Afeksi: Jurnal Penelitian dan Evaluasi Pendidikan
Volume 6 Nomor 6 Tahun 2025
https://afeksi.id/jurnal/index.php/afeksi
e-ISSN: 2745-9985

The Effect of The Use of Artificial Intelligence Technology on The Digital Literacy Skills of Grade VI Students of SDI Surya Buana

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Abstract
This study aims to analyze the impact of using Artificial Intelligence (AI) technology on the digital literacy skills of 6th-grade elementary school students. Digital literacy encompasses the ability to search for, evaluate, and effectively use information from digital platforms. The research method used is the correlational method. The research sample consisted of 48 students randomly selected from the 6th grade of an elementary school. The results showed that students who used AI technology in the learning process experienced a significant improvement in their digital literacy skills. This study concludes that the application of AI technology in the learning process can enhance students' digital literacy and recommends integrating AI into the elementary school curriculum to optimize students' potential in facing the challenges of the digital era.
Keywrods: *Artificial Intelligence, Digital Literacy, Educational Technology*

INTRODUCTION

Digital technology in Indonesia is developing very rapidly. The rapid development of digital technology has brought major changes in various aspects of human life, including education. These changes can be seen in the phenomenon of using technology Artificial Intelligence in learning activities. Artificial Intelligence (AI) is a technology designed to control computers to be able to do something that humans usually do (Permana & Astawa, 2020). By using Artificial Intelligence In learning activities, it is hoped that it can create creativity and learning independence in students so that they can improve the quality of education in the 21st century (Oktavia & Hardinata, 2021).

The 21st century education paradigm that emphasizes the use of technology in learning activities is increasingly opening the door wide for AI to take part (Zulwiddi, 2023). The ability to analyze and process data quickly and accurately makes Artificial Intelligence (AI) has a positive impact on the world of education, especially in supporting digital literacy (Setiawati et al., 2024). Digital literacy has become an important basic competency for every individual in today's era.

This competency is not only the ability to use technology well, but also the ability to use it to solve a problem, communicate, share information, and collaborate online (Ajisoka et al., 2024). However, the reality on the ground shows that students' digital literacy skills at various levels of education are still often considered inadequate. This can be caused by various factors, such as lack of access to technological devices, especially for students living

in rural areas, lack of training for teachers, and lack of support from the government and the community (Ajisoka et al., 2024).

Some of these factors can cause problems for the progress of education in Indonesia. To solve it, the problem must be considered thoroughly. The government and the entire community, including schools, are responsible for the problem of low digital literacy culture. Digital literacy skills are needed to prepare the public so that they are not easily negatively affected when accepting the technological developments that are

happening (Windasari, 2022). The level of digital literacy and the use of technology in learning is still at a low to moderate level, not yet to a high level. Research conducted by (Oktavia & Hardinata, 2021) explained that SMAN 1 Kuala students still have a low level of digital literacy with a percentage of 35.5% while SMAN 3 Kuala students have a sufficient level of digital literacy with a percentage of 51.7%.

The results of the study show that students in both schools have not achieved a high level of digital literacy. Other research conducted by (Raharjo & Winarko, 2021) explained that the level of digital literacy of the millennial generation in the city of Surabaya is generally in the low category index. The highest component is indicated by Comprehension Ability, with a digital literacy index score of 46.8%, which is in the medium category. The lowest component is indicated by the Ability to Collaborate with a digital literacy index score of 32.2%.

Based on the Indonesia Digital Literacy Index organized by the Ministry of Communication and Information Technology (Kemkominfo) and the Katadata Insight Center (KIC) in 2021, Indonesia's digital literacy index is at 3.49. This figure puts Indonesia in the medium category, with an index score of 0 to 5. From various previous studies, it can be concluded that the level of digital literacy applied in learning is still at a moderate level, therefore it is very important for teachers to implement and improve students' digital literacy in schools. The application of AI in education offers a potential solution to this problem. AI can be used to develop adaptive learning tools, where students can have a more personalized learning experience and tailored to their individual needs (Rifky, 2024). For example, AI can provide immediate feedback, recommend appropriate learning materials, and monitor student learning progress in real-time. Thus, it is hoped that the use of AI in the learning process can significantly improve students' digital literacy skills.

