



IDENTIFICATION OF TEACHERS' PROBLEMS IN USING AI (ARTIFICIAL INTELLIGENCE) TECHNOLOGY IN THE LEARNING PROCESS AT MAN 01 KOLAKA

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ARTICLE INFO

ISSN: 2716-4837
Vol. 6, No. 2, December 2024
URL: <http://usnsj.id/index.php/Geographica>

Suggestion for the Citation and Bibliography*Citation in Text:*

Juwirda et al. (2024)

Bibliography: Juwirda., Octavia, K. O., Asriani, S., Afdal, M., Aditya, M., ... Hariyadi, E. (2024). Identification of Teachers' Problems in Using AI (Artificial Intelligence) Technology in The Learning Process at Man 01 Kolaka. *Geographica: Science & Education Journal*, 6 (2, December), 60-67.

Abstract

This study aims to identify the problems faced by teachers in using artificial intelligence technology (AI) in the learning process at MAN 01 Kolaka. The main focus of the research is to examine the inhibiting factors, such as lack of understanding of technology, accessibility, and readiness of educational infrastructure. Using a qualitative descriptive approach, data were collected through interviews, observations, and documentation. The instruments used were observation sheets and interview guidelines. This research was conducted at MAN 1 Kolaka with 10 teachers as research subjects. The data analysis technique used is a qualitative data analysis technique according to Miles and Huberman. The results show that while AI has great potential to improve the quality of learning, several key obstacles, including limited teacher training and resistance to new technologies, are challenges that must be overcome. Research recommendations include the development of AI technology training programs for teachers and the improvement of supporting facilities in schools.

Keywords: AI (Artificial Intelligence), Teachers, Learning

A. Introduction

Artificial Intelligence (AI) is a term for Industrial Society 4.0 and Society 5.0 which are computer, machine learning, hardware, and software programs (Supriyadi & Asih, 2020). The science used to build intelligence uses hardware and software solutions inspired by reverse engineering neutron patterns that operate like the human brain. Technology products in the form of AI in the industrial era 4.0 are widely used in various industries, including education, development, and daily life applications (Batubara, 2020).

In recent years, research on AI has begun to play a role in learning activities in schools and universities (Gafar, 2024). Teachers conduct research on problems that often arise during the application of artificial intelligence, namely the unprepared culture and skills in education (Munir, 2021). Therefore, the main concern in understanding AI in education is the overall learning culture of teachers. This makes the digital divide or lagging behind in technological developments a new problem and challenge for teaching staff in the learning process (Safitri, 2023).

In addition, each student has different needs and learning styles. Teachers must be able to overcome these challenges by providing learning tailored to the individual needs of their students (Sari, 2021). This learning personalization process requires significant efforts, including a deep understanding of student needs and the ability to deliver learning materials individually (Mambu, 2023). The chosen strategy must also attract high attention from teachers to be applied in the classroom to encourage a good teaching and learning process (Fauziningrum et al. 2023).

Teachers can optimize students' learning experiences in schools by leveraging AI to improve data management efficiency, personalize learning, provide effective feedback, and improve overall teaching effectiveness. As a result, AI has become a valuable technology to create a better learning experience, improve the quality of education, and help students face the challenges of the digital era, so AI-powered personalized learning is very significant (Abimanto, 2023).

AI technology has great potential as an innovative and effective learning tool (Trisiana, 2020), as a learning medium or learning aid is expected to create a classroom environment that develops students' attitudes, knowledge, character, and skills. The use of AI serves to provide real-time feedback on student performance, identify strengths and weaknesses, and help teachers adjust teaching strategies in education (Kusuma, 2023).

As for other benefits, personalized learning can be enhanced through artificial intelligence technology, which uses machine learning algorithms, by analyzing student data and individual preferences, AI is able to provide a learning experience tailored to the specific needs of each student. Artificial intelligence or AI can help students learn more effectively by creating

personalized learning plans based on their interests and needs. This approach encourages greater involvement in the learning process and allows students to reach their full potential (Wulandari, 2024).

