

**Improving the Efficiency and Effectiveness of Learning for Students of Social Studies Education Program at UIN Syarif Hidayatullah Jakarta with Artificial Intelligence**

Zaharah<sup>1\*</sup>, Ulfah Fajarini<sup>2</sup>, Kirilova G.I.<sup>3</sup>, Ibnusina<sup>4</sup>, Abdul Basyit<sup>5</sup>

University of Islamic Studies Syarif Hidayatullah Jakarta,<sup>1,2</sup>

Kazan Federal University,<sup>3</sup> University of Pamulang<sup>4</sup>,

Universitas Muhammadiyah Tangerang<sup>5</sup>

Email: zaharah@uinjkt.ac.id

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**Abstract**

In this digital era, technological advancement is growing rapidly, including in the field of artificial intelligence (AI). AI has penetrated various aspects of life, including education. In education, AI offers various opportunities to improve the efficiency and effectiveness of student learning. Students are faced with various complex learning tasks and demands. This often makes it difficult for them to manage their time and complete tasks appropriately. AI comes as a solution to help students complete their tasks more easily, efficiently and effectively. This study aims to analyze the efficiency and effectiveness of student learning using AI, and to identify the benefits and challenges of using AI in education. This study uses a quantitative descriptive method with primary and secondary data sources, with data collection procedures and interviews, and giving questionnaires to 104 respondents using a Likert-Scale, data analysis with data presentation, data reduction and conclusions. The research was conducted at Syarif Hidayatullah State Islamic University, Jakarta, as student-respondents in Semester IV in the Social Studies Education-Programs. The results of this study indicate, the use of AI can increase the efficiency and effectiveness of student learning in the social study-program, as evidenced by the results of questionnaires from respondents, that 55.8% of the respondents are effective in the use of AI and can increase efficiency by 51.9% and 40.4% of the use of AI is appropriate in improving understanding of lecture material, and 52.9% of the use of AI is able to overcome time constraints in completing lecture assignments. This research is expected to make a valuable contribution to the development of education in the digital era and to help students to learn more effectively and efficiently. Provide recommendations for the wise and responsible use of AI in education. Remember, AI is only an assistant for users, not a substitute for doing anything including lecture assignments.

**Keywords:** *Efficiency, Effectiveness, Artificial Intelligence, Learning*

**Abstrak**

Di era digital ini, kemajuan teknologi berkembang pesat, termasuk dalam bidang kecerdasan buatan (*Artificial Intelligence-AI*). AI telah merambah berbagai aspek kehidupan, termasuk dunia pendidikan. Dalam dunia pendidikan, AI menawarkan berbagai peluang untuk meningkatkan efisiensi dan efektivitas belajar mahasiswa. Mahasiswa dihadapkan dengan berbagai tugas dan tuntutan belajar yang kompleks. Hal ini seringkali membuat mereka kesulitan dalam mengatur waktu dan menyelesaikan tugas dengan tepat. AI hadir sebagai solusi untuk membantu mahasiswa dalam menyelesaikan tugas-tugasnya dengan lebih mudah, efisien dan efektif. Penelitian ini bertujuan untuk menganalisis efisiensi dan efektivitas belajar mahasiswa dengan menggunakan kecerdasan buatan serta mengidentifikasi manfaat dan tantangan penggunaan AI dalam pendidikan. Penelitian ini menggunakan metode kuantitatif dengan sumber data primer dan sekunder dengan prosedur pengambilan data wawancara dan memberikan kuesioner kepada 104 responden dengan menggunakan skala Likert, analisis data dengan penyajian data, reduksi data. Penelitian ini dilakukan di Universitas Islam Negeri Syarif Hidayatullah Jakarta dengan responden mahasiswa semester IV prodi Pendidikan IPS. Hasil dari penelitian menunjukkan bahwa penggunaan kecerdasan buatan dapat meningkatkan efisiensi dan efektivitas belajar mahasiswa prodi Pendidikan IPS dibuktikan dengan hasil kuesioner dari responden bahwa 55,8% efektif dalam penggunaan AI dan dapat meningkatkan efisiensi sebesar 51,9 % dan sebesar 40,4 % penggunaan tepat dalam meningkatkan pemahaman materi perkuliahan, serta 52,9% penggunaan AI mampu mengatasi kendala waktu dalam menyelesaikan tugas. Penelitian ini diharapkan dapat memberikan kontribusi yang berharga bagi pengembangan pendidikan di era digital dan membantu mahasiswa untuk belajar dengan lebih efektif dan efisien. Penelitian ini memberikan rekomendasi untuk penggunaan AI yang bijak dan bertanggung jawab dalam pendidikan. Ingat, AI hanya sebagai asisten bagi pengguna bukan sebagai pengganti dalam melakukan apapun terutama tugas perkuliahan.

