

## THE ROLE OF CHATGPT IN IMPROVING LEARNING EFFECTIVENESS AND STUDENT SATISFACTION: FINDINGS FROM THE INFORMATICS EXAM SURVEY

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**Abstract.** Amazing technological developments like ChatGPT have delivered tremendous benefits while posing complex challenges in education. Not surprisingly, a heated debate among academics erupted around the impact and benefits that ChatGPT presents in the context of learning. This study aims to understand more deeply students' perceptions of the use of ChatGPT in education, an aspect that is so important considering that students are one of the main actors involved in these interactions. Adopting a mix method approach that combines quantitative and qualitative analysis, this study was conducted on 30 students at MAN 5 Agam. Through the use of questionnaires and interviews, research data were carefully collected. The findings show that students positively welcome the ease of utilizing ChatGPT, the enrichment of knowledge offered, and satisfaction with the fast and accurate responses provided by ChatGPT. Time efficiency and increased learning activity were also noted as significant benefits of using ChatGPT. However, there are serious concerns about ChatGPT's inability to increase learning motivation. Concerns about unfair assessment processes and the risk of plagiarism that has the potential to damage critical thinking skills are also important points that arise from this study. The results of this study encourage suggestions for future research related to the integration of ChatGPT in education in order to strengthen learning motivation in students. Thus, the use of technology can be optimized as an effective tool in enriching the learning process in the digital era.

**Keywords:** *ChatGPT; Student; Education; Perception*

### A. INTRODUCTION

Education in the digital age has undergone a significant transformation with the advent of artificial intelligence technology or *Artificial Intelligent (AI)* that enriches traditional ways of learning. *Chatbot Generative Pre-trained Transformer (ChatGPT)* is one example of innovation that is expected to improve the quality of education. Since its launch on November 30, 2022, ChatGPT has become the highest-popularity app in history. In January 2023, its number of active users will reach 100 million users (Haque, M. U., Dharmadasa, I., Sworna, Z. T., Rajapakse, R. N., & Ahmad, 2022). ChatGPT, which is *Generative Pre-Trained Transformer*, is an artificial intelligence language model developed by Open AI capable of producing text or voice similar to humans. The use of ChatGPT in education offers great potential benefits, such as increasing student engagement, enriching the learning experience, and improving teaching methods (Diantama, 2023).

ChatGPT continues to receive attention and is increasingly being used in education. The emergence and development of technology such as ChatGPT provides opportunities as well as risks as well as new benefits and challenges in the world of education. ChatGPT supports learning models

in the digital age, where learning is no longer limited by space and time. Our current educational process is based on the active involvement of learners (*Student Center Learning*), which requires students to be independently active in seeking information through learning tools and media (Aiman, F., & Imas, 2023).

ChatGPT has a variety of functions, including providing accurate answers to questions, helping and supporting learners to complete their tasks such as essay writing and scientific papers (Munawar, Z., Soerjono, H., Putri, N. I., Hernawati, & Dwijayanti, 2023; Zhai, 2022). In addition, ChatGPT has the potential to increase engagement and motivation, thereby improving their learning outcomes (Muñoz, S. A. S., Gayoso, G. G., Huambo, A. C., Tapia, R. D. C., Incaluque, J. L., Aguila & P., Cajamarca, J. C. R., Acevedo, J. E. R., Rivera, H. V. H., & Arias-González, 2023). ChatGPT also supports independent learning (Firat, 2023). The advantages and conveniences offered by ChatGPT are very attractive to its users. However, on the other hand, ChatGPT also poses various challenges and risks in the world of education. One of these challenges is the difficulty in assessing and evaluating students, as well as the risk of plagiarism that arises when working on assignments or exams (Sun, 2023).

Within two months of its launch, researchers found that one in five learners used ChatGPT to complete their learning tasks. The survey results show that almost 89% of students in the United States use ChatGPT to complete assignments, while 53% of them use it to write papers. In addition, 48% of students use ChatGPT on exams, and another 22% use it to compile scientific papers (McGee, 2023). Seeing this phenomenon, some universities and schools abroad began banning the use of ChatGPT and considered it a "threat" and an "educational plague". For example, in the article cited by Setiawan, A., & Luthfiyani, (2023), it is known that Rosenzweig banned the use of ChatGPT in Los Angeles Unified Schools and the New York City Department of Education District in December 2022. The reason behind banning the use of ChatGPT is its negative impact on the development of students' problem-solving and critical thinking skills, which are important assets towards their academic success and future. Debate among academics about the positive and negative impacts of using ChatGPT is inevitable. Although ChatGPT has made significant progress, there are concerns about its misuse.

Many studies, articles, and even seminars discuss ChatGPT, many of which focus on the introduction of ChatGPT (Firat, 2023; Halaweh, 2023; Rahman, S., Sembiring, A., Aulia, R., Dafitri, H., & Liza, 2023; Ramadhan, F. K., Faris, M. I., Wahyudi, I., & Sulaeman, 2023) and the impact of using ChatGPT (Haikal et al., 2021; Subiyantoro, H., Hartono, R., Fitriati, S. W., & Faridi, 2023; Sullivan, M., Kelly, A., & McLaughlan, 6 C.E.; Zhai, 2022). Although numerous studies have highlighted ChatGPT's effectiveness in supporting learning, there is still a need for a deeper understanding of how this technology can specifically improve learning effectiveness and student satisfaction in the context of informatics exams. In this perspective, this study aims to explore in depth the impact of using ChatGPT on students' understanding of the material and confidence in facing informatics exams.

Using a survey approach as a methodological foundation, researchers seek to understand the views or perceptions of madrasah students regarding the use of ChatGPT in the context of learning and evaluation. In addition, researchers sought to identify significant differences in the understanding of the material and the confidence of students who used ChatGPT as an auxiliary tool compared to traditional methods. Thus, this research is expected to provide deeper insights into the potential use of AI technology in improving the quality of learning in the future. Perceptual research is conducted to determine the response, acceptance, or view of a person or group towards something. This perception can also be the basis for evaluation and reference in the development or improvement of the learning process (Irawati, R., & Santaria, 2020).

This study aims to obtain findings on how students perceive the use of ChatGPT in current learning. The aspects or indicators that will be tested in this study are students' perceptions of the ease of use of ChatGPT, the increase in knowledge they gain by using ChatGPT, student satisfaction with the speed and accuracy of answers or responses given by ChatGPT, and students' perceptions of increasing motivation and learning activity with the help of ChatGPT.

## B. METHODS

This study used a mixed method (*mix method*) i.e. quantitative and qualitative. Quantitative data was collected by distributing questionnaires using the poll menu on the class's Whatsapp Group. The questionnaire distributed is a closed questionnaire with a Likert Scale which is presented with 5 alternative answers, namely: Strongly Disagree (STS), Disagree (TS), Disagree Less (KS), Agree (S), and Strongly Agree (SS). The use of the Likert Scale aims to measure the attitudes, assumptions, responses of an individual or group of people about social phenomena (Sugiyono, 2019). The respondents of the study were 30 MAN 5 Agam students, where all respondents had been taught about using ChatGPT.

