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Implementation of ChatGPT to Improve Students' Critical Thinking Abilities

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Abstract: The integration of artificial intelligence (AI) tools, such as ChatGPT, in educational settings has become a topic of increasing interest in recent years. One of the main benefits of using ChatGPT in education is its potential to improve students' critical thinking skills. Critical thinking is the ability to analyze and evaluate complex situations or problems, identify patterns and relationships, and make decisions based on logical reasoning. These skills are important for success in both academic and professional settings. However, research shows that many students have difficulty thinking critically. ChatGPT, developed by OpenAI, is a large language model that can generate human-like text based on the input it receives. It can answer questions, generate essays, summarize texts, and even engage in conversations. Using ChatGPT in the world of education can provide several benefits that help students develop their critical thinking skills.

Keywords: artificial intelligence, chatgpt, critical thinking skills.

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INTRODUCTION

Chat Generative Pre-training Transformer (“GPT”) is a development service created by OpenAI as a research and application laboratory for Artificial Intelligence (AI) located in San Francisco, United States. Based on its official website, OpenAI has a mission to ensure that Artificial General Intelligence (AGI), software that is as intelligent as humans, can be useful for many people (Kusumaningrum et al., 2023). DALL-E company introduces AI technology that can convert text into images. Then, at the end of 2022, the NetDragon Websoft company made AI the CEO of the company, then there was ChatGPT which can create summaries, cover letters, find solutions related to mathematics, in fact, in early 2023 the ChatGPT application was able to pass university exams in the United States (Rama et al., 2023).

Technology is currently developing rapidly, the presence of technology in human life can make people's daily work easier (Lubis, 2023; Sinaga et al., 2024). One of the technologies currently developing is ChatGPT technology. ChatGPT is a conversation that has the function of helping people find information and write something quickly. ChatGPT was released on November 30 2022. ChatGPT was founded by Open AI, the Open AI laboratory has made rapid progress in developing AI technology and has created a number

of machine learning products for the general public, such as DALL-E and ChatGPT (Jafar Maulana & Darmawan, 2023).

The presence of ChatGPT technology opens up opportunities to utilize AI chatbots for education in Indonesia, especially in developing student competencies (skills) needed in the 21st century. There are six competencies that they need to have in the Education Era 4.0, namely critical thinking, collaboration, communication and creativity plus two other supporting competencies, namely character education and citizenship. According to the author, these six competencies can be honed and developed, one of which is by improving writing skills. It is suspected that students are still weak in writing. Writing activities preceded by reading are still scary for some students. Based on this idea, the author experimented with ChatGPT to show that the writing produced by ChatGPT can be used to motivate students to write while improving their writing skills (Suharmawan, 2023)

In the world of education, the practice of ChatGPT still invites pros and cons. Although it must be acknowledged that ChatGPT has great power to advance the world of academics, in terms of increasing learning motivation, active involvement, and the ability to solve problems. Apart from that, ChatGPT can be an online service that is very helpful in the student learning process at the school level. However, on the other hand, the practice of using ChatGPT can also make students complacent and reduce the user's critical abilities, because of all the conveniences provided by ChatGPT (Priowirjanto et al., 2023). At Medan State University, ChatGPT is no longer taboo for today's students. It is estimated that ChatGPT started entering Medan State University after the online process was caused by the Covid-19 pandemic. In its operation, ChatGPT often helps students to complete KKN assignments. However, answers from ChatGPT cannot be directly included in student assignments because they require a broader view. Using ChatGPT is necessary to increase students' digital literacy so they can understand and use ChatGPT appropriately.

METHODS

This type of research is descriptive quantitative research. The subjects of this research were 35 students. The instrument used in this research was primary data collection by distributing questionnaires distributed via electronic media, namely Google Form. This research uses a closed questionnaire, namely a questionnaire with questions that have been determined by the researcher with the aim of ensuring that the respondent's answers are in accordance with the researcher's needs.

The materials used in this research are laptops, smartphones, and sites that can be accessed to collect opinions. The data obtained is quantitative data which is then analyzed using descriptive statistical techniques.

RESULTS

This research activity was carried out starting on May 29 2024 and the last data collection was on June 1 2024. Participants collected over 4 days consisted of 15 people. The Google Form link is distributed online by distributing the link to several student groups. An explanation was given to each student who would fill in the link.

Preparation phase

The initial stage of this research was to carry out a survey and observe the daily lives of students at Medan State University in carrying out various assignments given. The observation results obtained were that most students used AI in every assignment. To collect more accurate data, researchers provided a Google Form.

