



## Impact of ChatGPT in Higher Education Learning

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### ABSTRACT

The existence of technology in the world of education is a very important need. As time goes by, technology is developing rapidly along with the intelligence and creativity of the generation that will be the successor of the nation in the future. Therefore, students must also be able to develop technology in learning such as ChatGPT. The purpose of this study was to determine the impact of ChatGPT in learning in college as a medium that can help lectures. The method used in this research is quantitative method, data obtained through online questionnaire distribution. The results found that there are various impacts such as ChatGPT can make it easier for students to do some of their assignments, however, socially the interaction and communication between students and lecturers will be reduced, because in the world of education what is needed is not only grades, but also the process that makes it clear that ChatGPT can be beneficial because it can help with assignments, but on the other hand, there is a lack of communication between lecturers and students. The limitation of this study is that researchers only conducted research on some students in higher education so that the data obtained is less relevant. Peneliti hopes that future researchers can conduct more in-depth research. This research also recommends ChatGPT in college.

**Keywords:** ChatGPT Impact, Learning, Higher Education

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## INTRODUCTION

Chat Generative Pre-trained Transformer or commonly known as ChatGPT is one of the technologies in the form of artificial intelligence that has emerged since November 2022 (Elkins & Chun, 2020). This application was developed by OpenAI which is the study and development of computer systems and algorithms that can help students with

their assignments (Hersbach et al., 2020). ChatGPT brings a good impact to the world of education. With this technology, increased quality and enthusiasm in learning will be created. (Bao, 2020). Technology is an advancement or development that occurs in the era of globalization that can help work to the learning process (Wilberforce et al., 2021). Technology is an advancement or development that occurs in the era of globalization that can help work to the learning process (Ferentinos, 2018). Not only that, technology is also useful to help all perspectives of human activities to run more systematically, effectively and efficiently.

As time goes by, technological developments are increasingly advanced so that technology becomes one of the facilities that must exist in the teaching and learning process (C. L. P. Chen & Liu, 2018). The learning system will become more interesting if it is tailored to the lesson plan in order to develop responsive thinking patterns in learners (Pishdad-Bozorgi et al., 2018). Technological developments have a positive impact on learning, especially in the field of science (Lau et al., 2020). If you look at the development of technology in the education environment, there are many conveniences such as online-based learning that can be done anywhere and anytime (Hammernik et al., 2018). Online learning only requires a network and a device. Currently, online teaching and learning activities have an important role in education because it can help in achieving learning objectives (Gielen et al., 2019). Another positive impact of using media is that it can help students broaden their horizons.

ChatGPT plays an important role in the world of education, namely as an actual means of learning (Sharma et al., 2020). This media technology is a device that can support a teaching and learning process to achieve the learning objectives set beforehand (Cheng et al., 2018). Many interesting features of learning media can improve learners' understanding and increase the spirit of learning are some examples of the positive impact produced by ChatGPT technology (Zhong et al., 2018). Other technological advances in education can be seen from online-based learning media that are presented for distance learning (Wu et al., 2020). Another goal of this learning media is that the teaching and learning process becomes more enjoyable and the material presented is easily understood by students (Buelow et al., 2019). Educators are asked to take control of the learning process to help learners increase their enthusiasm for learning both in person, and online.

There are many advantages of ChatGPT that learners can enjoy (Dowling & Lucey, 2023). ChatGPT assists with natural language processing and responds to human-generated questions by typing into the app (Hoy, 2018). ChatGPT will help facilitate learners' discussion because the answers will appear structured, the relationship between sentences is coherent and the accuracy is quite good and with a language style that is easy to understand (Xiao et al., 2020). With this, the self-confidence of a learner who was initially lacking will increase (Mills et al., 2018). Another ability of ChatGPT is that it can recall past conversations (Kalle & Söukand, 2021). And in fact, you can produce an article in a short span of time by using the right prompt technique (Alkhamees et al., 2020). The article has been composed of good linguistic elements, some of which are relatively accurate, informative and systematic.

ChatGPT is suitable for measuring students' depth of understanding of the learning material (Grifoni et al., 2020). ChatGPT is equipped with numbers or statistics that can determine the ability of students to understand the material provided by the teacher (Reynolds et al., 2019). ChatGPT also comes with great features to answer questions and make discussions in lectures more interesting (Thompson et al., 2022). ChatGPT can be used to improve students' understanding of material in an interactive manner that can be easily accessed from smartphones, computers or other devices connected to the internet (Wang et al., 2021). ChatGPT can invite students to compete healthily, as well as motivate students to improve the quality of learning in interacting in class, for example in discussions and presentation activities.

