

Biology Education Students' Perspectives on the Utilization of Artificial Intelligences (AI) ChatGPT in Learning

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Abstrak

Perkembangan ilmu pengetahuan dan teknologi (IPTEK) telah memberikan dampak besar pada berbagai aspek kehidupan, termasuk pendidikan. Salah satu inovasi yang berkembang pesat adalah kecerdasan buatan (AI), khususnya ChatGPT yang dikembangkan oleh OpenAI. Penelitian ini bertujuan untuk mengeksplorasi pandangan mahasiswa pendidikan biologi terhadap penggunaan ChatGPT dalam proses pembelajaran. Metode penelitian yang digunakan adalah deskriptif kualitatif dengan data dikumpulkan melalui angket yang disebarkan kepada mahasiswa Pendidikan Biologi angkatan 2022/2023 di UIN Walisongo. Hasil penelitian menunjukkan bahwa ChatGPT dianggap berguna dalam mempercepat penyelesaian tugas dan meningkatkan produktivitas. Namun, masih terdapat tantangan dalam hal aksesibilitas dan kemudahan penggunaan. Hasil penelitian ini dapat menjadi dasar untuk mengembangkan strategi integrasi teknologi AI yang lebih efektif dalam kurikulum pendidikan biologi.

Kata Kunci: Chat GPT; AI; Pembelajaran

Abstract

The advancement of science and technology (IPTEK) has significantly impacted various life aspects, including education. One rapidly evolving innovation is Artificial Intelligence (AI), specifically ChatGPT developed by OpenAI. This study aims to explore the perspectives of biology education students on the use of ChatGPT in their learning process. The research method used is qualitative descriptive with data collected through questionnaires distributed to Biology Education students of the 2022/2023 cohort at UIN Walisongo. The findings indicate that ChatGPT is considered beneficial in accelerating task completion and enhancing productivity. However, there are still challenges regarding accessibility and ease of use. The results of this study can serve as a basis for developing more effective AI technology integration strategies in biology education curricula.

Keywords: Chat GPT; AI; Learning

Introduction

The development of science and technology (IPTEK) is increasingly rapid and has a lot of influence on various aspects of human life, one of which is education. In education, the advancement of IPTEK provides new innovations, including Artificial Intelligence (AI) which is an innovation in technology that focuses on creating intelligent machines that can think and work like humans (Serdianus & Saputra, 2023). According to John McCarthy, Artificial Intelligence is a science and technique in creating intelligent machines, especially in creating intelligent computer programs or applications. The Artificial Intelligence system is programmed to learn from the surrounding environment and make decisions based on the information it receives. This technology is also capable of solving complex challenges such as natural language processing, medical diagnosis, and the development of autonomous vehicles (Oktavianus, et al., 2023). With its sophistication, AI provides breakthroughs to make things easier and help humans, including in the world of education.

One of the useful AI technologies that is often used in education is Chat GPT. Chat GPT is an AI product developed by the OpenAI Company which has the ability to produce information in a very short time and its delivery is easy to understand by human language. Chat GPT (Generative Pre-Trained Transformer) is a chatbot that uses artificial intelligence technology. With the ability to interact and provide assistance to humans in carrying out various tasks. The AI Chat GPT product is currently often used to make human work easier, including by students, according to research by Amala, et al., (2023) that the presence of Chat GPT can facilitate the activities of students and lecturers in doing their assignments. This is because Chat GPT operates by taking information from various articles, journals, and online publications. By absorbing various sources of information, Chat GPT is able to provide quick answers when users search for certain information (Suharmawan, 2023).

Biology education in the digital era requires the use of technology in the learning process to increase effectiveness and efficiency. The use of ChatGPT in education provides convenience to students because it is very practical and can be accessed anytime and anywhere. With this convenience, ChatGPT can increase learning productivity, which in turn will increase learning effectiveness. This approach is in accordance with the purpose of using learning resources in the educational process, namely to increase effectiveness, efficiency, accessibility, and a pleasant learning experience (Subiyantoro, 2023). Previous research by Fauzi (2023) discussing the role of Chat GPT in increasing student productivity shows that Chat GPT has a significant role in helping students by providing useful information and resources, and increasing the efficiency and effectiveness of time use.

The use of ChatGPT in biology learning can provide various benefits. For example, ChatGPT can be used as a tool to answer students' questions in real-time, provide

additional explanations, and help complete tasks that require an understanding of biological concepts. In addition, ChatGPT can also be an additional learning resource outside of formal class hours, so that students have access to more flexible and personalized learning.