Implementation Stage

The implementation stage is carried out online using the available sites for collecting arguments from participants. At this stage the researcher disseminates the Google form link that was created previously. The way researchers spread these links is by entering student groups and sending private messages to students from various majors. With the hope that the more people who fill out the form, the more accurate the data collection will be. The final distribution technique that the author uses is by posting the Google form link to his personal social media so that participation becomes wider. Every student who wants to fill out the Google form will receive a short explanation that will be given by the researcher. As a result, 20 participants were collected who filled out the Google form sincerely without coercion.



Figure 1. Dissemination of Google Form links

Evaluation Stage

The evaluation stage was carried out after several students filled out the Google form. The researcher carried out this evaluation stage to see the feedback given by the participants and see the extent of the reach of the links that had been provided. The results of the feedback obtained gathered 20 participants, 10 of whom were students from the building engineering education study program, 5 students came from the German language education study program, 3 came from the culinary education study program, 18 of the students mentioned earlier were active students at Medan State University, then the next 2 students came from from Medan Area University, Electrical Engineering study program. The implementation stage and evaluation stage can be seen in the picture below.



Figure 2. Number of Respondents

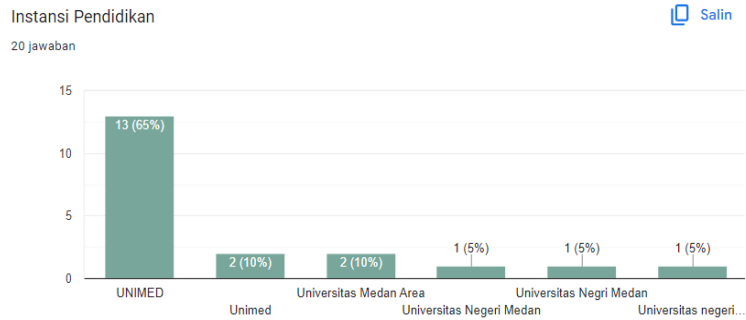


Figure 3. Respondents based on institutional origin

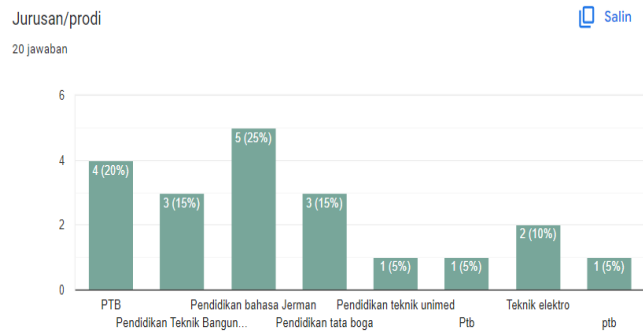
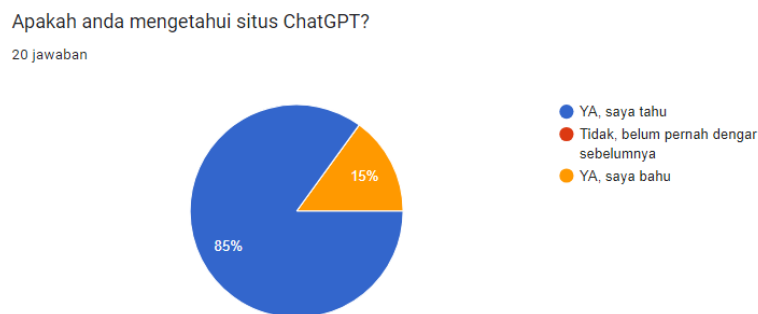


Figure 4. Respondents based on study program

Analysis of Questionnaire Results

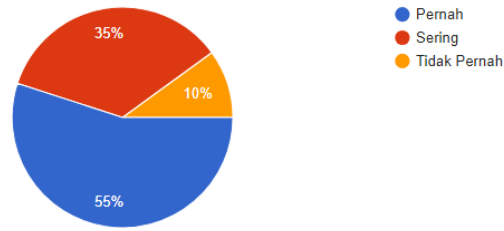
This research activity can be said to have run effectively. The results obtained from 20 participants showed that all of them recognized ChatGPT, but there were 2 participants who only recognized but never used ChatGPT, 3 of the participants only used ChatGPT for purposes outside of education, according to the participants' responses, using ChatGPT was not a mistake, in operating ChatGPT only There were 5 participants who immediately copied and pasted ChatGPT answers. This indicates that students used more critical thinking to do assignments even though they used ChatGPT because most of the participants' answers said they sought expert opinions and even added their own answers or paraphrased answers from ChatGPT. The accuracy of the answers from ChatGPT can be trusted, 80% of participants said ChatGPT helped in the world of education, 20% of them said ChatGPT was just normal in improving the world of education. The reason participants use ChatGPT is because of ease of access, most tasks are piling up, they don't find references from other websites

