



Analysis the Impact of ChatGPT Usage on Student Learning Productivity in Surakarta City

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This study aims to analyze the impact of using ChatGPT on student learning productivity in Surakarta. ChatGPT is increasingly popular among students, especially in Surakarta, as a tool to help them complete their assignments. This study was created to fulfill the need for information about the influence of the use of ChatGPT in the educational environment, especially universities in Surakarta. Although it offers convenience because it can access information very quickly, there are concerns that the use of this technology can inhibit students' critical thinking and plagiarism. This study used a qualitative approach with data collection techniques through observation and in-depth interviews with students from various universities in Surakarta. The data collected from the results of the analysis of the experiences and challenges in using ChatGPT when doing learning activities. The results show that the use of ChatGPT produces a positive impact on learning productivity, especially to facilitate finding information. However, there are also negative impacts, namely, it can trigger a decrease in creativity and a decrease in the level of critical thinking of students. The results of this study are expected to help provide information that the use of ChatGPT or other artificial intelligence is not always bad for education, it must be further socialized for future technologies that can be useful for the advancement of Indonesian education.

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INTRODUCTION

Technological advances have brought great changes in various aspects of life, including in the world of education. One of the technologies that help people, especially students in the field of education, is e-learning. E-learning is a technological innovation in the world of education. E-learning is able to overcome barriers in virtual learning and expand the scope of learning resources (Mustofa & Riyanti, 2019). E-learning is able to encourage independent learning in students because of the advantages of e-learning such as being able to be accessed anywhere, flexible learning time and broad enough insight (Ratih dkk., 2021). Retrieved from (Meliyani, 2020), The higher the use of e-learning in students, the higher their learning motivation and achievement. There are several E-learning applications that help students' learning process along with different functions. One of them that is currently much talked about is ChatGPT, a new innovation of e-learning based on artificial intelligence developed by OpenAI. ChatGPT allows users to interact in natural conversations with machines, making it a very useful tool for accessing information and completing academic tasks (Hidayanti & Azmiyanti, 2023)

To increase learning productivity, students need to get encouragement or motivation to be more enthusiastic in the learning process (Isnawati & Samian, 2020). Therefore, the use of ChatGPT in education has great potential to increase student productivity. The system can be used as an interactive learning tool, allowing students to get answers to their questions, get advice, and even discuss academic topics with an intelligent system (Mustofa & Riyanti, 2019). Retrieved from (Subekti dkk., 2023), The use of technology is a driving factor in their productivity so that with the help of technology student academic success can be achieved. Learning Productivity is the level of efficiency and effectiveness to achieve academic and non-academic goals during education. This includes many things such as managing time, completing assignments and work well, and meeting all learning objectives. Learning productivity is very important as it has a lot to do with students' academic success and their ability to prepare themselves for their future (Elvyra dkk., 2023)

This research was conducted because there is a lack of information regarding the analysis of the use of ChatGPT on student productivity. Because in this city there are already many universities with superior accreditation, therefore many students must be using this technology to help their productivity. However, the presence of ChatGPT in the academic environment is not free from controversy. On the one hand, the technology offers convenience and efficiency in completing academic tasks, but on the other hand, there are concerns that its use may inhibit critical thinking skills and trigger over-dependence. Some educational institutions have even imposed restrictions on the use of ChatGPT, arguing that

this technology could undermine the learning process that emphasizes problem solving and the development of critical thinking skills (Saputra & Hidayati, 2023). In addition, ethical issues are also a major concern. The use of ChatGPT in completing academic assignments, especially final assignments or theses, poses a risk of plagiarism. It is feared that students who rely too much on this technology will lose the ability to think independently and develop original ideas (Salmi dkk., 2023). In this context, it is important for educators to ensure that technologies such as ChatGPT are used responsibly and do not detract from strongly held academic values. But its use needs to be guided and warned so as not to turn graduates into lazy copy-paste only, graduates who lack thinking, critical writing, and a sense of laziness (Ramli, 2023). The use of ChatGPT technology in education provides the ability to advance the quality of learning. However, the use of this technology requires attention to the privacy and ethical aspects of its use. Therefore, educational practitioners should carefully consider how they use ChatGPT technology in learning and ensure that its use complies with established ethical values and privacy standards (Ramadhan dkk., 2023).

