



Exploring the Usage of ChatGPT in Higher Education: Frequency and Impact on Productivity

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Abstract

THIS research aims to gain a deeper understanding of the views and rationality of lecturers in using ChatGPT in learning by explaining how lecturers use it in learning and their reasons for choosing or not choosing the technology. In this study, lecturers will be interviewed and asked to share their experiences and views on it. The data collected will be analyzed and interpreted to gain a deeper understanding of how the use of ChatGPT affects learning and why lecturers choose or do not choose the technology. In the interview results, ChatGPT helps users in finding information, ideas, translating texts, and providing alternative questions to deepen the understanding of the material. It is important to consider and verify information with more reliable and accurate sources. The use of ChatGPT in learning can be an interesting and effective alternative, but users also need to remain critical and selective in utilizing it. In further research, more interviews and case studies need to be conducted to obtain a more comprehensive understanding of the use of ChatGPT in learning. Although ChatGPT has limitations, respondents consider its use to improve productivity and learning efficiency. Therefore, the use of ChatGPT can be considered as an attractive alternative in learning, while maintaining a critical approach in utilizing it and verifying the information provided.

Keywords: ChatGPT, Education, Higher Education, Productivity

Introduction

As technology advances, education undergoes a shift and transformation. Education and technology are interrelated and influence each other. Technology has enabled changes in education, and education has also impacted technological progress [1]-[3]. The general trend among educators and learners is the adoption of technology in the learning process [3]. Educators use technology to facilitate learning, including the use of software, applications, online platforms, and other devices to enhance the effectiveness and efficiency of learning [4],[5]. Technology enables distance learning or online learning that allows learners to acquire knowledge anywhere and anytime.

On the learners' side, the general trend is an increase in interest in self-directed learning [6]-[8]. Technology enables easier access to learning resources, such as e-books, video tutorials, and online learning platforms. Learners can also take online courses or obtain certifications from reputable institutions. This allows learners to develop knowledge and skills independently without being bound by specific time and place. However, there are also concerns that technology may reduce social interaction between educators and learners [9],[10]. Learners may also become less disciplined and have difficulty concentrating on learning due to excessive dependence on technology [11]. Therefore, it is important for educators and learners to understand that technology can be a very useful tool in

learning, but it also needs to be balanced with the development of interpersonal skills and problem-solving skills that can enhance the overall quality of learning.

The issue of using ChatGPT in Indonesia seems to have a tendency to increase drastically. Data from Google Trend shows this as shown in Figure 1. Ten provinces that have a high tendency to use ChatGPT are shown in Figure 2.

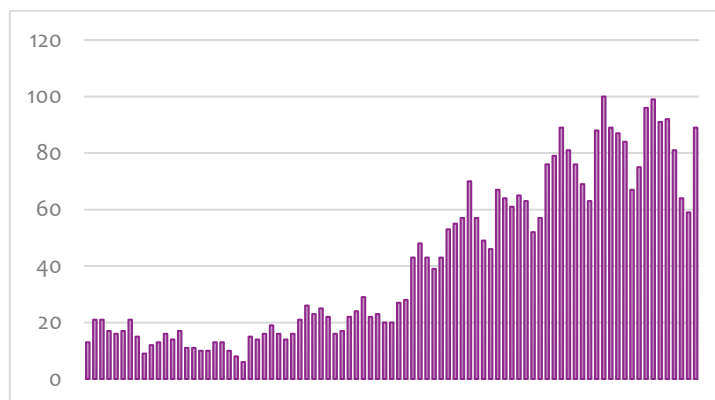


Fig. 1. Three months trend of ChatGPT in Indonesia (Source: Google Trend)

