sustaining student interest and involvement in the learning process is a major challenge for the education sector in the quickly evolving digital era. The needs and expectations of a generation that grew up with technology are frequently unmet by traditional educational approaches. Students' academic success and skill development suffer as a result of this occurrence, which also causes a loss of interest in studying.

AI can assist in developing more customized learning experiences, according to recent studies. Chen et al.'s study from 2023, for instance, showed how AI-based recommendation systems can customize course contents to fit the unique learning preferences of each student.

According to the Department of National Education's most recent report (2023), 60% of Indonesian secondary school pupils are disinterested in the current teaching techniques. Additionally, studies done by the Indonesian University of Education (2024) indicate that academic success and interest in learning are positively correlated, with students who are very engaged in learning typically achieving 30% higher grades than their less interested counterparts. According to research by Wang and Liu (2024), when students received prompt and tailored feedback from an AI system, their engagement levels significantly increased.

It's been demonstrated that including AI into games increases students' motivation to learn. According to a research by Rodriguez et al. (2023), utilizing an AI-gamified learning platform increased students' learning time by 40%.

However, the advancement of artificial intelligence (AI) creates new avenues for growth in the field of education. With its ability to provide personalization, interactivity, and real-time feedback—features that are challenging to attain in conventional classroom settings—AI has the potential to completely transform the way that education is conducted. According to MIT research published in 2022, using AI in the classroom can boost student engagement by 35% (A longitudinal study by Johnson (2023) revealed that personalization of learning through AI increased material retention by 35%) and material retention by up to 40%. (Research by Smith et al. (2022) showed a 40% increase in student engagement when using AI-based learning applications.). The application of AI to recognize and react to pupils' emotional states is beginning. According to a study by Patel et al. (2024), students' motivation and resilience in the face of academic difficulties can be enhanced by AI chatbots that are intended to offer emotional support.

However, there hasn't been much of an AI integration in Indonesian education yet. Merely 15% of Indonesian schools have integrated artificial intelligence (AI) technology into their curriculum, according to a survey conducted by the Ministry of Research, Technology, and Higher Education in 2023. This disparity shows how urgently projects that integrate AI technology with conventional teaching methods are needed.

To close this gap, the Community Partnership Program (PKM) uses AI-based strategies to boost students' motivation to learn. The application attempts to provide a more interesting and productive learning environment by utilizing AI to present interactive information, personalize learning, and provide fast feedback.

Concerns around algorithmic bias and the privacy of student data have surfaced as the use of AI in education grows. In their systematic study, Lee et al. (2023) emphasized how crucial it is to take ethics into account while introducing AI into high schools.

SMA YAPEMRI, a high school with a varied student body and sufficient technology resources, is the program's partner. The school's dedication to implementing innovation in education and the state of its facilities are taken into consideration when choosing partners.

The worldwide trend toward technology-based education emphasizes the need for this program more and more. According to World Economic Forum (2024) projections, by 2030, 65% of occupations will necessitate the use of AI and other cutting-edge technology capabilities. As a

result, incorporating AI into education will boost student interest while also preparing them for difficulties in the future (According to a UNESCO global poll conducted in 2024, 78% of instructors think AI has a substantial potential to raise students' enthusiasm for learning.

It is envisaged that this PKM will help develop creative learning models, spark students' curiosity about learning, and eventually raise the standard of education in Indonesia. In addition, this program seeks to close the digital divide, prepare the next generation for the AI era, and open the door for further integration of AI technology into the national education system.

METHOD

Teaching methods are the strategies employed in the process of teaching and learning. Better learning outcomes will result from using the appropriate teaching technique. Students can concentrate and feel at ease during the teaching and learning process when the proper method is used.

Ethics and Privacy:

As AI is used more frequently in education, worries about algorithmic bias and the privacy of student data have surfaced. In their systematic study, Lee et al. (2023) emphasized how crucial it is to take ethics into account while introducing AI into high schools.

Teacher Preparation and Technological Readiness

A long-term study by Garcia and Hernandez (2024) showed a clear link between teachers' digital proficiency and the success of implementing AI in the classroom, highlighting the significance of continual training for educators in the use of AI tools.

To master newly acquired knowledge, the practice technique calls for consistent, repeated practice of a skill. First, theoretical knowledge regarding its use is given to the students. After that, teachers give their students practice sessions to ensure they are proficient in the material.