The presence of ChatGPT in education certainly needs strengthening in the form of policies that lead to moral and ethical rules in technology, in order to limit users from crossing the limits of improper use. In this case, it can be by imposing a point deduction system when there are students who are detected plagiarism in the work they create, even by imposing a threat system if the student's final project is proven to work on the results of ChatGPT assistance, then the degree that has been obtained will be taken over and can be criminally prosecuted (Sufendi & Kamal, 2023). This study aims to analyze the impact of using ChatGPT on the learning productivity of university students in Surakarta City. With the widespread use of this technology, this research is expected to provide deeper insights into how ChatGPT affects the way students learn and complete their academic tasks, as well as the ethical challenges that may arise from its use.

METHODS

This study employs a qualitative approach to understand the impact of using ChatGPT on students' learning productivity. The data analysis technique used is thematic analysis. This technique was chosen because it allows researchers to identify patterns or themes emerging from qualitative data, providing a more structured depiction of the phenomenon being studied. (Fadli, 2021)

Data were collected through in-depth interviews, observations, and documentation. Interviews were conducted with students from two universities in Surakarta who actively use ChatGPT. The purpose of the interviews was to understand students' perceptions regarding the benefits, challenges, and impacts of using ChatGPT on their learning productivity. Observations were carried out to directly observe how students utilize ChatGPT in their

learning activities. The researchers noted patterns of use, frequency, and the context of employing this technology. Documentation in the form of screenshots or outputs generated with the help of ChatGPT was used to complement information from the interviews and observations.

The data analysis was carried out in several steps. First, data from interviews, observations, and documentation were thoroughly reviewed to understand the context and content of the data. Next, the researchers identified and marked relevant data units using specific codes. These codes reflect the main aspects related to the impact of using ChatGPT, such as time efficiency, ethical challenges, and changes in learning patterns. The codes that emerged were further analyzed to identify key themes representing overall data patterns. The identified themes include learning productivity, challenges in usage, as well as academic ethics and policies. These themes were then interpreted to explain the relationship between using ChatGPT and its impact on students' learning productivity. This process also involved linking the findings to relevant theoretical frameworks. Data validation was performed using source triangulation. Data from interviews, observations, and documentation were compared to ensure consistency and reduce potential bias. Additionally, the researchers sought feedback from respondents to ensure that the analysis results aligned with their experiences. With this method, this study is expected to provide in-depth insights into how ChatGPT influences the way students learn and complete their academic tasks.

RESULT AND DISCUSSION

This study interviewed students from universities in Surakarta with taken from the 3 largest universities in Surakarta used as research samples. Researchers also conducted observations and documentation when they used ChatGPT. The results of interviews, observations, and documentation are made into mind maps to facilitate analysis.

[Figure 1. about here]

The mind maps above are the results of an analysis of the use of ChatGPT for students in Surakarta City.

Impact on Productivity, the efficiency generated by ChatGPT can vary depending on how the user utilizes it. If used optimally, productivity increases, but if it requires a lot of revisions, the results can be opposite.

Use of ChatGPT, ChatGPT is a flexible tool that can be used both as an initial reference and as an immediate solution as needed.

Effect on Learning, the impact of ChatGPT on learning depends on the usage pattern. If used responsibly, users can still learn without losing critical thinking skills.

Challenges and Obstacles, the use of ChatGPT has its challenges, especially in ensuring that the results are of academic standard and relevant to user needs.

All points are interrelated in describing how ChatGPT affects productivity, learning, how it is used, and

the challenges faced. The effectiveness of ChatGPT depends on how users utilize it, considering its impact on productivity, learning, and fit for purpose. We can see that the use of ChatGPT for students has benefits in helping their productivity, in addition to the current advantages not all uses of ChatGPT have a good impact if used in the realm of education, because the data presented by ChatGPT must also be processed again and developed again; it cannot be taken raw and used without responsibility in the realm of education. Students acquire knowledge about technical advancements, particularly the application of AI, such as ChatGPT, which is widely recognised by the public as a tool to facilitate their education. Consequently, the progression of technology enhances learners' insights and serves as a source of pride.