In this study, the questionnaire instrument used consisted of 16 statements grouped into indicators according to research variables, then tested for validity and reliability. The results of the Validity and Reliability test can be seen in the table below:

Table 1. Validitas Test Results

No	Indicators	Statement	R Calculate	R Table	Ket
1	Ease	ChatGPT is easy to use and access	0,681	0,482	Valid
2		I find it easier to complete lesson assignments using ChatGPT	0,716	0,482	Valid
3		The description or answer given by ChatGPT is easy to understand	0,650	0,482	Valid
4	Knowledge	ChatGPT helps me find new knowledge	0,705	0,482	Valid
5		ChatGPT can help me improve my understanding of a material	0,622	0,482	Valid
6		ChatGPT can improved my critical thinking skills	0,587	0,482	Valid
7		ChatGPT improved my understanding of technological innovation	0,495	0,482	Valid
8	Satisfaction	ChatGPT is very interesting and fun to use in the learning process	0,779	0,482	Valid
9		I am very satisfied with the accuracy of the answers given by ChatGPT	0,600	0,482	Valid
10		I am very satisfied with the speed of ChatGPT in answering the questions I asked	0,591	0,482	Valid
11		ChatGPT helps me use time as efficiently as possible	0,580	0,482	Valid
12	Motivation	I use ChatGPT a lot	0,620	0,482	Valid
13		ChatGPT can motivate me to learn	0,678	0,482	Valid
14		ChatGPT can motivate me to write scientific papers	0,675	0,482	Valid

15	Liveliness	ChatGPT makes me more active for learning	0,621	0,482	Valid
16		ChatGPT boosted my creativity in learning	0,682	0,482	Valid

The validity test results in Table 1 show that all calculated  $r$  values are greater than table  $r$  at a significance level of 5%. So that it can be concluded that all statement items on the questionnaire are declared valid and can be used at the next stage of research.

Table 2. Reliability Test Results

Indicators	Cronbach Alpha	Information
Ease	0,897	Reliable
Knowledge	0,785	Reliable
Satisfaction	0,763	Reliable
Motivation	0,821	Reliable
Liveliness	0,734	Reliable

From table 2 it can be seen that the results of the reliability test obtained a reliability coefficient value (Cronbach Alpha) per indicator greater than 0.6 so that it can be concluded that the research instrument is reliable. Based on the results of validity and reliability tests, the questionnaire instrument that has been made can be used at the next stage of research.

In addition to using questionnaire instruments, data collection was also carried out through interviews with 5 respondents who had completed the questionnaire. The 5 respondents were selected using *purposive sampling* techniques where the respondents had used ChatGPT at least 3 times in their learning process, they understood about ChatGPT and they were willing to be interviewed. This interview aims to find out more about students' perceptions of using ChatGPT in the learning process. Interviews were conducted using questions in accordance with the indicators of student perception studied, namely how they think about the convenience provided by ChatGPT, the increase in knowledge they get by using ChatGPT, student satisfaction with using ChatGPT, increasing student motivation by using ChatGPT and increasing student activeness in learning by using ChatGPT. The results of the interview using five indicators of student perception were then analyzed qualitatively.

### C. RESULT & DISCUSSION

Data obtained from distributing questionnaires to 30 MAN 5 Agam students are displayed in graphic form for each statement in the questionnaire. The following is a graph of the percentage of research results for the first indicator, namely the indicator of ease of using ChatGPT.

### 1. ChatGPT is easy to use and access

30 jawaban

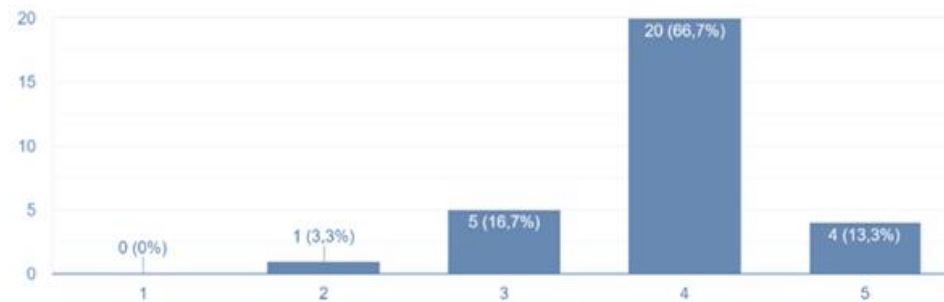


Figure 1. Respondent graph for statement 1

Figure 1 shows the highest percentage with 66.7% of respondents agreeing that ChatGPT is easy to use and access. 16.7% of respondents disagreed, 13.3% strongly agreed and 3.3% disagreed. In keeping with the evaluation provided, the highest percent, that's 66.7% of the overall respondents, agreed that ChatGPT is simple to apply and get entry to. This indicates a large portion of the students found the AI device convenient and user-pleasant for their educational functions.

Furthermore, sixteen.7% of the respondents disagreed with the announcement, suggesting a minor part of the individual encountered difficulties or demanding situations in the usage of and gaining access to ChatGPT.

The analysis also highlights that 13.3% of the respondents strongly agreed with the perception that ChatGPT is easy to use and access, emphasizing a giant number of contributors who were quite satisfied with the person-friendliness and accessibility of the AI tool.

Finally, 3.3% of the respondents disagreed with the statement, indicating a small percent of participants who expressed robust dissatisfaction with the usability and accessibility of ChatGPT.

In precis, the analysis of the given discussion illustrates that a majority of the respondents discovered ChatGPT to be clean to apply and get admission to, with a small share dealing with demanding situations, whilst a tremendous wide variety had been relatively satisfied with its user-friendliness.

### 2. I find it easier to complete lesson assignments using ChatGPT.

30 jawaban

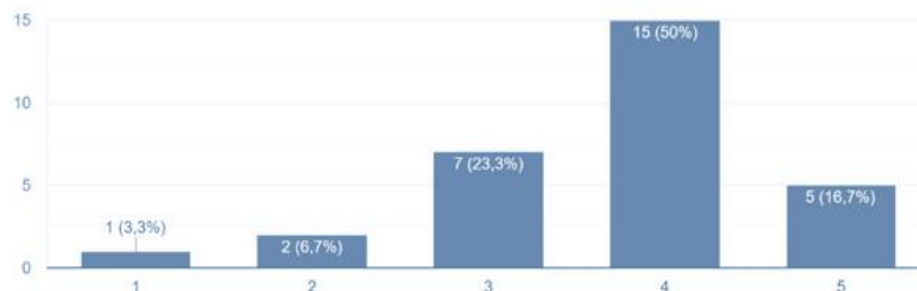


Figure 2. Respondent graph for statement 2

Figure 2 shows that 50% of the total respondents agreed that using ChatGPT made it easier for them to complete their coursework. This percentage shows that most participants recognize the benefits of using ChatGPT in supporting their coursework completion process.