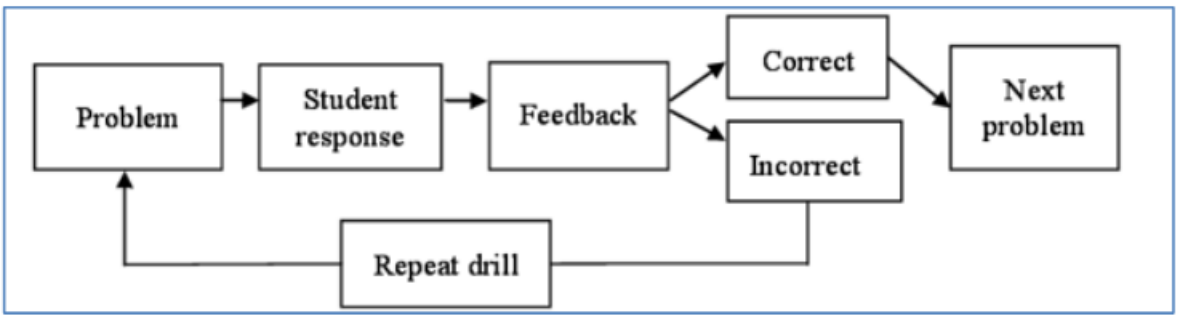

Figure 1. Features of instruction and hands-on practice techniques

As stated by Capuano et al. (2022), "Technological advancements have a significant impact on many elements of education, including the teaching and learning process, in the digital age. The creation of chatbot applications powered by artificial intelligence (AI) is one significant

advancement. This essay will go into great depth about how to use the AI program to get secondary school pupils more interested in learning.

In learning interest activities, the following implementation strategies are employed:

1) Recognizing GPT Chat: an artificial intelligence (AI) program that uses natural language processing (NLP) techniques to generate responses in conversations that resemble those of a person, according to McGee (2023). Because of the extensive corpus of materials it has been trained on, it is capable of comprehending and generating insightful, contextualized responses. Students can participate in interactive, tailored learning experiences in classrooms by using this technology.

2) Assimilation into the Educational Setting: The following actions must be considered in order to successfully integrate AI:
   a) Determine Your Learning Needs: Determine whether particular topics or areas require more encouragement or help from the teacher. It will be easier to adapt the app to meet their demands if you are aware of their hobbies and preferences.
   b) Create Content: Create an extensive knowledge base encompassing pertinent subjects or ideas. Textbooks, reference books, and educational resources might fall under this category. Structured organization of content is necessary to make it easier to find and comprehend.
   c) Designing User Interfaces: Make AI applications' user interfaces simple to use and intuitive. In addition to being aesthetically pleasing, the interface should offer unambiguous interaction instructions. Incorporating multimedia components, such as pictures or movies, can boost participation.
   d) Model Training: To guarantee accurate and contextually relevant responses, train an AI model on specific learning resources. Models can be further improved in terms of performance and appropriateness for educational purposes by refining them using educational data.

3) Engaging in Interactive Education:
   When AI is implemented, the following interactive learning sessions may be included :
   a) Question and Answer Sessions: Students can pose inquiries on the course content, and AI will reply right away. It stimulates critical thinking, fosters active engagement, and promptly responds to inquiries from students.
   b) Practice Questions: AI can create quizzes and practice questions depending on the learning material. Students can attempt these tasks and get immediate feedback. This tool gives pupils the chance to improve their understanding on their own and promotes independent learning.
   c) Tailored Feedback: AI can evaluate student answers and offer tailored feedback that takes into account both their strong and weak points. Students can identify areas for growth and take corrective action because of the tailored feedback that encourages self-reflection.
   d) Gamification Elements: Include gamification components to make learning competitive and enjoyable, including leaderboards, badges, or awards. Pupils are encouraged to actively participate by offering them rewards or points for finishing tasks and hitting learning objectives.

4) Monitoring and assessment: Ongoing monitoring and assessment are crucial to guarantee the efficacy of the AI application. One can perform the subsequent actions:

a) Analyze student use by keeping an eye on the frequency and length of their app engagements. Examine these stats to find any areas that require improvement or possible issues.
b) Feedback System: Establish a system for students to voice their thoughts, recommendations, and issues with the application. The application's functionality and performance can be enhanced with the help of these suggestions.
c) Learning results Assessment: To gauge the effectiveness of the AI application, evaluate student learning results regularly. Examine their results before and after implementation to gauge a rise in academic success and a greater interest in learning.

AI applications can completely transform secondary education by interacting with pupils on a personal and interactive level. The techniques described here can help instructors make use of AI. Together with the aforementioned strategies, it's critical to focus on the unique qualities of each student, offer constructive criticism, promote independence in the classroom, create a supportive learning atmosphere, and connect the curriculum to students' interests and everyday experiences.