**Kata kunci:** *Efisiensi, Efektivitas, Kecerdasan Buatan, Pembelajaran*

\* Alamat Korespondensi

## Introduction

The world is on the brink of a new era, driven by artificial intelligence (AI). This technology is evolving rapidly, bringing with it the ability to revolutionize various aspects of our lives. Technological advancements are playing a tremendous role, such as media technology and artificial intelligence (AI), which promises to increase efficiency, productivity, and even pave the way for scientific innovation like never before (Munir, 2017). However, in addition to its tremendous potential, AI also presents challenges that we need to pay attention to, such as artificial intelligence is already almost equaling the human brain – of course, this is thanks to technological advances. The development of AI penetrates in all aspects of life, including education. Artificial Intelligence offers various opportunities to improve the efficiency and effectiveness of student learning. Students are faced with various complex learning tasks and demands. This often makes it difficult for them to manage their time and complete their assignments on time. AI comes as a solution to help students complete their tasks more easily and efficiently. Nur (2019) stated that Artificial Intelligence (AI), can help students in various aspects of learning, such as: completing repetitive tasks: AI can automate time-consuming repetitive tasks,

such as searching for information, processing data, and creating presentations. This allows students to focus on more complex tasks that require critical thinking. Personalization of learning: AI can provide personalized learning according to each student's needs and learning style. Artificial Intelligence (AI), can analyze student learning data and recommend appropriate learning materials, and provide quick and accurate feedback on assignments. This helps students to understand their mistakes and improve their skills. Improving the accessibility of learning, AI can make learning more accessible to all students, including students with special needs. While AI offers many benefits to improve the efficiency and effectiveness of student learning, it is important to note that AI is not a substitute for the role of lecturers and social interaction in the teaching and learning process. AI should be used as a tool to complement and enhance the teaching-and-learning-process (Rahman et al, 2023) and not to replace it.

The theory of efficiency revolves around getting the most out of learning, such as the efficiency principle, this theory states that the best outcome is achieved when the benefits (marginal benefit) from using resources equals the cost (marginal social cost) of using those resources. Efficiency frontiers, this concept is used in

fields like economics, science and operations research like teaching and learning.

The use of AI in education also poses some challenges that need to be considered, such as: digital divide: not all students have equal access to AI-Technology. This can exacerbate the digital divide and slow down learning progress for underprivileged students. Potential for cheating: AI can be used by students to cheat or do assignments without maximum effort. This can undermine academic integrity and reduce the quality of learning (Ira ayu, A.2023). Data privacy issues: The use of AI in Education raises concerns about student data privacy. It is important to ensure that student data is kept confidential and used responsibly, as the results of AI can also provide inaccurate and even erroneous results, but considering the benefits and challenges, AI has the potential to have a positive impact on the efficiency and effectiveness of student learning. However, it is important to use AI wisely and responsibly to ensure that it is used to improve the quality of learning, not to undermine it.

### **Research Methods**

This study used a descriptive quantitative method, with primary and secondary data sources, with data collection procedures, interviews and questionnaires with 104 students in the fourth semester in

Social Studies Program of the Faculty of Tarbiya and Teacher of Syarif Hidayatullah State Islamic University, Jakarta. Both technique were used followed by standard methods in order to collecting data in the classroom. Data then transformed into scoring result using Likert-Scale (1-5). Researchers selected relevant research subjects and collected information data directly from the source. In addition, researchers also used references from journals, books, and other supporting sources relevant to the theme of the study.

### **Results and Discussion**

The result shows that most students at second year (fourth semester) already know artificial intelligence (AI), which is a technology designed to help complete human. Its similar with Sahara (2023), stated that technology that can help human work but if overused will lead to laziness and not thinking critically. And their opinions on AI, in general, AI refers to computer programs designed to mimic human intelligence, including decision-making ability, logic, and other characteristics of intelligence. This leads to dependence on technology and makes it difficult for individuals to perform tasks without technological assistance (Ledi T., 2023). Another opinion says that IA is a technology that helps facilitate several human tasks in the form of media (sound, images, and others), an application that can

help or make it easier for its users (Sahara, 2023). Other sources also say AI, a program designed to solve a problem faced by humans using the help of computer science, and to assist students in completing assignments, but on the other hand this IA also has a negative impact because students become lazy to think and fixate on these tools (Zaharah, et al 2023). Students will also rarely go to the library to find reference books and read books, because all tasks can be searched through this technology. The results of further interviews, AI a little help in completing some lecture assignments and time-efficiency are the main factors, why AI is widely used by students. Actually, artificial intelligence can also be used for adaptive learning, virtual tutors, for student intelligence analysis and educational content development, such as: a) Adaptive Learning, AI is used to identify the learning needs of individual students and to provide learning content and strategies tailored to their needs, b) Student Performance Analysis, AI can be used to analyze student performance data, identify trends, and provide useful insights to teachers and educational institutions, c) Educational Content Development, AI can be used to produce interactive and adaptive educational content, such as self-study programs and virtual tutors, meaning that the respondent's answer above is not