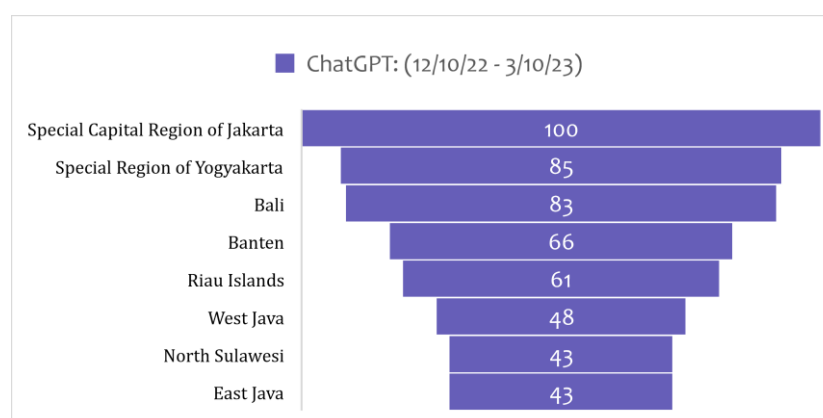


Fig. 2. The 10 highest province based on ChatGPT trend (Source: Google Trend)

Initial observations of the use of ChatGPT in learning have been conducted through a survey of 24 lecturers in the particular higher education in Indonesia. The survey was conducted to determine how optimistic the lecturers were in using ChatGPT in their teaching. The survey results showed that the majority of lecturers responded with optimism to the use of ChatGPT in teaching. However, the survey also showed that there were a small number of lecturers who did not respond positively to the use of ChatGPT. This indicates that there is uncertainty and doubt among a small number of lecturers in using this technology in their teaching.

In the world of education, the use of technology in learning has its advantages and disadvantages. Therefore, it is important for lecturers to consider both the advantages and disadvantages of using ChatGPT in teaching before deciding to use it. Nevertheless, the optimism shown by the majority of lecturers in the survey indicates that the use of ChatGPT in learning has great potential

in improving the effectiveness and productivity of learning. Therefore, it can be expected that more lecturers will be open to using this technology in their teaching in the future.

In facing the doubts and uncertainties that arise in the use of new technology in learning, lecturers need to continually update themselves and learn about new technologies that can help them in the learning process. The purpose of this research is to gain a deeper understanding of the views and rationales of lecturers in utilizing ChatGPT in teaching by explaining how lecturers use ChatGPT in teaching and their reasons for choosing or not choosing the technology. Through this research, it is hoped that challenges, needs, and expectations of lecturers towards ChatGPT in improving the effectiveness of learning can be identified.

Method

This research will focus on the perceptions and experiences of five lecturers (initialed LEC1 to LEC5) in using ChatGPT, as well as the reasons behind their views and actions related to the technology. The main objective of this research is to gain a deeper understanding of the use of ChatGPT in learning, in order to assist in the development of better technology and provide recommendations for decision-makers in the field of education. In this study, lecturers will be interviewed and asked to share their experiences and perspectives on ChatGPT. The data collected will be analyzed and interpreted to generate a more profound understanding of how the use of ChatGPT affects learning and why lecturers choose or do not choose to use the technology. The results of this research are expected to provide input for technology developers, decision-makers in the field of education, as well as lecturers in improving the effectiveness of learning.

Results and Discussion

A. Frequency of Using ChatGPT

Based on the interview results regarding the frequency of ChatGPT usage, most respondents tend to prefer using it frequently. Here are some of their comments.

LEC1 said:

Saya menggunakan ChatGPT setiap hari untuk belajar. Ada banyak aktivitas yang saya lakukan dengan aplikasi ini terutama untuk mencari ide-ide baru. Namun pada kasus tertentu saya masih menggunakan aplikasi yang untuk mendukung pekerjaan saya.

(I use ChatGPT every day for learning. There are many activities that I do with this application, especially to find new ideas. However, in certain cases, I still use other applications or tools to support my work.)

LEC3 said:

Dalam mengajar, terkadang memerlukan wawasan baru yang berbeda dengan saat ini. ChatGPT selalu saya gunakan untuk mencari sumber ide dengan menelusuri juga via Google. Dengan cara ini informasi dari ChatGPT jadi lebih lengkap.