On the other hand, there were 23.7% of respondents who disagreed that the use of ChatGPT could make it easier for them to complete their coursework. This indicates that there are groups who may experience obstacles or lack of help in utilizing ChatGPT for academic purposes.

Furthermore, around 16.7% of respondents stated that they strongly agreed with the statement that ChatGPT made it easier for them to complete class assignments. On the other hand, there were a small number of respondents, 6.7% and 3.3% respectively, who disagreed and strongly disagreed that using ChatGPT was helpful in completing coursework.

Based on these results, it can be seen that respondents' opinions are quite diverse regarding the effectiveness of ChatGPT in helping to complete class assignments. Although most respondents agreed or strongly agreed, there were a small number of respondents who still felt unhelpful or even felt that the use of ChatGPT did not help them in completing class assignments. This suggests that there are certain aspects that need to be considered to improve the quality of ChatGPT services in supporting users' academic needs.

### 3. The description or answer given by ChatGPT is easy to understand

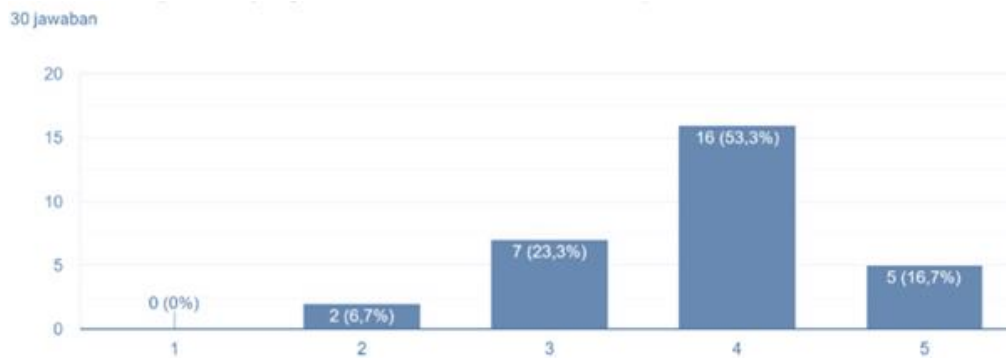


Figure 3. Respondent graph for statement 3

Figure 3 shows that 53.3% of the total respondents agreed that the descriptions or answers provided by ChatGPT are easy to understand. This percentage indicates that the majority of participants feel that ChatGPT is able to provide answers that can be understood well.

Conversely, there were 23.3% of respondents who disagreed with the statement. This suggests that there is a small proportion of respondents who may have difficulty in understanding the descriptions or answers provided by ChatGPT, or they have different perceptions related to the clarity of the answers provided.

In addition, around 16.7% of respondents stated that they strongly agreed that the descriptions or answers provided by ChatGPT were easy to understand. However, 3.3% of respondents expressed disinterest in the ease of understanding the answers provided by ChatGPT.

From the data analysis, it can be seen that the majority of participants tend to agree that the descriptions or answers provided by ChatGPT are easy to understand. Although there are a small number who disagree or even disagree, the majority of respondents have a positive view related to the ease of understanding answers from ChatGPT. This indicates that users, in general, feel that ChatGPT provides answers that are easy to understand, which ultimately strengthens the conclusion that students agree that ChatGPT is easy to use.

The results of interviews with several students about the ease of use of ChatGPT can be seen from table 3 below:

Table 3. Interview Results Ease Indicators

Respondents	Interview Results
1	Using ChatGPT is very easy if the connection is smooth, so access is also fast.
2	With the help of ChatGPT, tasks from teachers are easier to complete, but sometimes make them reluctant to think and tend to copy answers directly to the task.
3	ChatGPT makes learning easier, especially when it's hard to come up with ideas for assignments or writing. With the help of ChatGPT, you can find new ideas.
4	Answers from ChatGPT tend to be easy to understand because the explanations are well organized and detailed. However, sometimes the truth of the answer cannot be guaranteed.
5	With ChatGPT, there is no need to stress when facing questions or assignments from teachers because almost all questions can be answered with the help of ChatGPT

Based on the results of the interview, it was found that students agreed with the ease of use of ChatGPT in the learning process. ChatGPT provides useful information and helps in solving various tasks. While ChatGPT is able to respond to most questions, it still has limits on questions that are considered illegal or violent. To access ChatGPT, students only need to visit the official OpenAI website, log in to the OpenAI account, select the option "for personal use," select the desired feature, and then enter the information sought (Supriyadi, 2022).

In addition, ChatGPT also helps students in understanding difficult concepts and explanations are easy to understand. ChatGPT, as an artificial intelligence, facilitates interaction and helps in solving tasks (Aiman, F., & Imas, 2023). Another plus is its ability to answer questions quickly both in text and voice form (Shidiq, 2023). However, the use of ChatGPT needs to be considered wisely. Students who use ChatGPT must have an understanding of moral and ethical values in order to use it more responsibly and avoid dishonest behavior in education.

The next indicator is how students perceive an increase in their knowledge by using ChatGPT. There are four statements included in the knowledge indicator, ranging from the 4th statement to the 7th statement. Student response data can be seen in the graph below:

#### 4. ChatGPT helps me find new knowledge

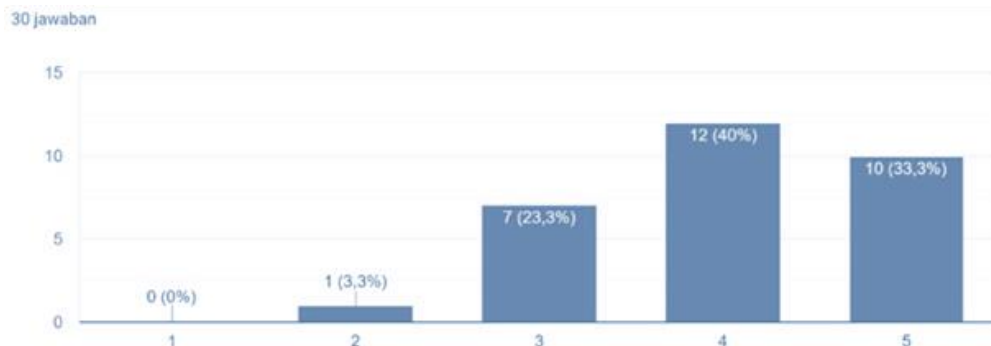


Figure 4. Respondent graph for statement 4

In Figure 4, it can be seen that 40% of the total respondents agreed that ChatGPT helped them in seeking new knowledge. This percentage illustrates that most participants recognize the role of ChatGPT in supporting them in the exploration of new knowledge.

On the other hand, about 33.3% of respondents stated that they strongly agreed that ChatGPT can help them seek new knowledge. This indicates that most respondents feel significant benefits from using ChatGPT in supporting their efforts in expanding knowledge.

However, there were 23.3% of respondents who disagreed that ChatGPT was effective in helping them seek new knowledge. This suggests that there is a small proportion of participants who may experience obstacles or have different perceptions related to the contribution of ChatGPT in the search for knowledge.