The application of AI technology allows teachers to more effectively overcome the challenges faced in the digital era. The application of AI increases efficiency, facilitates learning that provides constructive feedback, improves teaching effectiveness, and prepares students for future challenges. As a result, integrating artificial intelligence technology into school teaching is essential to improve the quality of education and improve student learning outcomes (Chssignol, 2018). Learners engage in educational activities tailored to their desires and requirements. In addition, AI technology not only increases students' active participation but also makes students' learning experiences more engaging.

Therefore, this research was conducted to Identify Teacher Problems in Using AI Technology (*Artificial Intelligence*) in the Learning Process at MAN 01 Kolaka. By conducting this research, we can find out how AI technology can help teachers and what are the problems that exist in the learning process at MAN 1 Kolaka.

B. Methodology

1. Research Design

The research was conducted on November 20, 2024. Administratively, the research location is at MAN 1 Kolaka school, Jl. Tunambae No1 Sabilambo, Kolaka District, Kolaka Regency, Southeast Sulawesi. Astronomically, the research location is located at South Latitude: 4° 4' 59.88" and East Longitude: 121° 38' 18.24".

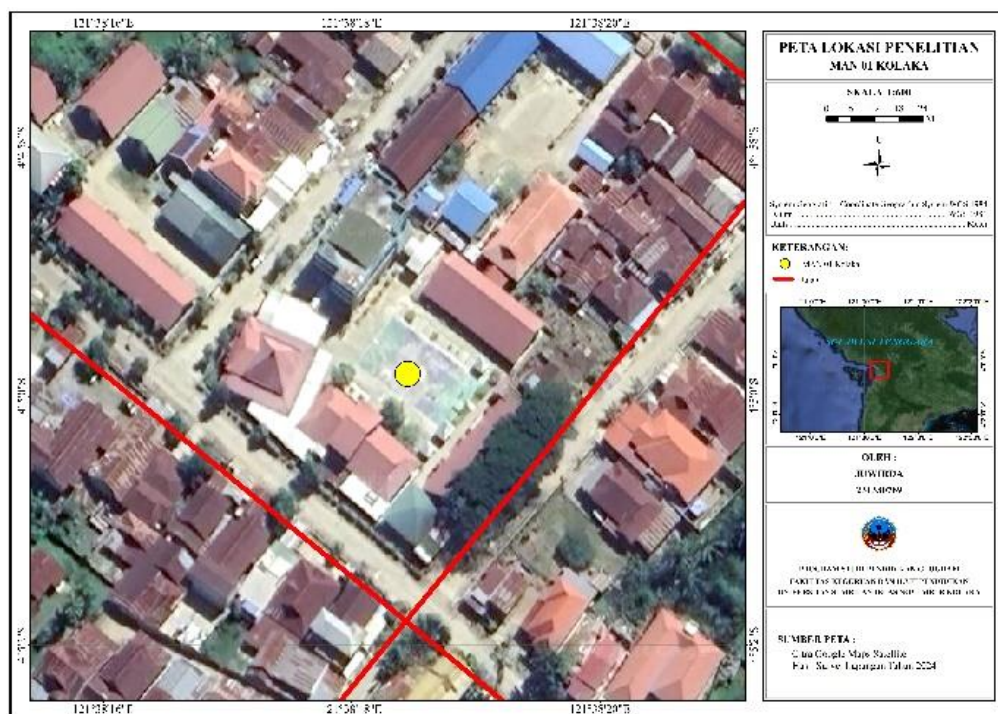


Figure 1. Research Location

The type of research used in this study is a qualitative approach using data collection methods used are interview techniques and various sources of literature related to the research topic. Data analysis is descriptive and aims to find information related to the research topic. The research steps carried out include selecting a research topic, collecting data from literature sources, analyzing data, writing research reports, and presenting research results (Rusli, 2021). Ensuring the validity of the data by selecting literature sources that are relevant to the research topic, as well as filtering and validating the data to ensure accuracy and validity (Sutisna, 2021). By applying the above research method, it is hoped that this research report can produce accurate information and provide a reference in identifying teacher problems in using AI (*artificial intelligence*) technology in the learning process at MAN 01 Kolaka.