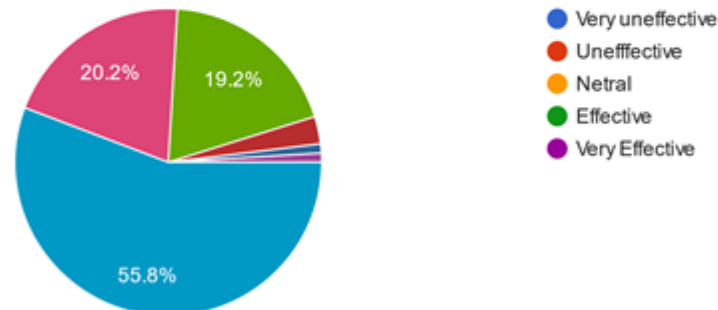
entirely the use of AI has a negative effect on the work of helping students complete their assignments (Octavia Takaredas, 2024). For the next response about the results of the answer from the search using the AI-Application, the respondent answered that the results obtained were less valid and long-winded, and less, the results obtained from AI should be checked again by the user to the original source, but at least AI has been able to help the user a little, even though the answer is less precise. Another case, said by Russell, S. J., & Norvig, P. (2016) that Artificial Intelligence can help and do things, that are currently still better done by humans. AI deals with intelligent behavior on artifacts. This may contradict the answers of some respondents in the field. However, there are other opinions from respondents regarding the use of AI among students: The more often they use AI, the lazier they will be to look for other sources, such as e-books and journals. Another opinion, AI (artificial intelligence) refers to the ability of a computer or computer system to imitate and execute tasks that usually require human intelligence (Pongtambing et al., 2023). The main goal of artificial intelligence is to enable computers to perform tasks that normally require human thinking, analysis, decision-making and problem-solving (Pongtambing et al., 2023). In the use of AI,

there are also user concerns. Data protection and privacy policies are important in preventing misuse and unintended privacy violations. From the results of the interviews above, researchers can analyze and conclude that artificial intelligence AI is very helpful in completing their assignments in their lectures on campus. Artificial Intelligence is also made to make it easier to find information both related to lessons and general. A small number of results from the interviews stated that AI can make it easier to learn what they don't know, but of course there needs to be consideration and checking whether it is valid (correct) or otherwise. So, it is also necessary to be selective in the use of this artificial intelligence. It is recognized as a technology that has great potential to change human life in the future. In general, AI refers to computer programs designed to mimic human intelligence, including decision-making ability, logic, and other characteristics of Intelligence. Computer Scientist Professor John McCarthy is

credited with introducing the concept of AI in 1956. Today, artificial intelligence (AI) has been widely used in various applications such as search engines, virtual assistants like Siri, Google Assistant, and Cortana. In addition, the development of AI has reached an amazing level, one of which is its use in autonomous (self-drive) vehicles, that allow vehicles to drive by themselves without human intervention. In addition to these uses, AI also has great potential to advance the field of education and other fields such as health, food security, and bureaucratic reform. In education, the use of AI can help students control and monitor their own learning, enabling them to live and work well and independently in the future. In addition, artificial intelligence, in the future, will lead to precision learning. In the future, learning will not only take into account the cognitive, affective, and psychomotor aspects of students, but also take into account students' daily behavior or habits. The results of the questionnaire can be drawn using pie chart as follows.

1. How effective do you think the use of artificial intelligence (AI) is in helping complete course assignments?

104 responses



**Figure 1.** The Effectiveness of the Use of AI in Helping Complete Course Assignments

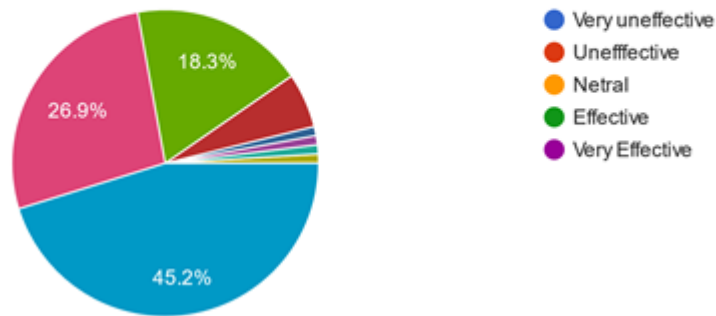
From the figure 1, the use of AI is very helpful in completing lecture assignments, as many as 55,8% and those who answered very effectively 20,2% while the rest answered neutrally by 19,2%. Researchers can conclude that artificial intelligence (AI) can help student-Assignments very effectively and efficiently, although there are some answers from respondents answering that the use of AI is not so valid or not so able to help student-Assignments, but it can be understood and that the use of AI is only as an assistant, not as a replacement for users to complete other tasks, especially lecture-Assignments.