(In teaching, sometimes it requires a new perspective that is different from the current one. I always use ChatGPT to search for sources of ideas by also browsing through Google. This way, the information from ChatGPT becomes more comprehensive.)

Respondents found ChatGPT very helpful in obtaining new ideas for everyday learning. For example, see Fig. 3. However, they also acknowledged that in some cases, they still needed other applications or tools to support their work. ChatGPT functions as a communication channel between respondents and the information needed for daily learning [12]. ChatGPT is considered as a medium or tool for obtaining new information and ideas [13]. Additionally, the answers indicate that ChatGPT helps respondents in the learning process and acquiring new knowledge. According to the constructivism learning theory, learning is a process of constructing new knowledge based on acquired experiences.

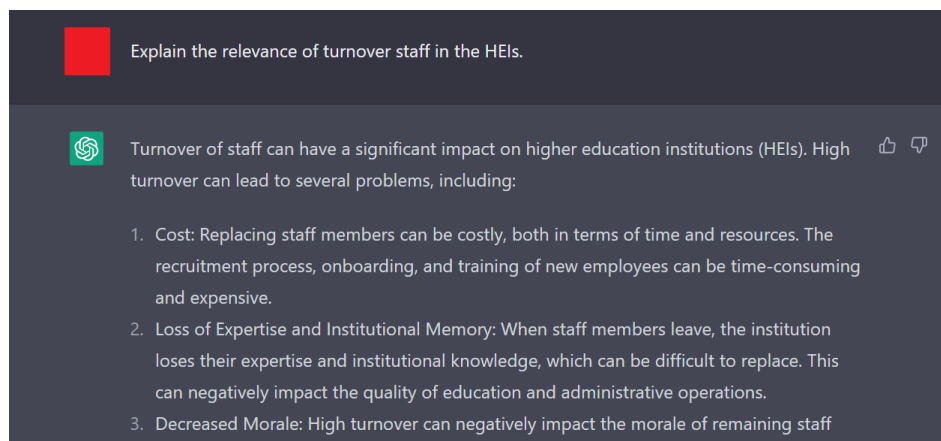


Fig. 3. ChatGPT for finding the ideas (Source: Primary Data)

In this case, ChatGPT helps respondents in constructing new knowledge by providing access to new information and ideas [14]. Social media theory can also be applied, where ChatGPT is considered as a social media for learning that allows respondents to connect with relevant resources and information [15]. Learning is an active process of constructing new knowledge based on acquired experiences. In this case, ChatGPT helps respondents in constructing new knowledge by providing access to new information and ideas. The constructivist learning theory emphasizes that individuals actively construct their knowledge through the process of experience, reflection, and interpretation [16]. In this case, ChatGPT users use the application as a source of information and ideas that can help them build new knowledge and skills in the learning process.

B. The Effectiveness of Work with the Use of ChatGPT

From several studies on ChatGPT, this application encourages users to be more productive. They also become more efficient in getting things done. Here are some of their comments.

LEC2 said:

ChatGPT membantu saya memahami materi lebih cepat dan lebih mudah dengan bertanya terkait materi tersebut dengan berbagai alternatif pertanyaan. Kadang untuk lebih mendalam perlu diberi pertanyaan yang lebih khusus.

(ChatGPT has been instrumental in enabling me to comprehend subject matter more quickly and easily by inquiring about the material with various alternative questions. However, on occasion, more specific questions are required to gain deeper insights.)

LEC3 said:

Saya meski menggunakan ChatPT pada kasus tertentu, jawaban yang diberikan tidak sesuai dengan apa yang saya harapkan. Sehingga kadang saya perlu mencari informasi lain yang lebih lengkap dan mengulangi pertanyaan ke ChatGPT. Secara umum, ok lah. Lebih produkti. ChatGPT membantu saya menghemat waktu dalam mencari sumber belajar.