2. Instruments & Technique of Data Analysis

The data obtained is then analyzed so that each step of data collection can be carried out clearly and directionally. Data obtained from interviews, observations, field notes or documentation, Data analysis techniques in this study use the Miles and Huberman model which

consists of several stages, namely: collection, reduction, data visualization, data verification and conclusion. As for the analysis of the Miles and Huberman model, it can be seen in the figure.

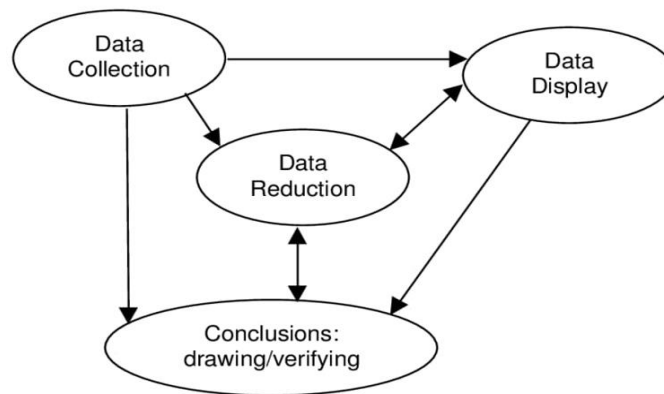


Figure 2. Miles and Huberman Models

The variables and list of questions used in this study are presented in the following table below.

Table 1. Questionnaire

NO	Variable	Questionnaire
1		Do you know AI technology that can be used/utilized in learning?
2		Are there any trainings that you have participated in regarding the application of AI technology in learning?
3		Have you ever used AI technology in the preparation of learning planning tools, evaluation of learning outcomes and learning processes in the classroom?
4	Identifying Problems in the Use of AI Technology in Learning	Can you mention what kind of AI technology you have utilized?
5		What problems do you face when using AI technology in the preparation of learning planning tools, teaching evaluation, and learning processes?
6		Can you tell us what benefits are obtained in the use of AI technology?

C. Findings and Discussion

1. Teachers' understanding of the use of AI in learning

Based on the results of interviews conducted with teachers on the use of AI technology in learning at MAN 1 Kolaka, it shows that teachers are aware and know the benefits of applying AI technology in the learning process. Because the use of AI technology in learning is very important to increase the effectiveness of education implementation. AI can help teachers manage administrative tasks, analyze student data, and customize learning materials based on individual needs. Teachers who also have a function as facilitators can develop student skills with the help of AI technology. Therefore, teachers at MAN 1 Kolaka understand that AI is very important to maximize the potential of this technology and create a more personalized and effective learning experience. This is based on the results of an interview with one of the teachers who stated the following:

"Yes, AI can help teachers in managing administrative tasks, analyzing student data, and adjusting learning materials according to individual needs. (Interview November 20, 2024)

According to the opinion of the informant above, teachers argue that the existence of AI technology makes it easier for teachers to manage administrative tasks, analyze student data and adjust learning materials based on the individual needs of their students. Teachers are realizing the great potential of AI to improve the efficiency and effectiveness of learning at the primary school level. This phenomenon is in line with the idea that AI in education can provide a number

of benefits, such as personalized learning, increased efficiency, adaptive learning, and automated assessments (Pambudi, 2023).

2. Training related to the application of AI technology in learning

The results of interviews with informants regarding training related to the application of AI technology in teaching show that teachers have never received or provided training directly. The application of AI technology in teaching shows that many teachers have not received the necessary training to use this technology directly, which affects the effectiveness of the use of AI technology. While AI offers benefits such as personalized learning and operational efficiency, it will be less effective if there is a lack of digital skills that teachers have. This may hinder the optimal application of AI in education, even though this technology has the potential to significantly improve the quality of learning. Therefore, training and support for teachers is essential to fill this gap and maximize the use of AI in the learning process. In the results, one of the teachers also stated that at MAN 1 Kolaka there are already digital classroom facilities, so that this can be used for the purpose of using AI technology in learning.