The integration of AI technology such as ChatGPT in learning is not free from challenges and questions about its effectiveness. How do students perceive the use of AI in the teaching and learning process? Do they feel helped by this technology? How does it impact their understanding of biological concepts and critical thinking skills? This study aims to explore the perspectives of biology education students on the use of ChatGPT in learning. By understanding their views and experiences, it is hoped that a clearer picture can be obtained of the potential and constraints of using AI in biology education. In addition, the results of this study can be the basis for developing a more effective AI technology integration strategy in the biology education curriculum in the future.

Methods

This study uses the method used is the descriptive method (Suryabrata, 2019) with a qualitative approach (Moleong, 2007). The qualitative descriptive research method is a method that describes and interprets the meaning of information and data that has been collected as much as possible. In the qualitative descriptive research method, it is usually used in research for social phenomena such as the analysis of the perspective of the use of AI ChatGPT in the learning of Biology Education Students that the researcher raised. Through a qualitative approach, it can analyze more deeply the use of Artificial Intelligence (AI) ChatGPT in Learning in biology education students.

The research instrument used was a questionnaire distributed to Biology Education Students of the 2022/2023 intake of UIN Walisongo class A and B. participated as respondents in this study. The questionnaire was designed to collect data on students' perceptions of ease of use, benefits, and their attitudes towards using ChatGPT in the learning process.

Results

In this study, a study was conducted on the use of Intelligences (AI) ChatGPT in the learning process for students of the Biology Education Department, class A and B, class 2022 at UIN Walisongo Semarang. The research respondents consisted of 33 students who were spread through the distribution of Google Forms via WhatsApp social media.

Respondents Based on Gender

In this study, respondents were grouped based on their gender, which consisted of two categories, namely male and female. The following is a picture and table showing the grouping of respondents' gender.

Figure 1. Respondents Based on Gender

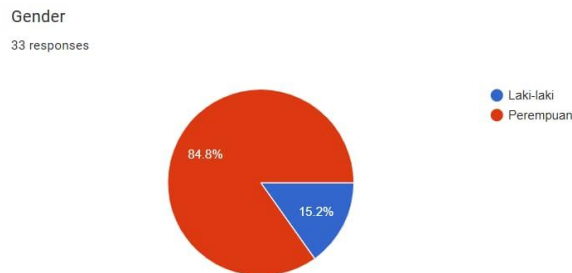


Table 1. Description of Respondents by Gender

Description	Total	%
Female	28	84.8%
Male	5	15.3%
Total	33	100%

Based on the data presented in Figure 1 and Table 1, the distribution of AI ChatGPT usage based on gender is visible. Of the total 33 respondents, 28 people or 84.8% were female. In contrast, only 5 people or 15.3% were male.

Table 2. Perception of ease of use

No	Pertanyaan	Selalu	Sering	Kadang-kadang	Jarang	Tidak pernah
1.	Apakah ChatGPT mudah dan praktis saat dimanfaatkan sebagai sarana pengembangan diri sebagai mahasiswa?	0%	12.1%	45.5%	24.2%	18.2%
2	Apakah sistem ChatGPT mudah digunakan?	6.1%	0%	18.2%	36.4%	39.4%
3	Apakah anda menemukan kesulitan dalam mengakses ChatGPT	42.4%	24.2	24.2%	6.1%	3%

Based on the data in Table 2, the majority of respondents (45.5%) felt that ChatGPT was sometimes easy and practical to use as a means of student self-development. However, this shows that there are some obstacles that make users feel less practical. As many as 12.1% of respondents often felt that ChatGPT was easy and practical, while 24.2% rarely felt that way, and 18.2% never felt that it was easy. No respondents always felt that ChatGPT was easy to use, indicating a need for improvement in the usability and practicality of this platform.

In terms of ease of use of the system, the majority of respondents (39.4%) felt that the ChatGPT system was never easy to use, with an additional 36.4% rarely feeling

it was easy. Only 6.1% felt that the system was always easy to use. This shows that many users face challenges in using the ChatGPT system, which may be due to a less intuitive interface, lack of guidance or support, or other technical issues.

Regarding accessibility, 42.4% of respondents always had difficulty accessing ChatGPT, and 24.2% often had difficulty. This means that more than half of users face significant problems in accessing the service. Only 3% have never experienced any difficulties, indicating a serious problem in the accessibility aspect that needs to be addressed immediately.