Meanwhile, only 3.3% of respondents expressed disinterest in ChatGPT's ability to support the search for new knowledge.

Based on this data, it can be concluded that the majority of respondents tend to agree or even strongly agree that ChatGPT helps them in finding new knowledge. Nonetheless, there was a small percentage who disagreed or disagreed, indicating that the adoption of ChatGPT in supporting knowledge search still needs further attention to ensure an optimal experience for users.

#### 5. ChatGPT can help me improve my understanding of a material

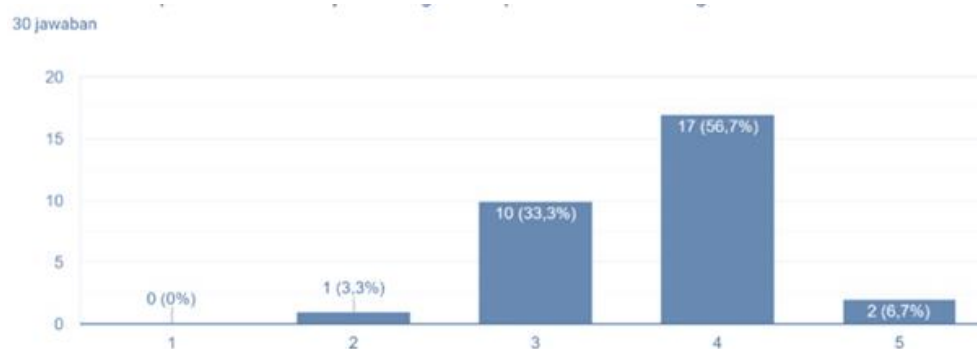


Figure 5. Respondent graph for statement 5

The graph in Figure 5 shows that 56.7% of the total respondents agreed that ChatGPT helped them in improving their understanding of the material. This percentage shows that the majority of participants felt the benefits of using ChatGPT in supporting their understanding of certain materials.

On the other hand, about 33.3% of respondents stated that they disagreed that ChatGPT was effective in improving understanding of the material. This indicates that there are some respondents who may experience obstacles or have different perceptions related to the contribution of ChatGPT in deepening their understanding.

Meanwhile, 6.7% of respondents stated that they strongly agreed that ChatGPT helped improve their understanding of the material, while only 3.3% of respondents disagreed with the statement.

From the data, it can be concluded that the majority of respondents tend to agree or even strongly agree that ChatGPT helps them in improving their understanding of the material. However, there were a small number of respondents who disagreed or disagreed, indicating that there are variations in perceptions related to the effectiveness of ChatGPT in supporting understanding of the material. Therefore, further analysis is needed to understand the factors that influence such perceptions and to improve user experience with the ChatGPT platform.



#### 6. ChatGPT can improve my critical thinking skills

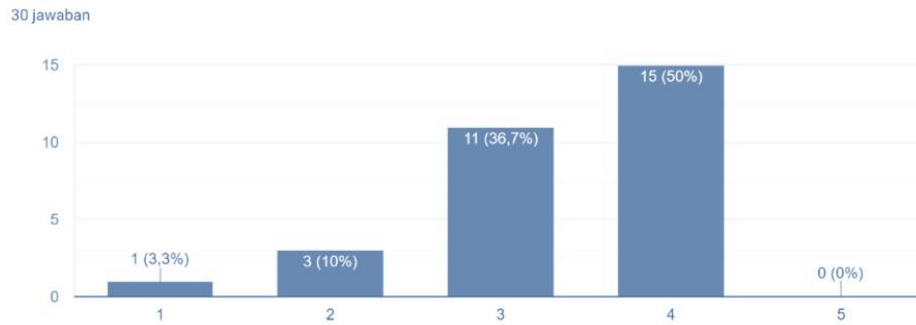


Figure 6. Respondent graph for statement 6

From the graph in Figure 6, it can be seen that 50% of the total respondents agreed that ChatGPT could help them in improving critical thinking skills. This percentage shows that most participants felt that the use of ChatGPT had a positive contribution to the improvement of their critical thinking skills.

On the other hand, about 36.3% of respondents stated that they disagreed that ChatGPT was effective in improving critical thinking skills. This indicates that there are some respondents who may feel that the use of ChatGPT does not fully support the development of their critical thinking skills.

Furthermore, 10% of respondents stated that they disagreed that ChatGPT could improve their critical thinking skills, while only 3.3% of respondents strongly disagreed with the statement.

From the data, it can be concluded that most respondents tend to agree that the use of ChatGPT can contribute to improving their critical thinking skills. However, there were a small number of respondents who disagreed, disagreed, or even strongly disagreed, indicating a variation in perceptions related to ChatGPT's ability to support the development of critical thinking skills. Therefore, further analysis is needed to understand the factors that influence such perceptions and to improve user experience with the ChatGPT platform.

#### 7. ChatGPT improved my ability to technology

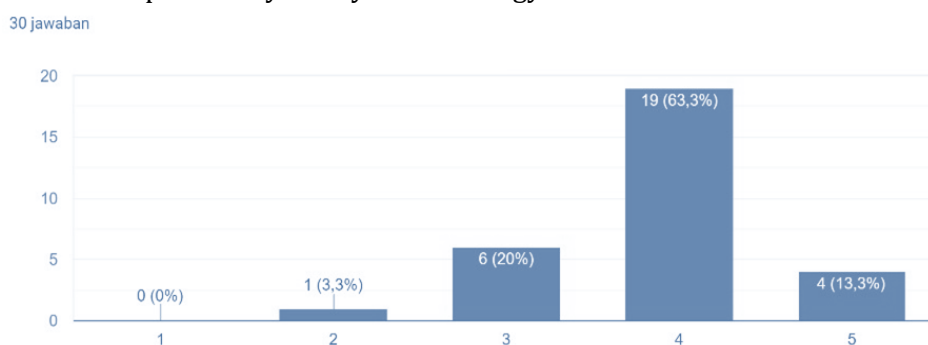


Figure 7. Respondent graph for statement 7

In Figure 7, it can be seen that 63.3% of the total respondents agreed that ChatGPT has improved their ability to use technology. This percentage shows that the majority of participants felt that there was an increase in technology-related skills due to the use of ChatGPT.

However, about 20% of the respondents stated that they disagreed that the use of ChatGPT could improve their ability to technology. This suggests that there are some respondents who may

not have fully benefited from the use of ChatGPT in terms of improving their technological capabilities.

Meanwhile, around 13.3% of respondents stated that they strongly agreed that ChatGPT had improved their ability to use technology, while only 3.3% of respondents disagreed with the statement.

Thus, based on this data, it can be concluded that the majority of respondents tend to agree that the use of ChatGPT has contributed to improving their ability to use technology. However, there is a small percentage of respondents who still feel that the use of ChatGPT has not had a significant impact on improving their ability to use technology. This suggests that there are variations in perceptions that need to be considered further to ensure an optimal user experience with the ChatGPT platform.