ChatGPT has disadvantages as well as advantages related to learning in higher education (Iskender, 2023). Some of the drawbacks can be seen in the use of ChatGPT as a tool to facilitate more personalized and customized learning for each student (Cai et al., 2018). The following are some structures for the use of ChatGPT in higher education learning, namely personal questions (Taylor et al., 2020). ChatGPT dapat digunakan sebagai asisten pribadi untuk para palajar atau mahasiswa, untuk menjawab pertanyaan mereka tentang mata kuliah tersebut (Steffel et al., 2018). In this case, ChatGPT will know the student's profile and provide answers tailored to their learning needs (Hughes et al., 2019). While the advantages of ChatGPT itself are the ability to provide fast and reliable responses in a learning environment where the model is trained on various sources of data and information (J. Chen, 2020). Understanding a wide range of topics, including new concepts such as project-based learning and the use of technology in learning ChatGPT also has the ability to provide useful feedback and suggestions.

Elsevier explains that artificial intelligence models such as ChatGPT can be used to improve the readability and language of research articles, but cannot replace the basic tasks that authors must perform, such as data interpretation or scientific conclusions (Sanz et al., 2020). The same study is also explained by Hormansyah and Utama in their research Chatbot or ChatGPT is a computer program designed to simulate conversation or interactive communication with students through text, sound or images (Yang et al., 2019). According to Holden Thorpe, the ChatGPT medium is considered valuable by media, materials, and language experts in Arabic studies, the editor-in-chief of the journal Science said that the publishing group has updated its policy to specify anyone who uses ChatGPT (or any other artificial intelligence) (Allemani et al., 2018). Tools are not used in work, but images or graphics are also a product of such tools, namely ChatGPT.

The reason for conducting this study is to re-examine the use of ChatGPT as a learning media in higher education. It is expected that students can utilize learning media in improving skills as well as possible, in order to achieve learning objectives. The use of ChatGPT for education in college is worth using and can be considered for its existence to help the learning process get better by using ChatGPT, because the learning media using ChatGPT is presented with interesting features. Based on the explanation above ChatGPT helps students a lot in learning including presentations and discussions.

Although there are shortcomings, researchers will strive to improve the quality of student learning in higher education.

## **RESEARCH METHODS**

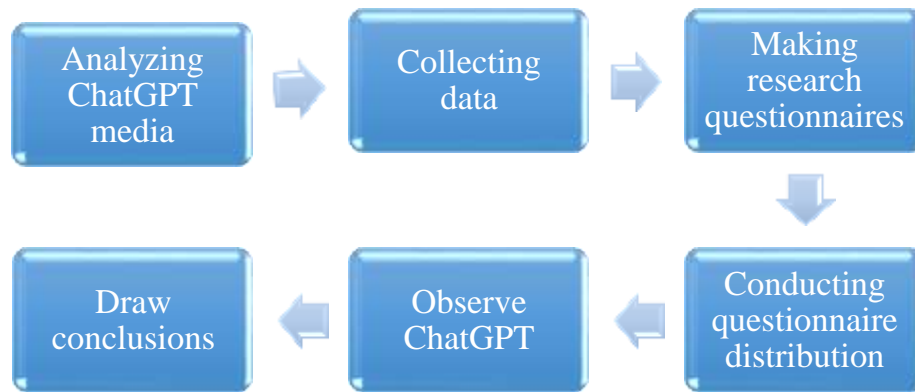
Quantitative research is a type of research that uses a scientific approach to collect, analyze, and interpret numerical or quantitative data to understand or explain social, economic, or scientific phenomena (Baabdullah et al., 2019). The general flow of quantitative research is as follows: Identify an interesting research topic related to a social or scientific problem you want to investigate (Gao et al., 2020). Develop research questions and hypotheses that can be tested against quantitative data (Zwanenburg et al., 2020). Determine the appropriate research design to answer the research question and examine the hypothesis (Docherty et al., 2020). Research designs can include experiments, surveys and case studies. Selecting a research sample Select a representative sample of the population you want to study. The sample should be selected objectively and avoid misinformation. Collecting data using valid and reliable research tools (Lee, 2020). Research tools may include questionnaires, interviews or observations. Statistical methods that can be used include regression testing or multivariate analysis and interpreting the results of the analysis in an organized and logical manner.