"We have never participated in training related to the use of AI technology for the learning process, but at MAN 1 Kolaka we already have a digital class, in class X. (Interview, November 20, 2024)"



Figure 2. The atmosphere of the Digital class at MAN 1 Kolaka

The opinion of the informant above illustrates that some teachers of MAN 1 Kolaka have never participated in training activities in a ; angsung held at schools related to the use of AI technology that can be used in the learning process. But at MAN 1 Kolaka there is already a digital classroom learning facility. This was explained in an interview with an informant, as follows.

"We teachers at Man 1 Kolaka, have never participated in training activities on the use or utilization of Ai technology, we learn self-taught from various media sources, one of which we learn through YouTube tutorial videos. (Interview November 20, 2024)."

The opinion of the informant above gives an overview that teachers learn to use AI self-taught or learn independently through video tutorials that can be accessed on pages such as youtube, because at MAN 1 Kolaka they have never received training on the use or use of AI technology in the preparation of teaching aids or in the process of preparing learning skills or implementing learning in the classroom so it is hoped that there will be training activities that can be carried out to improve teachers' skills in utilizing AI technology in the learning implementation process.

Artificial intelligence (AI) technology also offers new opportunities to analyze learning data and develop more effective learning tools. Therefore, the preparation of teaching aids in the future requires a more adaptive, responsive, and technological approach to meet the needs of different students and take advantage of the potential of technology to improve the quality of learning. Teachers often face various challenges related to the development of relevant, appropriate and effective teaching tools. One of the main challenges is the difficulty of accessing the right resources (Hartini, 2017).

3. The use of AI technology in the shrinkage of learning devices

The results of interviews conducted regarding the use of AI technology in the preparation of teaching aids show that not all MAN 1 Kolaka teachers use AI technology in the preparation of learning tools, Although there are various webinar activities carried out online to improve

understanding of AI and the application of digital-based learning, there are still some teachers who have not participated in the training. This certainly creates an uneven skill of teachers in the use of AI technology, so that some teachers lack confidence or do not have access to the resources needed to integrate AI into their teaching. The use of AI technology in the preparation of learning tools provides several significant benefits. Personalization of learning allows the material to be tailored to the needs of students, thereby increasing engagement and learning outcomes. Real-time AI feedback speeds up assessment and helps students better understand the material in addition to AI technology supporting operational efficiency for teachers, allowing them to focus on direct interaction with students. However, challenges such as the skills gap in the use of AI technology among teachers and ethical issues still need to be overcome to maximize the potential of AI in education. The results of interviews with teachers related to the use of AI technology in the preparation of learning tools are presented as follows:

"Ever. But not all teachers at MAN 1 Kolaka have ever used AI technology in the preparation of learning tools and learning processes in the classroom. (Interview, November 20, 2024)."

The opinion of the informant above gives us an idea that not all teachers have used AI technology in preparing and compiling learning tools and teaching processes.

"Yes. Not all teachers at MAN 1 Kolaka use Ai technology in the preparation of learning tools or in the learning process in the classroom, but Ai technology is definitely used in digital classrooms. (Interview, November 20, 2024)."

The opinion of the informant above gives an idea that not all MAN 1 Kolaka teachers use AI technology in preparing learning tools. Training in the use of AI technology can help teachers develop 21st century skills in students such as critical thinking, problem-solving, and collaboration skills (Gretter & Yadav, 2016).

4. Some technologies that teachers use in the learning process

The results of interviews conducted with informants who have utilized AI technology in learning, as for some of the AI technologies used by teachers in the teaching process, among others, were revealed in the following interviews:

"We have used several AI technologies in the learning process such as Google Gemini, chatcpt, canva, perplexity AI, Quizizz and others. (Interview, November 20, 2024)."