Based on the three statements included in the knowledge indicator, it can be concluded that students agree that using ChatGPT can increase their knowledge of material and technology, but some students think ChatGPT has not been able to improve their critical thinking skills.

The results of interviews with several students about increasing knowledge gained using ChatGPT can be seen from table 4 below:

Table 4. Knowledge Indicator Interview Results

Respondents	Interview Results
1	ChatGPT is good to use as a learning resource for students, but the presence of a teacher is still needed so that students better understand the subject matter.
2	Relying too much on ChatGPT to complete assignments will have a bad impact on students' understanding and way of thinking. It is feared that there is information bias generated by ChatGPT, it may also be unreliable or need to be researched again.
3	With ChatGPT it is possible for students to learn new things, increase their understanding of a material, and learn anywhere and anytime.
4	Overuse of ChatGPT will make students lose creativity and critical thinking skills in learning.
5	With ChatGPT, students can find any information they want to know. This will help students deepen their knowledge. But students must still analyze the answers well.

Based on the results of interviews about increasing knowledge through the use of ChatGPT, students agree that using ChatGPT in the learning process can improve their understanding. Essel, H. B., Vlachopoulos, D., Tachie-Menson, A., Johnson, E. E., & Baah (2022) emphasizing that this kind of technology provides extensive information to support learning. However, it is important to use these technologies responsibly and ethically so that their use can generate new scientific knowledge and shape professionals (Lund, B. D., & Wang, 2023). Reliance on ChatGPT to complete assignments can violate students' academic ethics as it is prone to plagiarism, which in turn can reduce students' creativity and critical thinking skills (Muhammad, J. M., Cecep, D., 2023). To address these issues, students need to be aware of the potential and threats of using ChatGPT, pay attention to academic ethics, and formulate measures to prevent cheating when using ChatGPT in an educational context. The use of ChatGPT cannot completely replace the role of humans. Therefore, the evaluation process must involve interaction between teachers and students to understand students' thoughts and ways of thinking more deeply (Rizki, M. ., Wardana, M. D. K., & Hermawan, 2023). Furthermore, they suggest using assessment rubrics to evaluate student performance and stimulate motivation to

achieve better results. In addition, students are expected to have sufficient background or initial knowledge to be able to analyze the answers or explanations provided by ChatGPT.

The next indicator is about how satisfied students are with the use of ChatGPT. There are four statements included in this indicator, starting from the 8th statement to the 11th statement. The results of the respondents can be seen from the following graph:

8. ChatGPT is very interesting and fun to use in the learning process

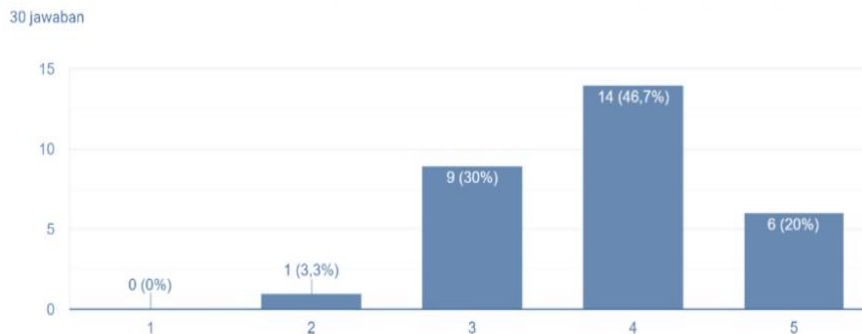


Figure 8. Respondent graph for statement 8

Figure 8 shows that 46.7% of the total respondents agreed that ChatGPT is very interesting and fun to use in the learning process. This percentage shows that most participants feel interested and enjoy using ChatGPT in the context of the learning process.

However, around 30% of respondents stated that they disagree that ChatGPT is very interesting and fun to use in the learning process. This suggests that there are some respondents who may not fully feel interested or find pleasure in using ChatGPT for learning purposes.

Meanwhile, around 20% of respondents stated that they strongly agreed that ChatGPT is very interesting and fun to use in the learning process, while only 3.3% of respondents disagreed with the statement.

Based on the data, it can be concluded that most respondents tend to agree that using ChatGPT is quite interesting and fun in the context of the learning process. Nonetheless, there is a small percentage of respondents who still feel less interested or find less enjoyment in using ChatGPT. Therefore, it is important to further understand the factors that influence such perceptions and to continuously improve the user experience with the ChatGPT platform.

9. I am very satisfied with the accuracy of the answers given by ChatGPT.

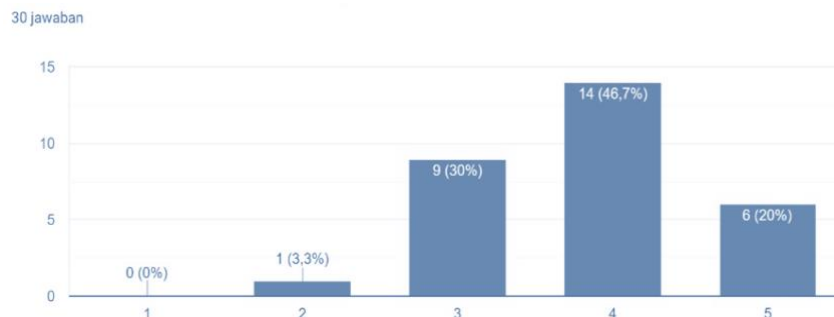


Figure 9. Respondent graph for statement 9

Figure 9 shows that 46.7% of the total respondents were satisfied with the accuracy of the answers provided by ChatGPT. This percentage shows that most participants feel that ChatGPT is able to provide satisfactory answers accurately.

On the other hand, about 30% of respondents stated that they were less satisfied with the accuracy of the answers provided by ChatGPT. This indicates that there are some respondents who may experience dissatisfaction with the accuracy of the answers provided by ChatGPT.

Meanwhile, around 20% of respondents stated that they strongly agreed with the accuracy of the answers provided by ChatGPT, while only 3.3% of respondents disagreed with the statement.

From this data, it can be concluded that most respondents tend to be satisfied with the accuracy of the answers provided by ChatGPT. However, there are a small number of respondents who still feel less satisfied or even dissatisfied with the accuracy of the answers from ChatGPT. Therefore, further analysis is needed to understand the factors that influence these perceptions and to improve the quality of answers provided by ChatGPT.