From this discussion, although ChatGPT has the potential as a self-development tool, many users experience difficulties in its use and accessibility. Significant improvements are needed in the interface, user guide, and other technical aspects to improve the ease and practicality of using ChatGPT for students. These improvements will help more users utilize ChatGPT effectively for their self-development and academic needs. This is in accordance with Sallam's research (2023) which states that although AI provides many benefits, its use also presents several challenges

Table 3. Perception of Benefits

No	Pertanyaan	Selalu	Sering	Kadang-kadang	Jarang	Tidak pernah
1	Apakah dengan menggunakan ChatGPT, anda dapat mempercepat penyelesaian tugas?	54.5%	15.2%	21.2%	9.1%	0%
2	Apakah pemanfaatan ChatGPT dapat meningkatkan kualitas anda sebagai mahasiswa?	6.1%	24.2%	33.3%	24.2%	12.1%
3	Apakah pemanfaatan ChatGPT dapat mempermudah pekerjaan anda karena menjadi bertambahnya pengetahuan dan atau keterampilan anda?	39.4%	30.3%	18.2%	9.1%	3%
4	Apakah belajar dengan memanfaatkan ChatGPT lebih mudah dan menyenangkan?	21.2%	27.3%	33.3%	12.1%	6.1%

Based on table 3, it shows user perceptions of the use of ChatGPT in various aspects. For the first question, the majority of respondents (54.5%) felt that by using ChatGPT, they could always speed up the completion of tasks. As many as 15.2% of respondents said often, while 21.2% admitted sometimes, 9.1% rarely, and no one answered never. In the second question, regarding improving quality as a student, only 6.1% of respondents always felt it, 24.2% often, 33.3% sometimes, 24.2% rarely, and 12.1% never felt the benefits. For the third question, regarding ease of work and increasing knowledge or skills, 39.4% of respondents always felt it, 30.3% often, 18.2% sometimes, 9.1% rarely, and 3% never felt these benefits. In the fourth question, regarding whether learning using ChatGPT is easier and more enjoyable, 21.2% of respondents answered always, 27.3% often, 33.3% sometimes, 12.1% rarely, and 6.1% never. From these data, most respondents felt the benefits of using ChatGPT to speed up the completion of assignments and make work easier, although the benefits in improving the quality as students and the comfort in learning were not felt consistently by all respondents. These data indicate a positive perception of the use of ChatGPT in

helping with academic assignments and work. This is in accordance with research by Mairisiska & Qadariah (2023) which states that students agree that the use of ChatGPT in the learning process can help improve their knowledge and understanding. However, there is still variation in the experiences and benefits felt by each individual. According to Essel et al., (2022), technology such as ChatGPT provides very broad information that supports learning. However, it is important to consider the use of ChatGPT technology responsibly and ethically in order to create new scientific knowledge and educate professionals (Lund & Wang, 2023).

The feelings of pleasure and satisfaction in using ChatGPT also varied. As many as 48.5% of students sometimes felt satisfied, while 18.2% often felt satisfied, and 12.1% always felt satisfied. However, 15.2% rarely and 6.1% never felt this satisfaction. This shows that although many students feel happy using ChatGPT, there are also those who feel less satisfied or not satisfied at all.

In terms of creativity and innovation, 36.4% of students often feel that ChatGPT makes them more creative and innovative in completing assignments, and 21.2% sometimes feel this. However, 27.3% of students rarely and 9.1% never feel increased creativity and innovation in learning. Only 6.1% always feel this benefit. This shows that while some students feel the benefits, most feel it with a lower frequency or not at all.

The ease of use of ChatGPT features also received varying responses. As many as 36.4% of students sometimes felt that the features in ChatGPT were very easy to use, while 24.2% always felt this ease. Conversely, 27.3% of students rarely felt the ease of using these features, and 6.1% never felt it. This shows that students' perceptions of the ease of use of ChatGPT features vary quite a bit, with the majority feeling this ease only sometimes or even not at all.

Although the use of ChatGPT can make it easier for students to produce information faster, the majority of students plan not to always use ChatGPT in their professional development efforts. This can be seen from the greater number of students choosing the option sometimes rather than always or often. As many as 16 respondents (48.5%) answered sometimes and supported by 10 respondents (30.3%) answered rarely. In addition, in self-development, students will also reduce the use of ChatGPT, as seen in the table above that students prefer answers that lead to reducing the use of ChatGPT. In line with this, the motivation to continue using ChatGPT and motivating other students to use ChatGPT also decreases. According to Kusumaningrum, et al., (2023) the use of ChatGPT also has the potential to cause dullness of thinking, the possibility of learning the wrong thing and cheating that has the potential for plagiarism. Therefore, in utilizing ChatGPT, it is expected to maintain critical thinking and verify the information obtained first.

Conclusion

The results of the study on the use of ChatGPT in the learning of Biology Education students of the 2022 batch at UIN Walisongo Semarang show that ChatGPT is considered useful in accelerating the completion of tasks and increasing productivity. However, there are still challenges in terms of accessibility and ease of use. Most students feel that ChatGPT is easy to use and access, the majority of respondents feel that the completion of tasks with ChatGPT is accelerated. Students' perceptions of improving the quality and skills of students vary, in improving the quality as students and comfort in learning are not felt consistently by all respondents. Although not consistently using ChatGPT, students feel happy and satisfied using it. Some students feel more creative and innovative when using ChatGPT, and the majority of students plan to use ChatGPT only occasionally for professional development

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