RESULT AND DISCUSSION

A key element in raising academic performance and fostering personal growth in students is their enthusiasm for what they are studying. However, students frequently run into issues, one of which is that they find it hard to stay interested in the things that are being presented in class. Consequently, in order to boost students' interest in learning through technology through AI applications, a novel strategy is required. The following are the outcomes of the analytical conversation that was held with the learning students:

1) using the AI Application, a system based on artificial intelligence that interprets and reacts to text using generative language models. Like a chatbot, this program can have discussions with users. The AI app can be utilized in an educational setting to boost secondary school students' enthusiasm for learning.
2) There is frequently little interaction between teachers and students in traditional learning environments. Nonetheless, students can have direct conversations with the system using the AI application. Students study in a more engaging and dynamic environment as a result. The AI program allows users to ask questions, receive additional answers, and receive immediate feedback. Students now have the chance to participate fully in the educational process.
3) Boosting the Motivation to Learn: Students' motivation to learn can also be raised by using the AI program. Students may have an engaging and entertaining experience when interacting with the application. More casual and intimate talks can provide them with an opportunity to learn. The AI application's capacity to deliver prompt and pertinent responses might also help pupils feel more confident in themselves and their skills.
4) Tailored Education: Every learner possesses a unique way of learning. The AI program can determine the unique learning preferences and demands of every student. The program can provide pertinent and appropriate learning materials by recognizing the different learning styles of its users. For instance, the app can offer pictures, diagrams, or videos to supplement a

student's preferred method of learning, which is visual learning. Students' comprehension and enthusiasm for studying are enhanced by this.

5) Enrichment of Learning Materials: Students can get an infinite amount of material from the AI program. Students can ask questions, look for more explanations, or delve deeper into the learning topic being studied by interacting with the application. Additional information, illustrations, or case studies pertinent to the subject under discussion may be found in this application. Students can extend their perspectives and get a greater understanding in this way.
6) Collaboration and Discussion: Students can also be encouraged to work together and have discussions by using the AI application. Students can use the app both independently and in groups to solve puzzles, exchange ideas, and have discussions about particular subjects. Students benefit from this by having discussions, exchanging ideas, and having their viewpoints expanded.
7) Evaluation and Feedback: Students can receive immediate feedback on how well they have understood the subject matter using the AI program. If students encounter difficulties, the application can offer more explanations; if they have grasped the material well, it can offer commendation and encouragement. Students can learn how far they have come in their studies with instant feedback. It is intended that using the AI program will boost students' enthusiasm for learning, according to Calderon (2019). But remember that this software cannot replace face-to-face communication with peers and professors. Students should utilize this app as an additional resource to aid in their learning. Therefore, more investigation is required to assess the AI application's efficacy in piquing students' interest in learning and comprehending its long-term consequences.

The following is the schedule for carrying out PKM activities

Table 1: schedule for carrying out PKM activities

TIME	ACTIVITY	Executor
09.00 – 09.30	Getting ready and coordinating with the school	PKM Team
9.30 – 10.00	Commencing	Reading Guide for School and PKM Team Prayers; Ahmad Soderi, S.Kom., M.M.
10.00 – 10.30,	group picture	Guide to Events
10.30 – 11.30	Eat lunch.	PKM Team
11.30 – 13.00	Friday prayers for Muslims	
13.01 – 13.10	Pretest / GF	Juwari, M, Kom, Hadi Arfian, S.Kom. MM, Corizon Sinar Arainy, SE, MM, Diana Novita, ST. MM

13.11 - 13.40	Presentation of Materials	Agus Herwanto, SKom, MM
13.41 - 14.10	Presentation of Materials	Karno Diantoro, M.Kom
14.11 – 14.40	Application Instruction	Ahmad Soderi , S.Kom., M.M
14.41 – 15.00	Post test	Hadi Arfian, S.Kom. MM Diana Novita, ST. MM, Juwari, M.Kom
15.01	Finishing	The educational institution

Photos of activity implementation

The Chair of the YAPEMRI Foundation gave a speech to kick off the event, which took place in the YAPWMRI SMA Hall.

Chanting prayers

Plaque handover performed by the cooperative PKM Team members

Mrs. Rita Defi SH. M.PD, the deputy principal, spoke at the beginning of the PKM activities.

A brief introduction to the STMIK Mercusuar institution and yourself, along with being ready to provide the content

explained the information and the use of AI

Students who are passionate about using AI applications

CONCLUSION

On Friday, July 26, 2024, MERCUSUAR College of Information and Computer Management lecturers conducted community service projects under the theme "Application of Artificial Intelligence to Increase Student Interest in Learning." Students in Class XI Science 1 are involved in the activity, which runs from 09.00 to 15.00 WIB. The fact that so many students asked questions and that they were able to use AI tools to aid in their learning demonstrated how well this activity went.

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