In this study, data from interviews, observations and documentation about the effect of using ChatGPT on productivity will be presented in table 1:

[Table 1. about here]

After the use of ChatGPT among students, many have been helped in terms of productivity. From its use, it can also save them time if they want to find a reference or even help with their daily work. From the triangulation results presented in Table 1, it shows that it helps a lot with productivity. The use of ChatGPT is not always used every day, but is used when they need it. Students have also begun to learn that the use of ChatGPT also has its limits and should not be used as a whole because the data provided is not fully given as well as the source. The following is the interpretation of the results from Table 1. Triangulation.

The use of ChatGPT, usually the use of ChatGPT among students is already familiar to them where a new technology that can help them solve problems in their daily lives as students. From the results of interviews, documentation, and observations, it can be concluded that the use of ChatGPT, especially for students, is only used when it is needed, such as doing assignments and helping their daily lives (Firaina & Sulisworo, 2023). Research indicates that students perceive ChatGPT as a trustworthy and reliable tool for learning, significantly influencing their adoption and usage patterns (Tiwari dkk., 2023). ChatGPT keeps serving what we need like an AI or artificial intelligence in Indonesian language, (Niyu dkk., 2024) which noted that ChatGPT serves as an effective tool in answering academic questions and facilitating the learning process. The picture above is an example of the use of ChatGPT for everyday students where it is also used to make plans to an area, it really helps students in Surakarta, especially those from outside Surakarta, to still be able to enjoy their city in addition to pursuing their education to completion.

The impact on productivity, from the results given by ChatGPT, does help productivity starting from shortening search results, but there are also opinions that

make the use of ChatGPT time consuming in terms of the resulting data that must still be processed again so as not to be exposed to plagiarism (Muhammad Nur Rachman Nidhi Suryono dkk., 2023). In the academic world, especially in Indonesia, there are many restrictions on the use of ChatGPT for the learning process, but if we use it wisely, of course ChatGPT can still shorten our time in working (Fauzi dkk., 2023). It shows that ChatGPT can increase student engagement in the learning process, by providing quick and relevant feedback (Maulana dkk., 2023)

The effect on learning, from the data presented by ChatGPT does not fully affect students because from ChatGPT it only shortens the time given in searching for something, but the data provided must still be processed again by students and should not be taken raw just like that. (Sahabudin, 2023) Noted that students often have difficulty in providing the right input to ChatGPT, which can lead to unsatisfactory results. This shows that skills in interacting with this technology are very important to maximize its benefits. If students are familiar with giving the right input to ChatGPT then this technology will be very useful in the future. So ChatGPT is not only a shortcut to solving problems, but it can also help them to think more critically. This is further supported by Nguyen, who notes that ChatGPT's ability to provide detailed feedback on student essays can enhance understanding and engagement in language learning (Nguyen & Tran, 2023)

Challenges and obstacles: from the data presented, the challenges and obstacles felt by students on ChatGPT are the limits of how far they can use it, because taking data from ChatGPT raw and without knowing where it came from and not listing the source can be subject to plagiarism. (Arochma, 2023) highlighted the importance of ethics in the use of ChatGPT, where students need to understand the limits and responsibilities in using this technology to avoid academic impropriety. For the future, perhaps lecturers or teachers can conduct socialization with the use of ChatGPT. Furthermore, in educational settings, the potential for academic dishonesty and the need for responsible implementation are significant considerations that educators must address (Tlili dkk., 2023)

[Figure 2. about here]

[Figure 3. about here]

[Figure 4. about here]

From the images presented about the use of ChatGPT, proving that the use of ChatGPT helps in any aspect according to the needs and fields, from education or even just daily life, such as making schedules, but from the many artificial intelligences, ChatGPT is the most recognised among the general public, so use it as well as possible because there is a lot of potential that will help us in the future if we are wise in using technology. The

Limitations in this study are that not many people want to be interviewed about the use of ChatGPT because, according to them, ChatGPT is still too private, or there are even some universities that prohibit its use while studying. Time is also limited in conducting this research, so maybe further research that discusses the same problem can be done in more detail.