From some of the respondent results above we can know that the impact of

artificial intelligence (AI) for students, who always use it as a medium or tool in the learning process, is only 16,3% answering smart, while there are 32,7% answering using AI-Tools tools to help students' lecture assignments experience a decline in intelligence, while 45,2% of student responses are neutral. This means that most students in the Social-Studies program do not all use AI as a tool to do their lecture assignments. In the use of Artificial Intelligence technology, as a learning medium, the response of students felt smart 18,3%, while the response of students became inactive by 26,9%. The highest score of their answers was neutral 45,2% as shown in the figure 2.

9. The use of AI technology as a learning medium results in students being able to complete assignments?

104 responses



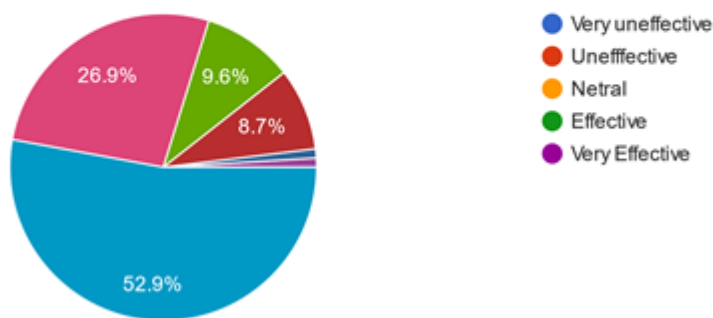
**Figure 2.** The Effectiveness of AI Technology as a Learning Medium Results in Students being Able to Assignments

In the use of artificial intelligence or so-called AI technology is very effective and efficient can help in carrying out any task related to learning, because 52,9 % answered the use of AI is very effective and efficient while AI can help overcome time

constraints in completing lecture assignments, only 26,9% this means that for respondents IA is not enough to help complete their lecture assignments as shown in the figure 3.

6. In your opinion, to what extent is artificial intelligence able to overcome time constraints in completing lecture assignments?

104 responses



**Figure 3.** The Effectiveness of the Ability of AI to Overcome Time Constraints in Completing Lecture Assignments

In the use of AI can help improve understanding in lecture material, who

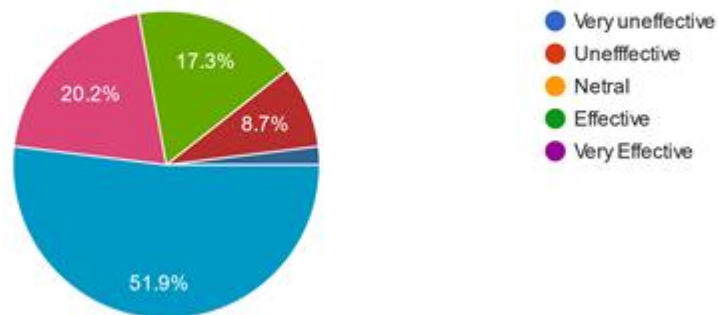
answered 51,9%. This is a very high answer from respondents which means that the use

of AI is very helpful for students in increasing students' understanding of the

material that the lecturer conveys, as shown in the figure 4.

#### 4. Does the use of artificial intelligence help improve your understanding of lecture material?

104 responses



**Figure 4.** The Effectiveness of the Use of AI in Improving the Understanding of Lecture Material

## Conclusion

Artificial Intelligence (AI) is the study that involves trying to get computers to perform tasks that are currently still better performed by humans. Artificial Intelligence (AI) has undergone rapid development and has great potential in a variety of fields, including Education. AI refers to the ability of computer systems to mimic human intelligence in certain tasks, such as natural language processing, decision making, and learning. The use of Artificial Intelligence (AI) in helping to complete academic assignments was rated as very effective by most respondents, but a small proportion rated it ineffective. Because they think that in the use of AI their answers are invalid, and inaccurate. But the use of AI can increase efficiency and effectiveness in solving their academic

tasks, but there is still room for improvement in providing accurate and precise solutions. By checking the answers given by AI should be checking the original source references.

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