10. I am very satisfied with the speed with which ChatGPT answers the questions I ask.

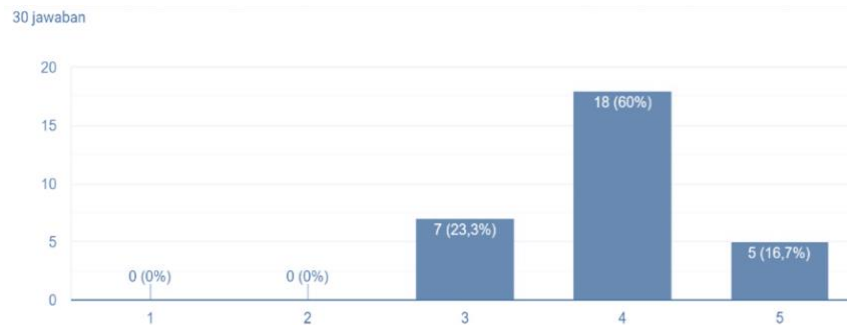


Figure 10. Respondent graph for statement 10

In Figure 10, it can be seen that 60% of the total respondents were satisfied with the speed of ChatGPT in providing answers to the questions asked. This percentage shows that the majority of participants feel that ChatGPT provides responses at a satisfactory speed.

On the other hand, about 23.3% of respondents stated that they were less satisfied with the speed of ChatGPT in providing answers. This indicates that there are some respondents who may experience dissatisfaction with the speed of response provided by ChatGPT.

Meanwhile, about 16.7% of respondents stated that they were very satisfied with ChatGPT's speed in providing answers, indicating that a small proportion of respondents felt very well served by ChatGPT in terms of response speed.

From this data, it can be concluded that the majority of respondents tend to be satisfied with the speed of ChatGPT in providing answers. However, there are a small number of respondents who still feel less satisfied with the speed of response from ChatGPT. Therefore, it is necessary to conduct further analysis to understand the factors that influence these perceptions and to improve the quality and speed of response provided by ChatGPT.

#### 11. ChatGPT helps me use my time as efficiently as possible.

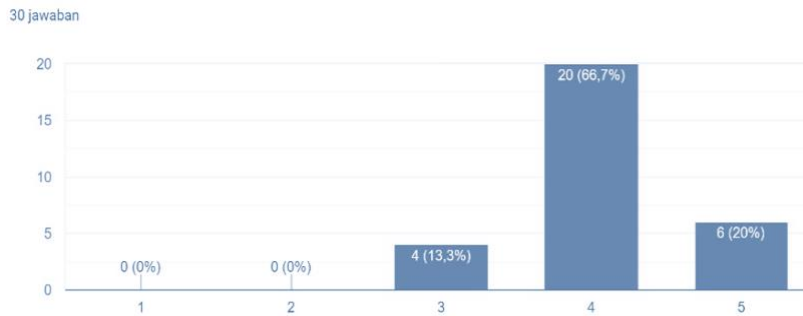


Figure 11. Respondent graph for statement 11

Dari Gambar 11 terlihat bahwa sebanyak 66,7% dari total responden setuju bahwa ChatGPT membantu mereka dalam menggunakan waktu seefisien mungkin. Persentase ini menunjukkan bahwa mayoritas partisipan merasa bahwa penggunaan ChatGPT mendukung mereka dalam mengelola waktu dengan lebih efisien.

Di sisi lain, sekitar 20% responden menyatakan bahwa mereka sangat setuju bahwa ChatGPT membantu mereka menggunakan waktu seefisien mungkin. Hal ini menunjukkan bahwa sebagian responden merasa bahwa penggunaan ChatGPT memiliki peran yang signifikan dalam mengoptimalkan penggunaan waktu mereka.

Namun, sekitar 13,3% responden menyatakan bahwa mereka kurang setuju bahwa ChatGPT membantu mereka menggunakan waktu seefisien mungkin. Hal ini menunjukkan bahwa ada sebagian responden yang mungkin belum sepenuhnya merasakan manfaat dari penggunaan ChatGPT dalam hal efisiensi waktu.

From this data, it can be concluded that the majority of respondents tend to agree or even strongly agree that the use of ChatGPT has contributed to more efficient use of time. However, there is a small number of respondents who are still unsure about the effectiveness of ChatGPT in assisting the efficient use of time. Therefore, it is important to continue to conduct further analysis to understand the factors that influence such perceptions and to continuously improve the user experience with the ChatGPT platform.

Based on the four statements included in the satisfaction indicator, it can be concluded that students are satisfied with the speed of ChatGPT in providing answers and helping them use time efficiently, but some students are less satisfied with the accuracy of the answers provided by ChatGPT.

The results of interviews with several students about student satisfaction with the use of ChatGPT can be seen from table 5 below:

Table 5. Interview Results Satisfaction Indicators

Respondents	Interview Results
1	Very satisfied with the answers given by ChatGPT to the questions asked. ChatGPT can help answer quickly and elaborate in detail.
2	After a few uses, ChatGPT was very helpful in answering and completing lesson assignments as well as helping me gather study materials or understand topics much better and faster. However, it is important to double-check the response given by ChatGPT.

3	After using ChatGPT several times to test its capabilities. Very impressed with his ability to decipher the answers to questions. But there is little concern over the misuse of ChatGPT. The teacher cannot judge the true ability of the students.
4	It is recommended not to immediately believe the answers given by ChatGPT. It is necessary to analyze the answer and correctness in advance
5	It's great to use ChatGPT because it can ask questions about anything and get easy-to-understand answers and descriptions.

Based on the results of interviews regarding student satisfaction with the use of ChatGPT, it can be concluded that students expressed dissatisfaction with the accuracy of the answers provided by ChatGPT. They emphasize the importance of analyzing and verifying the correctness of the answers submitted by ChatGPT before accepting them as facts (Supriyadi, 2022). On the other hand, students are satisfied with the quick responses provided by ChatGPT, which can help improve efficiency and time effectiveness in completing lesson assignments on time (Sallam, 2023). However, concerns arise regarding student honesty in writing, where these concerns are related to plagiarism problems or the use of answers from ChatGPT without clear sources in student assignments and writing. Similar concerns have also been voiced by Dehouche (2021), which highlights the potential of using ChatGPT to cheat on assignments by using material that is not their original work. Oghenerukevwe & Kayii (2023) presents several ideas to avoid student dishonesty when using ChatGPT, including applying assessment methods that encourage students' creative and critical thinking skills through classroom assessments, presentations, and authentic projects that reflect real-world situations.

The next indicator is about students' perceptions of increasing student motivation using ChatGPT. There are four statements included in this indicator, starting from the 12th statement to the 15th statement. The results of the respondents can be seen from the following graph:

12. I use ChatGPT a lot.

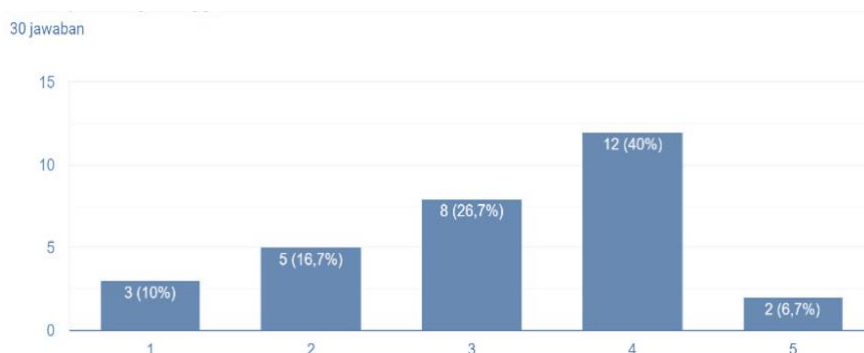


Figure 12. Respondent graph for statement 12

From Figure 12, it can be seen that 40% of the total respondents stated that they frequently use ChatGPT. This percentage indicates that most participants actively use ChatGPT in their activities.