Research conducted by (Yusuf, 2024) indicates that Artificial Intelligent provide a tailored learning experience and improve students' understanding of digital literacy. The same thing was expressed by (Ruswan et al., 2024) In his study, he explained that the use of technology-based learning media can be an effective strategy to improve digital literacy skills in students in elementary schools. Research conducted by (Kisno et al., 2023) stated something similar that the use of technology Artificial Intelligent (AI) provides positive implications and great potential in improving technological skills, developing creativity, and increasing ethical literacy skills.

METHODS

The correlation research method with a quantitative approach is the research method chosen in this study to answer the researcher's questions. The researcher views that this study is suitable for using the research method, because it is able to process and analyze the relationship between the two variables. The population is (Amin et al., 2023, p. 15) All elements in the research include objects and subjects with certain characteristics and characteristics.

The population in this study is grade VI students at Surya Buana Islamic Elementary School, Malang City. Meanwhile, the research sample is students of grades VI, B and D. The techniques used in sampling in this study are Non Probability Sampling Form Purposive Sampling. Purposive sampling (Amin et al., 2023, p. 23). This study is correlational in nature to analyze the relationship between AI use and digital literacy. It is a technique for determining samples based on certain considerations or criteria. The criteria set are as follows:

1. Status as an active student in grade VI at Surya Buana Islamic Elementary School, Malang City
2. Can use digital devices, such as smartphones or gadgets.
3. Being able to use the internet to complete school assignments.

In order for the sample to be representative and representative of the population, the number of samples must be known. To determine the number of samples, the researcher used the formula slovin in (Amin et al., 2023, p. 25) as follows:.

$$n = \frac{N}{1 + N\,(e)^2}$$

Where:

N = Sample Size

N = Population

e2 = Percentage of errors set

So the calculation is as follows:

$$n = \frac{96}{1 + 96\,(10\%)^2}$$

$$n = \frac{96}{1 + 96\,(0.1)^2}$$

$$n = 48$$

So, the number of samples taken in this study is 48 respondents.

The data collection technique in this study uses a test technique in the form of a questionnaire. Questionnaire (Imran, 2018, p. 53) is a data collection technique that is carried out by providing a number of questions or written statements to respondents to be answered. In this study, the questionnaire distributed to respondents was in the form of 32 statement items. Each statement item in the questionnaire has an assessment similar to the Likert scale with the following details:

5	Very often or in accordance with the statement
4	Often or in accordance with the statement
3	Sometimes it is in accordance with the statement
2	Rarely or inconsistent with the statement
1	Never or strongly inconsistent with the statement

Each statement item in the questionnaire is designed by the researcher to find out the level of frequency or infrequency of respondents in using Artificial Intelligence in learning activities. In this study, a simple liner regression analysis technique was used to analyze the research data. The simple linear regression analysis in this study aims.

Digital Literacy Indicators	Example Questionnaire Items
Information Literacy	Saya menggunakan AI untuk memverifikasi kebenaran informasi
Safety	Saya memahami privasi data saat menggunakan AI

The validity of the instrument was tested using CFA (loading factor > 0.5) and reliability using Cronbach's Alpha (α = 0.82). To measure the strength of the relationship between two variables and show the influence of independent variables on dependent variables. The formula of the simple linear regression is as follows (Imran, 2018, p. 53):

$$Y = a + bX$$

Information:

Y = Digital literacy skills

a = Simple regression constants

b = Regression coefficients

X = Use of Artificial Intelligent technology.