The time and location of the research data collection is at the university. The topic of this research is the impact of the ChatGPT program on university studies. The method used is quantitative method. The place where this research was conducted was a school or college whose purpose was to see the feasibility of the learning environment used. Data collection was done by distributing questionnaires to students to determine the percentage of media literacy. This survey method uses analytical techniques, one of which is statistical techniques or by collecting data using diagrams. Data analysis technique is a data processing process that involves assessing, processing and modeling data which will be used as a basis for drawing conclusions. And observation is carried out to find out in advance about the object of observation of his knowledge. Knowing the purpose of the task to be carried out, preparing for the observation, determining the necessary secondary data and recording the results of the observation. For example, conducting this research at a nearby university.

The technique used by researchers to collect data containing numbers is to collect data that is measured for authenticity, calculated and compared on a statistical scale. Non-observational data collection is a quantitative research data analysis technique. Data processing is based, for example, on the type of respondent, after which items are created and hypothesis testing is calculated from the data obtained. Quantitative research is complemented by statistical tests, or inferential statistical tests, which are used when the data collection technique is random and the required sample is clear, and there are also descriptive methods that analyze data by describing and also describing the information collected without changing the source. There are two important parts of inferential statistics, namely parametric statistics that have strong power in research based on limited data, and standard statistics also use non-parametric data, which looks at nominal data

and can also be a follow-up data sample found. In addition, to identify the conclusions drawn from the results of the analysis and their relationship to the hypotheses and research questions.

**Research methods conducted**



**RESULTS AND DISCUSSION**

Artificial intelligence in today's technology drives human intelligence like a machine. This may seem strange and odd as the human mind is very complex. Technology is developing so rapidly that it goes beyond basic education in the world of education. Technology like this can help educators in determining learning patterns that are in accordance with the times from time to time in order to achieve the planned learning objectives. In addition, technology can also help students to more easily understand the material delivered by educators as well as the skills and skills of students' individual learning experiences. With this technology, students will be more active in learning. And it is possible to further develop their potential in learning activities with great ambition and enthusiasm. In this digital era, technology offers its users various tools and platforms that can help students and educators during the learning process. The many advantages and benefits produced by technology do not mean that all the impacts are positive, but there are also some negative impacts.

With technology, the teaching and learning process will be more fun and less boring. Because current technology has presented many interesting applications and learning media that can help learning activities. Support from this technology can improve the quality of learning and make students more enthusiastic during learning. One of the media that can be accessed to help facilitate the learning process in college is ChatGPT. The rapid development of science and technology cannot be separated from human life. Similarly, in the field of education engineering plays an important role to facilitate students in obtaining educational materials and finding answers to the learning, which will affect student performance. Higher education must be provided with effective and efficient education and training.