On the other hand, about 26.7% of the respondents stated that they disagreed with the statement that they frequently use ChatGPT. This indicates that some respondents may not use ChatGPT with high frequency.

Furthermore, about 16.7% of respondents stated that they disagreed with the statement, while 10% of respondents stated that they strongly disagreed. This suggests that there is a small proportion of participants who rarely or even never use ChatGPT.

Meanwhile, only about 6.7% of respondents stated that they strongly agreed with the statement that they often use ChatGPT.

Based on this data, it can be concluded that most respondents tend to use ChatGPT with varying frequencies. Although most respondents agree or even strongly agree that they often use ChatGPT, there are a small number of respondents who rarely or even do not use ChatGPT at all. Therefore, further analysis is needed to understand the factors that influence ChatGPT usage and to ensure that the user experience with the platform remains optimal.

#### 13. ChatGPT can motivate me to learn.

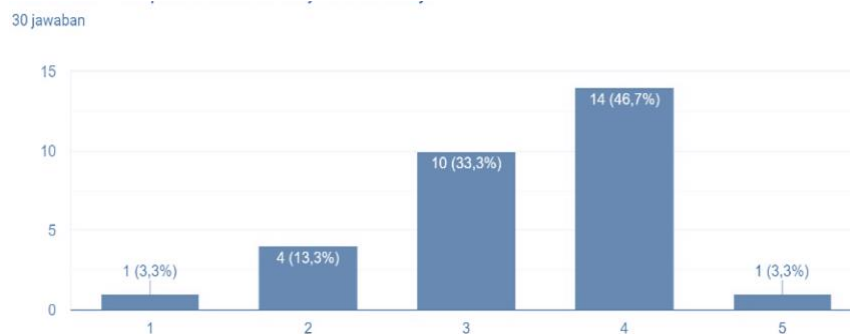


Figure 13. Respondent graph for statement 13

Figure 13 shows that 46.7% of the total respondents stated that ChatGPT can motivate them to learn. This percentage shows that most of the participants felt a sense of motivation in the learning process through the use of ChatGPT.

On the other hand, about 33.3% of respondents stated that they disagreed that ChatGPT could motivate them to learn. This indicates that some respondents may not have fully felt the positive impact of using ChatGPT in terms of learning motivation.

Furthermore, around 13.7% of respondents stated that they disagreed with the statement, while 3.3% of respondents stated that they strongly disagreed. This suggests that there is a small proportion of participants who may not feel a significant motivational impact from using ChatGPT.

Meanwhile, only around 3.3% of respondents stated that they strongly agreed with the statement that ChatGPT could motivate them to learn.

Based on these data, it can be concluded that most respondents tend to feel motivated in the learning process through the use of ChatGPT. However, there are a small number of respondents who have not fully felt the positive impact. Therefore, further analysis is needed to understand the factors that influence such perceptions and to improve user experience with the ChatGPT platform.

#### 14. ChatGPT can motivate me to write scientific papers.

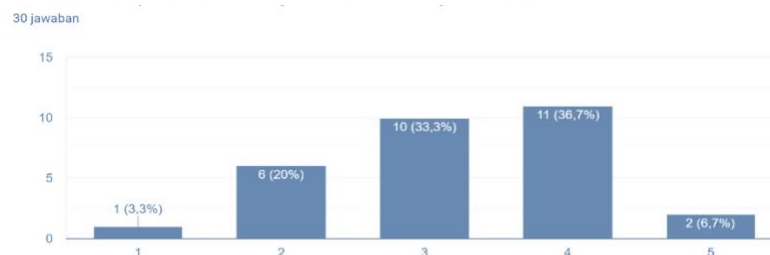


Figure 14. Respondent graph for statement 14

Figure 14 shows that 36.7% of the total respondents stated that ChatGPT could motivate them to write scientific papers. This percentage shows that some participants felt a sense of motivation in writing scientific papers through the use of ChatGPT.

On the other hand, about 33.3% of respondents stated that they disagreed that ChatGPT could motivate them to write scientific papers. This indicates that some respondents may not have fully felt the positive impact of using ChatGPT in terms of motivation to write scientific papers.

Furthermore, around 20% of respondents stated that they disagreed with the statement, while 6.7% of respondents stated that they strongly agreed. This shows the variation in respondents' perceptions of ChatGPT's role in motivating them to write scientific papers.

Meanwhile, only about 3.3% of respondents stated that they strongly disagreed with the statement that ChatGPT could motivate them to write scientific papers.

Based on these data, it can be concluded that some respondents feel motivated to write scientific papers through the use of ChatGPT, but others may not fully feel the positive impact. Therefore, further analysis is needed to understand the factors that influence these perceptions and to continue to improve ChatGPT's role in motivating users to write scientific papers.

Based on the 3 statements included in the motivation indicator, it can be concluded that ChatGPT can motivate them to learn but some feel ChatGPT cannot motivate them to learn and write scientific papers.

The results of interviews with several students about increasing learning motivation using ChatGPT can be seen from table 6 below:

Table 6. Interview Results Motivation Indicators

Respondents	Interview Results
1	The development of technology today greatly affects the way of learning. One of them is ChatGPT which is an innovation in the field of Education. This innovation presents a challenge to learn and use it.
2	The use of ChatGPT makes you more motivated in writing because it can find new ideas for writing and speed up the completion of the writing made
3	With ChatGPT, analytical skills are declining, this is because when completing the task only copy and paste all the answers given by ChatGPT. When there is a group discussion, there is no need to prepare yourself because the questions and answers can be searched using ChatGPT.
4	The use of ChatGPT can affect the decrease in learning motivation. By relying on ChatGPT, students no longer need to study seriously because there is ChatGPT that will help students in completing the tasks given by the teacher.
5	Using ChatGPT has not been able to keep me motivated to learn. The thing I worry most about is improving my writing and thinking skills.

Based on the results of interviews regarding increasing student motivation using ChatGPT, it was concluded that until now there has not been a significant increase in learning motivation from using ChatGPT. Some students feel that reliance on ChatGPT reduces the need for in-depth learning, as they rely on ChatGPT to complete their tasks. A similar view is expressed by most educators, who see ChatGPT's presence as a threat to creativity, innovation, and learning motivation (Wibowo, T. U. S. H., Akbar, F., Ilham, S. R., & Fauzan, 2023), which in turn can affect students' mindsets and abilities in writing and critical thinking.



To optimize the use of ChatGPT as a learning tool that is fun, innovative, and can increase creativity and learning motivation, wise use is needed. Students can utilize ChatGPT to reduce their stress and worry levels, as well as manage time efficiently to complete their tasks (Haleem, A., Javaid, M., & Singh, 2022). Therefore, the application of ChatGPT in the learning process must be considered in depth by academics in order to support the ideals of national education.