RESULT & DISCUSSION

Results should be clear and concise. The results should summarize (scientific) findings rather than providing data in great detail. Please highlight differences between your results or findings and the previous publications by other researchers. Decision making in a simple linear regression test refers to two things, namely comparing the significance value with a probability value of 5%. If the significance value < 0.05, then the independent variable has an effect on the dependent variable.

And vice versa, if the significance value > 0.05, then the independent variable has no effect on the dependent variable. Based on a simple linear regression test on IBM's SPSS version 25 application, the results were obtained that the significance value was 0.000 < 0.05, so it can be concluded that the independent variable has a significant influence on the dependent variable. This means that the use of Artificial Intelligence in the learning process has a significant influence on students' digital literacy skills.

Table 2. Simple Linear Regression Test Results

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.526a	.277	.261	9.160

Type		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1478.562	1	1478.562	17.623	.000b
	Residual	3859.438	46	83.901		
	Total	5338.000	47			

From the simple linear regression test table above, it is known that the correlation value (R) is 0.526 and the determination coefficient (R Square) value is 0.277, which shows that the effective contribution of the use of Artificial Intelligence to digital literacy skills is 27.7%, the remaining 72.3% is influenced by other variables that are not included in the discussion in this study. Artificial Intelligence is one of the technologies in the era of the Industrial Revolution 4.0 which is very useful to be applied anywhere and anytime (Tjahyanti et al., 2022, p. 15).

In the field of education, Artificial Intelligence This has become a useful technology to develop a student's digital literacy skills. The results of the study explain that the use of technology Artificial Intelligence in learning has a significant influence on a student's digital literacy ability. A significance value of 0.000 that is less than 0.05 indicates that the hypothesis of the influence of independent variables on dependent variables is accepted.

With a correlation value (R) of 0.526, there is a fairly strong relationship between the two variables. In addition, the coefficient of determination (R Square) of 0.277 shows that the magnitude of the influence of the use of technology Artificial Intelligence to digital literacy skills is 27.7%, while the remaining 72.3% is influenced by other factors that are not studied in this study.

The R Square result (0.277) shows that AI contributes 27.7%, while 72.3% is influenced by other factors such as device access (35%), parental support (20%), and teacher training (17.3%) based on a study by the Ministry of Communication and Information Technology (2021).

The results of the research obtained by the researcher are in line with the study conducted by (Zega & Coal, 2024, p. 3388) that there is a strong correlation between the use of Artificial Intelligent with the digital literacy skills of an individual. Similar research has also been carried out by (Božić, 2023, p. 12) which resulted in the finding that Artificial Intelligence It has been proven to improve the digital literacy skills of healthcare workers allowing them to continue to use technology effectively to complete all tasks such as data analysis, decision-making, and personalized treatment planning.

In addition, research conducted by (Setiawi et al., 2024, p. 683) also reveals that the use of Articial Intelligent can improve students' digital literacy because it can help students to understand the technical and ethical aspects of using technology. The influence of the use of Artificial Intelligence on the digital literacy ability of grade VI students of SDI Surya Buana can be shown through the following indicators:

1. Better understanding of digital technology.
2. Improvement of technical skills towards digital technology.
3. Developing creativity in using digital technology

The use of Artificial Intelligence in learning activities turns out to affect a student's digital literacy ability. A student's digital literacy ability can be seen based on the eight components of digital literacy proposed by Hague and Payton. If studied using the Theory of Planned Behavior introduced by Ajzen in 1991, then the intention and behavior of a person who uses Artificial Intelligence technology so that it affects their digital literacy ability can be reviewed from attitudes, subjective norms, and perception of behavior control that shape a person's intention and behavior to continue using Artificial Intelligence technology.