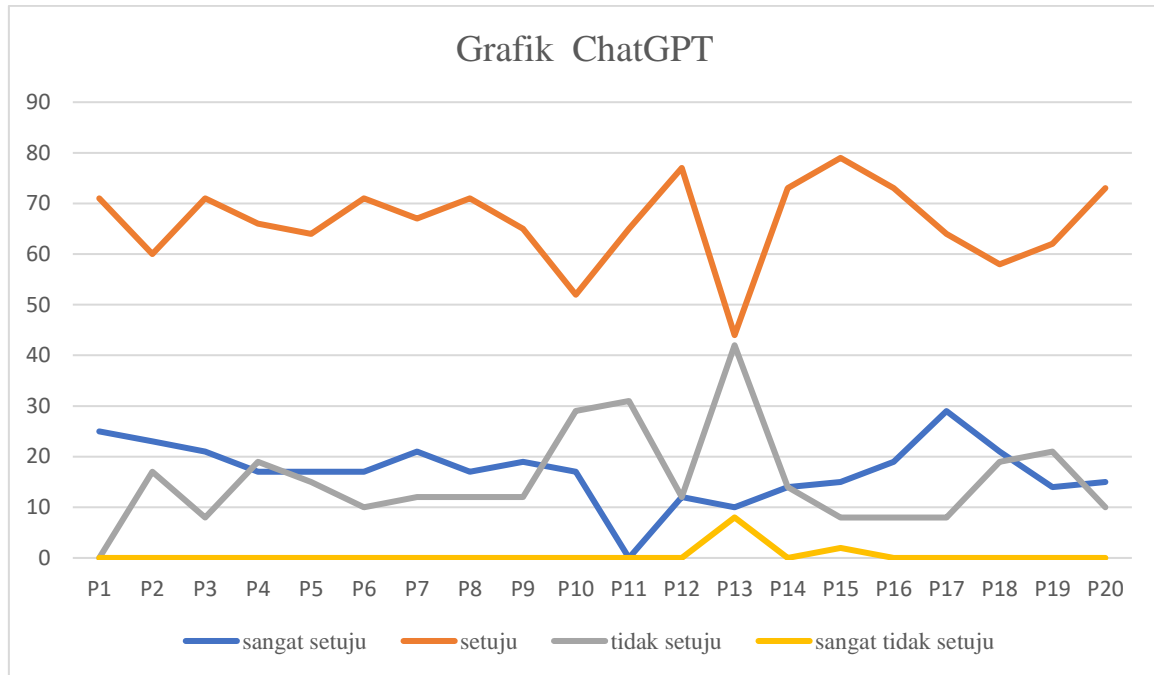
The impact of ChatGPT on learning in higher education as a means of learning using quantitative methods. Quantitative methods of study where information is collected using measurement techniques and numerical calculations or statistics. The quantitative data collection process is called questionnaire, interview and observation data collection techniques. Research conducted in mathematical form and data that can be measured is also called quantitative research. This quantitative research method is obtained by using a questionnaire during a survey. ChatGPT can be used to improve the atmosphere of discussions and presentations by providing answers to a wide variety of questions. Making students more confident in interacting in class. Therefore, the use of ChatGPT can be an alternative that can improve the quality of education in higher education.

**Table 1.1 Questionnaire distribution results**

No	Question	Strongly agree	Agree	Disagree	Strongly disagree
1.	ChatGPT can help learners in learning	25%	71%	0%	0%
2.	ChatGPT is already known by many learners	23%	60%	17%	0%
3.	ChatGPT helps facilitate the learning process	21%	71%	8%	0%
4.	Through ChatGPT, it is easier for students to understand the learning material.	17%	62%	19%	0%
5.	ChatGPT can increase students' enthusiasm for learning.	17%	64%	15%	0%
6.	The language in ChatGPT is very easy for students to understand	17%	71%	10%	0%
7.	ChatGPT can answer complex questions	21%	67%	12%	0%
8.	ChatGPT can also produce some wrong answers	17%	71%	12%	0%
9.	With ChatGPT, learners' thinking ability becomes low	19%	65%	12%	0%
10.	With ChatGPT learners become lazy to learn	17%	52%	29%	0%
11.	ChatGPT cannot provide specific and actual explanations	0%	65%	31%	0%
12.	Sometimes the answers from ChatGPT do not match the expectations of its users	12%	77%	12%	0%
13.	ChatGPT-generated answers are better than human-generated answers	10%	44%	42%	8%

14.	ChatGPT is used to help create scientific papers	14%	73%	14%	0%
15.	Not all answers provided by ChatGPT are accurate	15%	79%	8%	2%
16.	ChatGPT causes learners to become insecure about their own answers	19%	73%	8%	0%
17.	ChatGPT makes learners lazy to think	29%	64%	8%	0%
18.	ChatGPT makes learners to be undisciplined in learning	21%	58%	19%	0%
19.	ChatGPT can spur harder analytical thinking in learners	14%	62%	21%	0%
20.	ChatGPT can be a means to cheat in exams	15%	73%	10%	0%

The table above shows the results or percentage of questions and answers about ChatGPT that researchers obtained from a survey distributed online via google form. The table above contains some questions to make this research easier for the researcher. The questions included are 20 questions about the impact of ChatGPT on learning in higher education. Questions containing ChatGPT can help students in learning with a percentage of 71% choosing to agree and there are other arguments that choose to strongly agree with a percentage level of 25%. From the question in the form of ChatGPT already known by many students, it obtained a percentage of 60% with the answer agreeing and 23% with the answer strongly agreeing then some students argued that 17% assumed disagree. The next question, namely ChatGPT helps facilitate the learning process, obtained a response of 71% to agree and 21% for the answer strongly agree and there were 17% responses that disagreed with this. The next question related to ChatGPT makes it easier for students to understand the learning material obtained an answer of 62% agreed and 17% obtained for the answer strongly agreed. However, there were 19% responses that disagreed with this argument.