(Although I use ChatPT for specific cases, the answers provided may not always align with my expectations. Consequently, I may need to seek out other more comprehensive sources of information and return to ChatGPT to repeat my inquiries. Overall, it is productive. ChatGPT assists me in saving time in searching for learning resources.)

LEC-5 said:

Saya senang, bisa lebih cepat bekerja. Membantu saya menyelesaikan tugas lebih cepat. Hemat waktu dalam mencari sumber pengetahuan. Bisa diarahkan pada apa yang saya anggap penting. Namun saya tetap menyiapkan gambaran besar pekerjaan saya untuk memastikan hasil sesuai tujuan.

(I am delighted to be able to work more quickly, as it helps me complete tasks more efficiently and economizes on the time I spend seeking knowledge sources. Additionally, it can be directed to address what I consider important. Nonetheless, I prepare a comprehensive outline of my work to ensure that my results align with my objectives.)

From the interview results, it can be seen that the use of ChatGPT has a positive impact on learning effectiveness. The lecturer felt that ChatGPT helped in understanding the material faster and easier, and could save time in searching for learning resources. See Fig. 4 for the example of this activity.

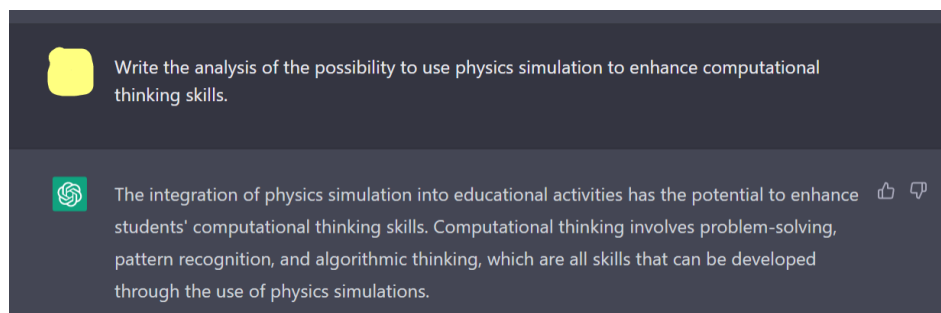


Fig. 4. ChatGPT for improving the writing productivity (Source: Primary Data)

However, the lecturer also admitted that sometimes the answers provided by ChatGPT were not in line with expectations [17], so additional research was needed by seeking more comprehensive information and repeating questions to ChatGPT. In terms of productivity, the use of ChatGPT also had a positive impact. The lecturer felt that they could work faster, complete tasks more quickly, and save time in searching for knowledge resources. However, the lecturer also recognized the importance of preparing a big picture of the work to ensure that the results were in line with the intended goals. In communication theory, the use of ChatGPT can be explained by symbolic interaction theory [18], which explains how humans communicate through symbolic signs and give meaning to those signs. In media theory, the use of ChatGPT can be explained by the theory of new media, which views media as a social environment that can influence how we interact and obtain information [19]. Meanwhile, in learning

theory, the use of ChatGPT can be explained by constructivism theory, which suggests that learning is a process of constructing knowledge by learners through experience and reflection [13].

C. The usage of ChatGPT

ChatGPT can be used to assist many aspects of a lecturer's work. Skill in selecting commands determines the relevance of the information obtained. Some user comments indicate this.

LEC4 said:

Saya terkejut. Saat saya memerlukan tabel, ternyata ChatGPT mampun untuk membuat tabel itu. Termasuk sudah dalam bentuk tabel dan bordernya. Tidak cuma daftar baris. Jadi tinggal copy-paste saja.

(I was surprised. When I needed a table, it turns out that ChatGPT was able to create it. It even came in the form of a table with borders. Not just a list of rows. So I just had to copy-paste it.)