According to the opinion of the informant above, this shows that some teachers at MAN 1 Kolaka have used some AI technology in the teaching process. Teachers use artificial intelligence technology such as Gemini which is used to adapt learning materials according to the needs of students, Chatgpt to create content support to help teachers compile learning materials and also to answer students' questions, Canva which is used to prepare educational materials for percentages and use Quizizz to create more interesting quizzes and assessments.

AI in data management helps teachers filter, collect, and analyze student data more effectively (Sembiring, 2022), with advanced AI algorithms, teachers can collect and integrate data from various sources, such as academic records, assessments, and student personal information. AI can quickly analyze data and provide deep insights into each student's progress, needs, and learning patterns.

5. Problems faced when using AI technology in the preparation of learning planning tools

The results of interviews conducted with informants about the problems encountered in the use of AI technology in the preparation of learning planning tools showed that teachers faced several problems when using AI technology in the preparation of learning tools, such as limited infrastructure such as internet access and lack of training provided to some teachers who did not fully understand the use of AI technology. This was revealed in the following interview:

"Yes, we are experiencing several problems in the use of this technology, First, infrastructure limitations such as unstable internet access are the main obstacles. Second, the lack of training for teachers in utilizing technology effectively causes us difficulties in integrating technology into learning plans. In addition, resistance to changes from traditional teaching methods also hinders the adoption of the new technology. (Interview, November 20, 2024)."

The results of the interview above give an idea that teachers face several problems in the use of AI technology, such as limited and unstable Internet access infrastructure which is the main obstacle. In addition, the lack of teacher training in the use of AI technology actually causes difficulties in integrating new technologies such as AI technology into the implementation of learning in schools.

6. Benefits obtained in the use of AI technology

The results of interviews conducted with several teachers who are already familiar with the benefits obtained from the use of AI technology show that AI technology can facilitate the development of learning plans, evaluate learning outcomes, provide support to teachers or students in need and increase interest in learning. AI technology can tailor educational materials based on students' needs and learning styles, allowing for a more effective learning experience. This was stated in the following interview:

"Yes. By using Ai technology, it makes it easier for teachers to compile learning materials that are interesting to students, besides that it can also increase students' interest in learning with the features of Ai technology. (Interview, November 20, 2024)."

The opinion of the informant above shows that AI technology greatly facilitates the learning process for teachers, so the use of AI technology is also able to increase students' interest in learning at school. Another advantage of using AI technology is that it also makes it easier to prepare learning materials and student learning time. This was revealed in the following interview.

"The use of Ai technology also accelerates the process of preparing learning materials in the classroom so that time is used more effectively. (Interview, November 20, 2024)."

From the results of the interview above, teachers argue that the use of AI technology in the learning process in the classroom is to make it easier for teachers to prepare learning materials that are interesting to students and increase students' interest in learning by utilizing AI technology in learning.

Teachers have a role in helping students in the learning process, with the rapid development of technology teachers and students should take advantage of AI technology in the teaching and learning process and learning implementation, so that teachers are expected to be able to apply advanced technology in the classroom and in the educational implementation process (Aulia, et al. 2024), although it is realized that not all teachers fully utilize digital technology in their teaching (Mustari, 2024), but in this increasingly competitive era, every educational institution needs to adopt technology in its teaching and learning activities to help facilitate teacher work and student learning in schools (Lase, 2019).

D. Conclusion

The results of the study show that the application of artificial intelligence (AI) in the learning process at MAN 01 Kolaka faces several problems. This includes limited infrastructure, lack of education, and rejection of new technologies. However, AI has great potential to improve learning, personalize learning materials, provide feedback in real-time, and improve student interest and learning outcomes. To achieve this, teachers need to be provided with continuous training and supporting infrastructure that integrates AI technology into school learning so that the use of AI technology can be optimized to improve the quality of learning.

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