The next question asked by the researcher was about the ChatGPT students will be able to increase their enthusiasm for learning. The response to this question was 64% agreed to this, and as many as 17% of respondents strongly agreed, but there were 15% disagree answers. Furthermore, the question about the language of ChatGPT which is easy to understand obtained percentage results in the agreed category as much as 71% and the category strongly agreed reached 17%, however, there were several responses that disagreed, namely 10%. The next question is ChatGPT can answer questions that are classified or complicated. In this question the highest acquisition is in the agreed opinion, namely 67%. As for the number of strongly agreed opinions there are 21%, as well as some answers that disagree there are as many as 12%. Followed by the eighth question where the question is that ChatGPT can also produce some wrong answers. This question received 71% agreed answers and 17% strongly agreed answers and 12 respondents disagreed.

From the next question, namely the existence of ChatGPT makes students' thinking skills low, the percentage of 65% for the agree category and 19% for the strongly agree category and 12% disagree category. Followed by the next question, namely ChatGPT makes students lazy to learn, resulting in a percentage of 17% of answers for groups that strongly agree with this question. And 52% of answers agreed and for responses that disagreed as much as 29%. ChatGPT cannot provide specific and actual explanations which is the next question reaping a percentage of 65% which falls into the category of strongly agreeing and 30% disagreeing responses. Furthermore, sometimes the answers generated from ChatGPT do not match the expectations of its users, this question resulted in 77% agreeing and 12% strongly agreeing responses to this question. Also, there are 12% answers that disagree about this.

The next question, ChatGPT-generated answers are better than human-generated answers, elicited 44% agree and 12% strongly agree responses. This question also generated 8% disagree responses. Furthermore, the question that reads ChatGPT can be used to help in making scientific papers. In this question, the answers or responses generated can be broken down into 73% for the agree category, 14% for the strongly agree category and 14% answers for the disagree category. Not all answers generated by ChatGPT are accurate. The question reaps percentage results that can be described as the acquisition in the category or group of agreeing as much as 73% and a group that strongly agrees 15% and some respondents who disagree with this question as much as 8% and there are even those who strongly disagree, namely 2%. The next question ChatGPT causes students to be insecure about their own answers. In this question, the description of the percentage is 73% who agree with this question, 19% who strongly agree and 8% who disagree.

ChatGPT can make students undisciplined in learning which is one of the questions asked by researchers which results in the acquisition of an agreed category of 64% and those who enter the category strongly agree in the form of 29% then the disagree category is 8%. The next question is ChatGPT can make students undisciplined in learning to get responses that agree with the amount of 58% and responses that strongly agree with 21% as well as opinions that disagree as much as 19%. Followed by the next question which ChatGPT can spur harder analytical thinking for students. The resulting gain from this question is 62% for the agree category. For the acquisition that strongly agreed by 14% and 21% for the disagree category. The last question from the researcher is that ChatGPT can be a means of cheating in the implementation of the exam. The results can be percented in the group who agree with the question as much as 73% and the acquisition of those who strongly agree by 15% to those who disagree by 10%.

The graph above explains the impact of ChatGPT on learning in higher education. This study used 20 questions to explore the implications of ChatGPT in education, especially in higher education. In the graph illustration, there is the highest data collection, namely respondents' answers agreeing with a percentage of 79% to the question that not all answers from ChatGPT are accurate. The next highest percentage result is on the question sometimes the answers from ChatGPT are not in accordance with the expectations of its users with the category of agreement which reached 77%. The next highest percentage was in the question ChatGPT caused students to be insecure about their own answers which obtained 73%. Likewise with the 20th question which reads ChatGPT can be a means of cheating in the implementation of the exam. The results also obtained 73% in the agree category. The next sequence is on the question ChatGPT helps students in the learning process. The result is 71%, the same as the question ChatGPT facilitates the learning process 71%. Likewise, the results of the question which ChatGPT language is very easy to understand, namely 71%.