The following are the results of the survey that was carried out:



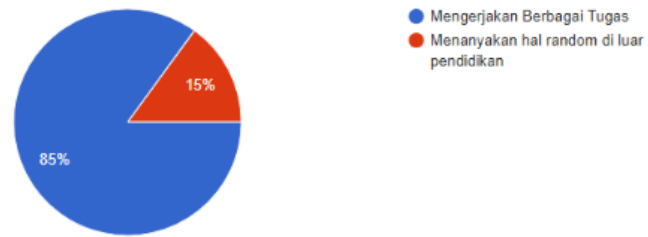
Apakah Anda pernah menggunakan ChatGpt?

20 jawaban



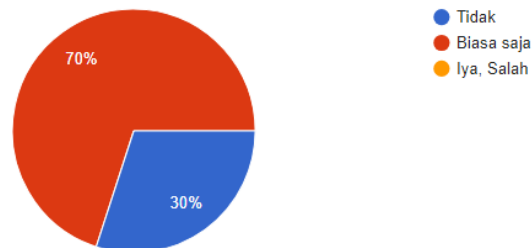
Biasanya Anda menggunakan ChatGPT untuk kegiatan apa?

20 jawaban



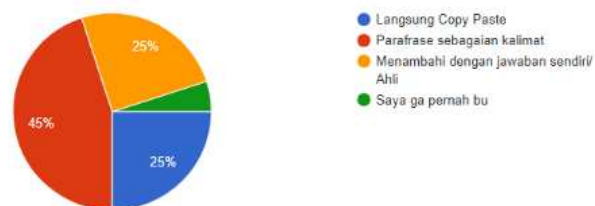
Apakah menurut anda menggunakan ChatGPT merupakan tindakan salah Untuk menjawab tugas/ mengerjakan tugas?

20 jawaban



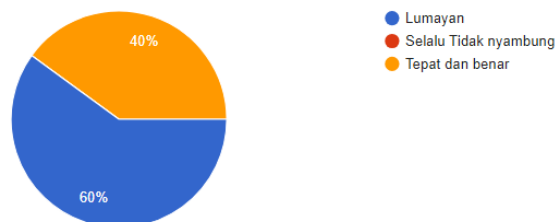
Bagaimana Anda mengoprasikan ChatGPT dalam mengerjakan tugas anda?

20 jawaban



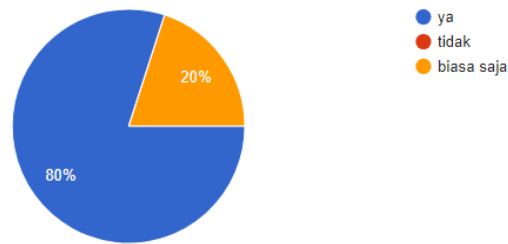
Apakah Jawaban yang diberikan ChatGPT sesuai dengan yang ada harapan?

20 jawaban



Apakah ChatGPT membantu anda di bidang Pendidikan anda?

20 jawaban



Obstacles encountered

The obstacle faced was limited participants, collecting participants took 3 days to get 20 survey data. Some students who had received the link did not open the link, a lack of attention was shown by several students.

DISCUSSION

The presence of sophisticated technology has made huge changes to all aspects of life, including the educational aspect (Ningsih et al., 2023; Sinaga et al., 2023). For example, today's learning media is no longer created and used conventionally, but is created with the help of technology, so that it can attract students' attention (Dewi et al., 2023; Lubis & Dasopang, 2020). The results of this research have shown that the use of ChatGPT has succeeded in improving students' critical thinking skills.

Students' critical thinking skills are improved through the analysis and paraphrasing methods of ChatGPT work results. ChatGPT results are actually not perfect, therefore, further analysis of the ChatGPT results is needed. The ability to analyze is an important factor in achieving good critical thinking skills (Husein et al., 2017; Lubis et al., 2022). Furthermore, after analyzing the results, students also need to paraphrase so that the results are more perfect and original.

CONCLUSION

Using ChatGPT in this digital era makes it very easy for students to do KKN assignments. Based on the data collection used, it appears that almost all students use ChatGPT, although some students experience negligence in using it by directly copying and pasting the answers given by ChatGPT. However, students who copied and pasted were only a small portion of the participants. Most of them paraphrased and added answers from their own thoughts and added material from expert opinions. That way, students can improve their critical thinking patterns to find the most appropriate answers to fill each assignment they have. From the results of a survey conducted, the reason why students use ChatGPT is because it is easy to use, the answers given are accurate, and it can make it easier to complete tasks that have piled up a lot.

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