Furthermore, the next indicator highlights students' perceptions of the effectiveness of using ChatGPT in increasing student learning activity. Two statements have been identified as part of this indicator, the 16th and 17th statements. The results of respondents' responses to this statement can be seen in the attached graph.

15. ChatGPT makes me more active for learning.

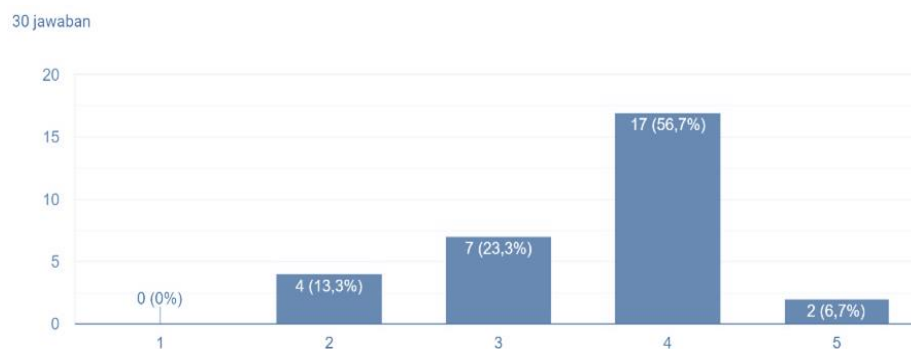


Figure 15. Respondent graph for statement 15

Figure 15 shows that 56.7% of the total respondents stated that ChatGPT made them more active in learning. This percentage shows that the majority of participants felt a positive impact on their learning activities through the use of ChatGPT.

On the other hand, around 23.3% of respondents stated that they disagreed that ChatGPT made them more active in learning. This indicates that some respondents may not have fully felt the positive impact of using ChatGPT in encouraging more active learning activities.

Furthermore, around 13.3% of respondents stated that they disagreed with the statement, while 6.7% of respondents stated that they strongly agreed. This shows the variation in respondents' perception of ChatGPT's role in encouraging more active learning activities.

Based on this data, it can be concluded that the majority of respondents tend to feel more active learning activities through the use of ChatGPT, but a small proportion of respondents may not have fully felt the positive impact. Therefore, further analysis is needed to understand the factors that influence these perceptions and to continue to improve the role of ChatGPT in encouraging more active learning activities.

16. ChatGPT increased my creativity in learning.

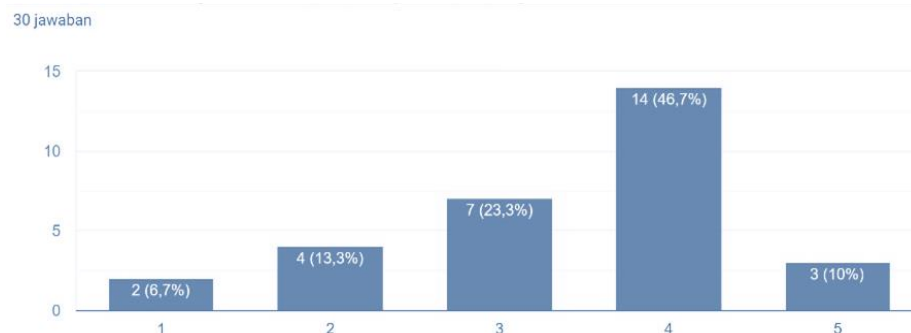


Figure 16. Respondent graph for statement 16

Figure 16 shows that 46.7% of the total respondents stated that ChatGPT increased their creativity in learning. This percentage shows that most participants felt that there was an increase in creativity in their learning process through the use of ChatGPT.

On the other hand, around 23.3% of respondents stated that they disagreed that ChatGPT enhanced their creativity in learning. This indicates that some respondents may not have fully felt the positive impact of using ChatGPT in spurring creativity in the learning process.

Furthermore, around 13.3% of respondents stated that they disagreed with the statement, while 10% of respondents stated that they strongly agreed. This shows the variation in respondents' perceptions of ChatGPT's role in enhancing creativity in the learning process.

Meanwhile, only around 6.7% of respondents stated that they strongly disagreed with the statement that ChatGPT increased their creativity in learning.

From these data, it can be concluded that most respondents tend to perceive an increase in creativity in the learning process through the use of ChatGPT, but a small proportion of respondents may not have fully felt the positive impact. Therefore, further analysis is needed to understand the factors that influence these perceptions and to continue to improve the role of ChatGPT in enhancing creativity in the learning process.

Based on the 2 statements included in the liveliness indicator, it can be concluded that ChatGPT can increase their liveliness in learning but some feel ChatGPT has not been able to increase their liveliness in learning.

The results of interviews with several students on the effectiveness of using ChatGPT in increasing student activeness in learning can be seen from table 7 below:

Table 7. Activeness Indicator Interview Results

Respondents	Interview Results
1	The use of ChatGPT in learning increases activeness in learning. Be more active in analyzing the responses given to the questions asked. Not just copying and pasting the answer but learning it first before copying it.
2	With ChatGPT can increase activeness and creativity in learning. Become more active in writing scientific papers because of getting new ideas with the help of ChatGPT.
3	ChatGPT can affect our activeness in learning. When discussing in class, often use ChatGPT to answer questions thrown in the discussion. Thus, the discussion carried out becomes more conducive.
4	Activeness will be further increased by learning normally or without ChatGPT because you can discuss and interact with friends and teachers in gaining knowledge.
5	ChatGPT has not been able to increase activeness and creativity in learning because using ChatGPT is the same as cheating.

Based on the results of interviews regarding increasing student activeness in learning using ChatGPT, it can be concluded that the use of ChatGPT can increase the level of student activeness in the learning process. According to Yunus, M., Si, F. M., & Nafiati (2013), factors that affect learning activity include external factors that come from the environment around students and internal factors that arise from within students. One of the internal factors that can affect learning activity is the use of ChatGPT as a learning resource. Therefore, it is necessary for educators to consider alternatives and learning strategies that integrate the use of ChatGPT in the learning process.

## D. CONCLUSION

Based on the findings and analysis conducted, it can be concluded that student responses to the use of ChatGPT in the learning process are generally quite positive. Students appreciate the ease of use of ChatGPT, increased knowledge, satisfaction with the speed and accuracy of response, time efficiency, and increased participation in learning. Nonetheless, concerns related to loss of motivation to learn and the risk of plagiarism require serious attention. By seeing students' positive responses to the use of ChatGPT, the integration of this technology becomes important in an educational context. However, the use of ChatGPT needs to be carefully and critically guided, with students and teachers considering both the advantages and disadvantages of the technology. Therefore, teachers need to adopt appropriate learning strategies and adjust evaluation methods to ensure that the use of ChatGPT is judicious, ethical, and responsible in the educational environment.

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