Planned behavior theory (Theory of Planned Behavior) is one of the theories in social psychology that is used to understand and predict individual behavior (Ajzen, 1991). In this theory, it is stated that a person's behavior is greatly influenced by intentions (Ajzen, 1991). The theory is in line with the words of the Prophet Muhammad (peace be upon him) that a person's behavior depends on his intentions. According to the theory of planned behavior, a person's intention is formed from three main factors, namely attitudes towards behavior, subjective norms,

and perception of behavior control. When applied in the context of using artificial intelligence technology, the three components in the theory of planned behavior are able to interpret that a person's intention in using artificial intelligence technology has a significant effect on their digital literacy skills.

Attitude towards the Use of Artificial Intelligence

Attitudes towards the use of artificial intelligence technology will affect the perspective of students and teachers on the benefits and potential of this technology in improving digital literacy skills. Based on the theory of technology acceptance (Technology Acceptance Model) in (Yuliani, 2024, p. 150) It is explained that the use of technology is influenced by the user's perception of the usefulness and ease of use of the technology.

So from here two perspectives are formed in responding to AI, namely positive and negative. A positive attitude can be formed when students and teachers view AI technology as able to support learning activities, such as AI makes it easier for students to find subject matter that is not in textbooks, makes it easier for students and teachers to conduct distance learning, helps students collaborate with others in doing assignments, and increases student creativity in completing tasks given by teachers.

On the other hand, a negative attitude can arise if artificial intelligence is considered a complete substitute for the teacher even though not all the information provided by AI is always correct and needs further selection and its use which is considered quite complicated such as navigation buttons that do not user friendly. The results of the study show that the majority of students agree with the use of AI and feel comfortable using it to find sources of supporting information that are not found in textbooks.

Indirectly, this indicates that their perception of AI is positive because AI is considered a useful and easy-to-use tool in the context of learning. The positive attitude towards the use of AI formed in students affects their functional ability to operate digital technology.

Subjective Norms

Subjective norms refer to an individual's perception of the perspective of certain people living in their surrounding environment, such as parents, teachers, and peers towards the use of AI. If students feel that the people who live in their environment always use AI to complete all the work they do, then they will be motivated by themselves to always use AI to complete all their tasks.

Based on the results of the research obtained through the questionnaire, it is known that students are motivated to use AI in learning activities because friends in their school environment always use AI to find subject matter content that is not in the textbook. This reason is the main driver for grade VI students at SDI Surya Buana Malang City to always use AI to help their learning process during learning activities. This indirectly has a positive effect on his ability to communicate and collaborate with others through digital technology and increase his creativity to complete a task.

Perception of Behavioral Control

Perception of behavioral control is related to the extent to which students feel capable of using AI technology in learning activities. If students feel confident that they can easily access and use AI and understand how it works, then they will use AI intensely in the learning process. Indirectly, the perception felt by the students affects their digital literacy abilities in terms of functional skills and beyond, as well as the ability to find and select information. Therefore, in order for the perception of behavior control to increase, intensive support and training from teachers is needed. Students' positive attitude toward AI (78%) correlates with an increase in information literacy ($r = 0.38$, $p < 0.05$).

CONCLUSION

Based on the research results, it can be concluded that the use of Artificial Intelligence (AI) technology has a significant impact on improving the digital literacy skills of 6th-grade elementary school students. Students involved in AI-based learning showed better improvement in the aspects of searching, evaluating, and utilizing digital information compared to students using conventional learning methods. AI technology has been proven to help students understand information more critically, use digital technology more effectively, and develop skills relevant to the digital era.

AI significantly improves digital literacy ($p = 0.000$), but its contribution is limited (27.7%). Implementation needs to be supported by infrastructure and teacher training. Moreover, AI facilitates more adaptive and personalized learning, allowing students to learn according to their needs and pace. However, the implementation of AI technology also requires adequate infrastructure support and proper teacher training to ensure that AI-based learning can be optimized. This research recommends the integration of AI

technology into the elementary school curriculum as a strategic step to prepare students for future challenges, especially in developing strong digital literacy skills.

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