CONCLUSIONS

The conclusion of this study found that the utilization of ChatGPT by students in Surakarta City can increase learning effectiveness by accelerating academic tasks. ChatGPT is proven to make it easier for students to get information and formulate answers quickly. However, there are challenges that include concerns about plagiarism and potential over-reliance on this technology. The use of ChatGPT or artificial intelligence in the future can be included in the learning curriculum so that students can still take advantage and can be used to develop their minds to be more creative and critical. for the future Students use ChatGPT as a tool, but it is important to continue to process the information obtained independently in order to maintain authenticity and in accordance with academic ethical standards.

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LIST OF FIGURE

1. Mind Maps about ChatGPT usage	44
2. Example of Commands Given to ChatGPT for Assignment Work	45
3. Examples of Commands Given to ChatGPT to Help Make Travel Plans to Help Students Get to Know the City They Live in or Just to Take a Vacation	45
4. ChatGPT Home Page	45

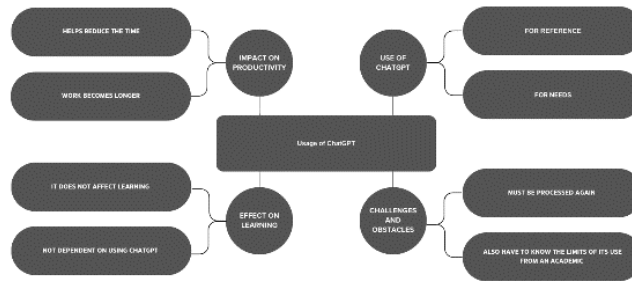


Figure 1 / Mind Maps about ChatGPT usage

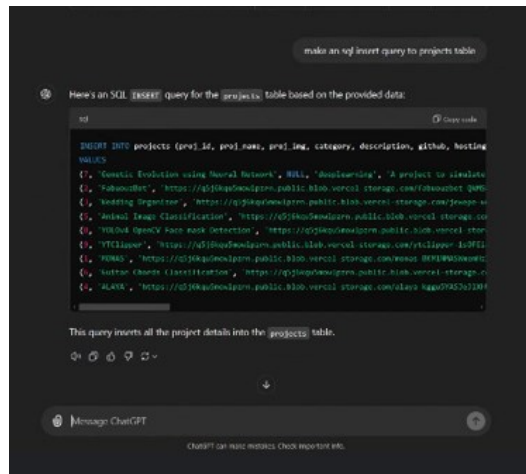


Figure 2 / Example of Commands Given to ChatGPT for Assignment Work

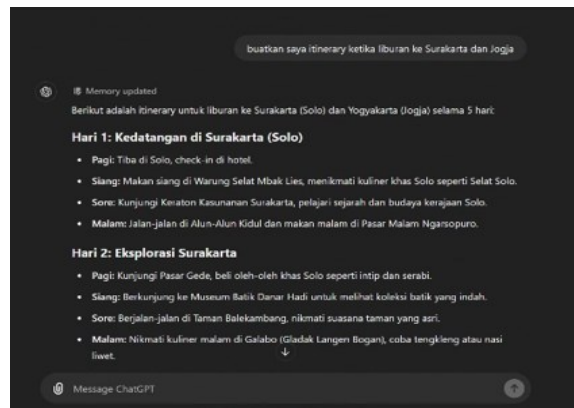


Figure 3 / Examples of Commands Given to ChatGPT to Help Make Travel Plans to Help Students Get to Know the City They Live in or Just to Take a Vacatio