Furthermore, the highest gain on the ChatGPT question can answer complicated questions, which resulted in 67% in the agree category. The next highest order of acquisition is in the question with the ChatGPT making the ability to think of students

becomes low. In this question the resulting gain was 65% in the agree category. Likewise, the ChatGPT question cannot provide specific and actual explanations which both produce as much as 65% agree. Then on the question with ChatGPT students can increase their enthusiasm for learning obtained 64% agreed responses. Likewise with the question about ChatGPT making students lazy to think which also obtained 64%. Furthermore, the question that through ChatGPT students find it easier to understand learning material obtained a percentage of 62%. On the question that ChatGPT can spur harder analytical thinking towards learners, resulting in an acquisition of 62%. The next highest acquisition is from the ChatGPT question already known by many students, which is in the agree category at 60%. Next is the question ChatGPT makes learners to be undisciplined in their learning which reaps the results of the acquisition in the agree category as much as 58%.

Furthermore, on the question which, with ChatGPT students become lazy to learn, 52% of respondents agreed. The lowest gain in the agree category was generated by the question which answers generated by ChatGPT were better than answers from human thought. Which resulted in an acquisition of 44%. The next percentage is in the strongly agree category, the highest gain in this category is in the ChatGPT question making students lazy to think, which results in 29%. The next position is on the ChatGPT question helping students in learning. The acquisition of this question reached 25%. After that, the ChatGPT question is already known by many students. Which resulted in a response of 23%. For the next position on the ChatGPT question helps facilitate the learning process, obtaining a result of 21%. The same result was also achieved by the ChatGPT question making students to be undisciplined, namely 21% as well. And the ChatGPT question can answer complicated questions also resulted in an acquisition of 21%. Furthermore, the question with ChatGPT makes students' thinking skills low, resulting in an acquisition of 19%. Likewise, the next question ChatGPT resulted in learners not being confident in their own answers, which resulted in 19%.

Furthermore, the percentage for the disagree category in the highest position is on the question that the answers generated by ChatGPT are better than the answers generated from human thought, the acquisition is 42%. Next on the question ChatGPT cannot provide specific and actual explanations. The result of this question was 31%. The next position is on the question with ChatGPT students become lazy to learn, in the category of disagree results in the acquisition of 29%. Furthermore, with the acquisition of 21% of the ChatGPT question can spur harder analytical thinking of students. The next sequence is on the question through ChatGPT students find it easier to understand the learning material provided, resulting in a gain of 19% in the disagree category. Likewise, the ChatGPT question makes students undisciplined in learning, with the questionnaire results in the disagree category of 19%. The next position contained in the ChatGPT question is already known by many students. In this question the acquisition achieved in the disagree category is 17%. Followed by a question with the next highest gain, namely with ChatGPT students can increase their enthusiasm for learning, with a total gain of 15%. The next position is on the question ChatGPT can answer complicated questions.

The results of this question reached 12% of responses in the disagree category. Likewise, the ChatGPT question can also produce wrong answers, which also obtained 12%. The next question is also the same, with the ChatGPT making students' thinking skills low, the result is also 12%.

The picture above explains the impact of ChatGPT on learning in higher education. And finally researchers know that technology is very important in everyday life, especially in the world of education to support the learning process to be even more advanced. This research is more likely to be for students in using this technology. This ChatGPT research focuses on the influence that ChatGPT has on students. About how the good effects caused and vice versa, what bad effects are caused by this technology. Not separated from learning technology in higher education can be combined with educational techniques to improve the quality of student learning.

The results of the research conducted by Adi Setiawan and Ulfah Khairiyah Luthfiyani ChatGPT is one of the best options for developing a good chat AI because it can generate text that matches the context and intent of the user's conversation. However, ChatGPT also has drawbacks such as requiring and relying on considerable data to train the model. previous connection The choice of discussion AI should be based on the needs and circumstances of the project being used. Compared to other AI Chat based on machine learning, ChatGPT has the advantage of generating text that is very much in line with the context of the conversation and the user's intent, as it is trained on a considerable amount of data. However, ChatGPT also has drawbacks such as the need for considerable data to train the model and early context dependency.

## **CONCLUSIONS**

This study uses a quantitative method, which aims to determine the effect given by ChatGPT technology. Based on the description above, researchers can conclude that in the current era of globalization and the rise of technological development, learning can also be easily done. With new learning styles such as through media, it will make it easier and improve the quality of student learning and increase the enthusiasm for learning. For example, ChatGPT is very helpful for students such as in discussions and presentations. With the ability to process natural language becomes more understandable by students. Assignments will be completed more quickly, because the scope of this media is already wide. Able to answer questions from various fields of knowledge. The material will also be easier to understand the learning material, and the answers described are specific and actual. Of course, good learning cannot be separated from the methods provided by educators, the methods given must be right on target.

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