LEC5 said:

Saya suruh ChatGPT untuk membuatkan artikel. Eh...dia mau. Meski hanya kerangka besarnya saja, tapi sudah memberi gambaran yang bagus. Tinggal didalami saja pada setiap aspek. Pas diminta cari referensi juga bisa. Enak banget.

(I asked ChatGPT to create an article, and surprisingly, it agreed. Although it only provided the outline, it gave a good overall picture. I just need to delve into each aspect. It can also find references when asked, which is very convenient.)

The utilization of ChatGPT has proven to be helpful in various aspects of learning for the respondents. Firstly, ChatGPT assists the respondents in translating scientific articles into English, thus overcoming their limitations in English proficiency. However, there is a word limit to the translation that may need to be taken into consideration by the users of ChatGPT [17]. Secondly, ChatGPT aids the respondents in seeking the latest ideas in learning that cater to their specific needs. The respondents can request suggestions on teaching with a CTL approach and receive numerous alternative recommendations [14],[16]. Fig. 5 shows on how ChatGPT give the article outline for user.

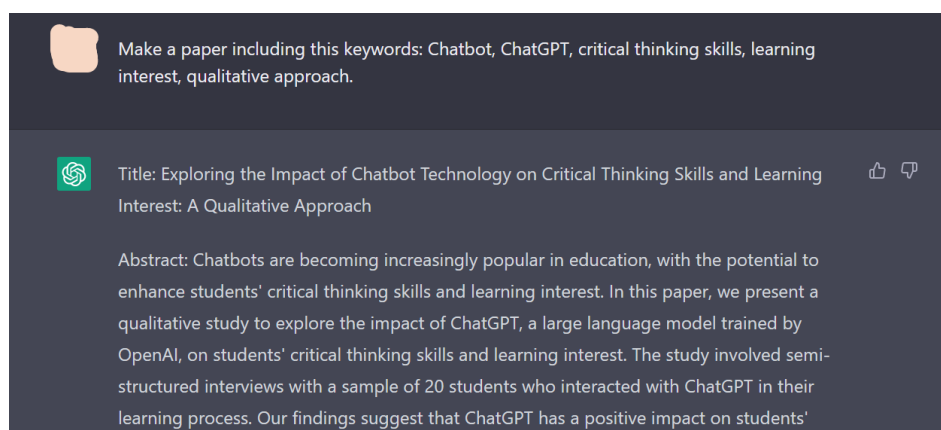


Fig. 5. ChatGPT suggested the research outline (Source: Primary Data)

The analysis of the interview results indicates that ChatGPT assists the respondents in several aspects of learning. Primarily, it assists them in translating scientific articles into English, which addresses their limitations in English proficiency. Nonetheless, users of ChatGPT should be aware of the

word limit that applies to the translation. Additionally, ChatGPT aids the respondents in searching for the latest ideas in learning that meet their specific requirements. For instance, they can request recommendations for teaching plane geometry with a CTL approach and receive multiple alternative suggestions.

Conclusion

The use of ChatGPT in learning holds promising potential for improving productivity and efficiency in the educational process. In the interview results, ChatGPT was found to assist users in searching for information and ideas, translating text, and providing alternative questions to deepen their understanding of the subject matter. However, it is important to consider and verify the information provided by ChatGPT with more reliable and accurate sources. The use of ChatGPT in learning can be an interesting and effective alternative, but users should also remain critical and selective in utilizing it. Furthermore, information users need to be careful to use ChatGPT wisely. There is an academic ethic that needs to be upheld to maintain honesty in data and its interpretation. Further research, including more interviews and case studies, is needed to gain a more comprehensive understanding of the use of ChatGPT in learning. Despite its limitations, respondents perceived the use of ChatGPT as beneficial for enhancing productivity and efficiency in learning. Therefore, the use of ChatGPT can be considered as an interesting alternative in learning, while still maintaining a critical approach to its usage and verifying the information provided.

Conflict of Interest

The authors should declare that there is no conflict of interest.

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