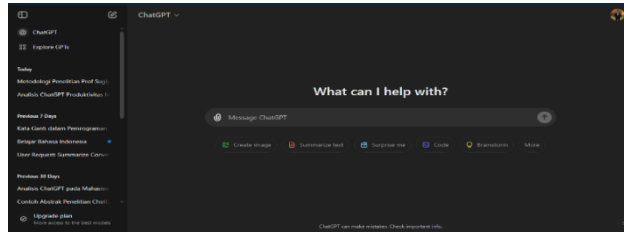


Figure 3 / ChatGPT Home Page

LIST OF TABLE

1. [Triangulation Result](#)44

Table 1 / Tringulation Result

Aspect studied	Interview	Technique	
		Observation	Documentation
1 Use of ChatGPT	Student A at UNIVERSITY A: "How often I use ChatGPT depends on what I'm doing, if I'm coding or studying I'll definitely use ChatGPT for reference."	Use is done only as needed, especially for learning.	Figure 1. Examples of commands given to ChatGPT for assignments Figure 2. Examples of commands given to ChatGPT to help make travel plans Figure 3. ChatGPT home page
	Student B at UNIVERSITY B: "I can't count how long I use it in a day because I only use it when I do assignments or want to find something that makes me curious but the answer is different from what is given in <i>Google</i> ."	The use of ChatGPT is only necessary when there is a need	
	Student C at UNIVERSITY C: "Use ChatGPT approximately once a week"	the use of ChatGPT is not that frequent	
	Student D at UNIVERSITY C "When I use gpt chat it usually depends on my needs and needs to do something"	use ChatGPT only when needed	
2 Impact on productivity	Student A at UNIVERSITY A: "Yes, ChatGPT can be used to cut down the time spent on assignments, as it may be able to generate the desired answer based on data evidence that can solve the problem."	ChatGPT helps reduce the time it takes to get an answer	
	Student B at UNIVERSITY B: "If you save, it's not entirely true, because if you use ChatGPT, you have to work twice to sort out what to use, so maybe the time constraint is there."	The data provided by ChatGPT is quite diverse and not from just one source so you have to sort out the answers that are appropriate and will be used.	
	Student C at UNIVERSITY C: "I think it is very helpful because sometimes the things you are looking for do not need to be searched on google and can directly ask ChatGPT."	what you are looking for can be directly asked to chatgpt without using other tools.	
	Student D at UNIVERSITY C: "Yes, it can save time because it helps us complete the tasks we want to do."	because the data presented by Chatgpt is very complete if the use is not too complex	
3 Effect on learning	Student A at UNIVERSITY A: "Until now I have never found it difficult to work without ChatGPT, this is because of the context of software development so ChatGPT does not always produce accurate answers and sometimes the answers are not reliable."	It does not affect learning because the conditions when using ChatGPT have different purposes.	
	Student B at UNIVERSITY B: "I don't find it difficult, because I'm not that dependent on ChatGPT"	Not dependent on using ChatGPT and can still work in the usual way	
	Student C at UNIVERSITY C: "I don't find it difficult, because if you don't use ChatGPT you can use other sources either on the internet or books."	not making ChatGPT a priority	

Aspect studied	Interview	Technique	
		Observation	Documentation
	Student D at UNIVERSITY C: "No difficulties and no dependence"	not relying on ChatGPT and not feeling troubled	
4 challenges and obstacles	<p>Student A at UNIVERSITY A: "In academic ethics the use of ChatGPT must be careful, as a tool ChatGPT can be useful but the results should not be taken as their own word without making modifications or understanding what is suggested."</p> <p>Student B at UNIVERSITY B: "because each campus has different regulations, some even prohibit the use of ChatGPT because it is considered plagiarism. So just be more careful in using it. If you think about yourself, as long as you use it well and don't be lazy to process it, it will definitely be useful."</p> <p>Student C at UNIVERSITY C: "About academic ethics and plagiarism I don't think it has anything to do with ChatGPT if it is used correctly because it also has to write in its own words and paraphrase"</p> <p>Student D at UNIVERSITY C: "In my opinion, the use of ChatGPT has positive and negative things, one of the negative things is plagiarism and makes students not think critically in solving a problem."</p>	<p>The data results provided by ChatGPT must be processed again because what is presented is a collection of many existing sources.</p> <p>We have to be careful in using ChatGPT because we also have to know the limits of its use from an academic point of view.</p> <p>not related to academic ethics because when using ChatGPT you also have to think about your own words</p> <p>has two different sides so it depends on the person using it.</p>	