



## Implications of ChatGPT as AI Tutoring System on Student Learning Outcome

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### ABSTRACT:

The general objective of this study was to determine the implications of Chat GPT as an AI tutoring system on students' learning outcomes. The researchers conducted a qualitative type of research employing purposive sampling with students enrolled in the Bachelor of Secondary Education major in Science program at Laguna University during the Academic Year 2023-2024. Findings revealed that Chat GPT is a highly versatile tutoring tool, widely used for various educational purposes. The participants emphasized its effectiveness in assisting with assignments, while some highlighted its role in helping educators create rubrics and lesson plans. Although fewer respondents noted its use for articles, research, and essays, the data suggests Chat GPT's broad applicability across academic tasks. The participants also found it valuable for generating ideas and information, significantly aiding in task completion and topic comprehension. Additionally, the tool was shown to enhance critical thinking skills, as students are prompt to evaluate the relevance and accuracy of information provided by the AI system, suggesting its potential for broad educational use.

**Keywords:** *Chat GPT 1, AI tutoring 2, student learning outcomes 3, knowledge acquisition 4, critical thinking skills 5, academic support 6.*

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### Introduction:

The advancement of technologies has led to different effects on the world and it impacts the lives of people. Technologies changed the way how people live by providing an immense support in various tasks, communication, health care, businesses, and most importantly in education. Technology in education made a positive impact by making it easier to learn, teach, and evaluate. One of the reasons why students can make their learning be more personalized is because of Artificial Intelligence (AI). The implementation of Artificial Intelligence (AI) on education helps students to learn at their own pace, receive additional assistance in the areas where they need it, and it improves their learning experience.

According to the United Nations Educational, Scientific, and Cultural Organization's book *AI and Education: Guidance for Policymakers*, Artificial intelligence (AI) can deal with some of today's most pressing educational challenges, develop methods of instruction and learning, and ultimately increase progress toward SDG 4. However, these immediate technological developments undoubtedly bring with them several risks and challenges that have substantially surpassed policy discussions and frameworks for regulation (*AI and Education: Guidance for Policy-makers, 2021*).

These AI-powered systems can offer real-time answers, responses, and instructions that adhere to the student's differences and needs, despite their background and geographical location. AI technology has the potential to drastically improve educational experiences in the Philippines by providing personalized, realistic, and engaging instructions to all students. Artificial intelligence systems have been introduced into the Philippine educational system as a result of continual advancement. Chat GPT is one example of such technology. The way students in the classroom learn, collect, and interpret information, as well as comprehend complex topics or concepts, has been significantly altered or influenced by these AI systems, specifically AI-powered tutoring systems.

At Laguna University, a large number of students are already familiar with AI-powered tutoring systems, most notably Chat GPT, which they utilize to acquire greater insight into multiple complex topics they come across when addressing tasks related to their academic studies. However, the inclusion of AI tutoring systems such as Chat GPT may pose several implications for students' learning outcomes. The researchers set out to examine the positive as well as challenging implications of Chat GPT on student learning outcomes that inform the effective and responsible use of AI tutoring systems in educational settings and guarantee that students benefit from these technologies while preventing potential drawbacks.

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### Methodology:

#### Research Design

In this study the researchers employed a qualitative type of research to determine the implications of Chat GPT as AI tutoring system on student learning outcomes of the students enrolled under the program Bachelor of Secondary Education Major in Science at Laguna University during the first semester of Academic Year 2023- 2024.

As cited by Mcleod (2023), qualitative research is the process of gathering, interpreting, and analyzing non-numerical data, such as language. It can be used to gain an understanding of how an individual subjectively perceives and interprets their environment as a whole. The main objective of qualitative research is to produce rich and comprehensive descriptions of the phenomenon being studied, as well as to discover new insights and interpretations. In addition, qualitative research can help to suggest potential relationships, implications, causes, and dynamic processes.

### Research Locale

This study was carried out in Sta. Cruz, Laguna, and in particular Laguna University. The location of the study was determined based on the accessibility and availability of the respondents.



Figure 2. Research Locale

### Population and Sampling Design

This study incorporates a non-probability sampling technique, specifically purposive sampling, on students enrolled in the Bachelor of Secondary Education Major in Science program at Laguna University during the first semester of Academic Year 2023-2024 as the population of interest.

### Research Instruments

The researchers used a survey interview to determine the implications of Chat GPT as AI tutoring system on the student learning outcomes of the students enrolled in the program Bachelor of Secondary Education Major in Science at Laguna University during the first semester of the academic year 2023-2024.

The survey interview consisted of three (3) questions designed to determine in what aspects and instances Chat GPT helps or assists users and whether it encourages them to evaluate if the generated responses are relevant to their questions. Thirty (30) selected respondents answered based on their opinions and experiences.

The researchers developed a survey interview questionnaire, which was then modified and validated by the instructors at Laguna University College of Education.

### Data Gathering Procedure

In this section, it shows the process of how the data in this study was gathered.

1. The researchers prepared a formal letter for the approval of the survey.
2. The researchers conducted a pre-survey to determine the target respondents who met the requirements.
3. After conducting the pre-survey, the researchers analyzed the data collected and identified the target respondents of the said study.
4. The researchers then began developing a survey interview by gathering information and data on the internet and reading materials that were relevant and related to their ongoing study.
5. Upon the approval of the survey interview, the researchers started to carry out the process of data collection.

### Management and Treatment of Data

The researchers employed thematic analysis to process the data and other relevant information obtained from the questionnaires, which were analyzed at the word and sentence levels to categorize and group the collected information. The researchers then used frequency counts and percentages in tabular form for better and simpler interpretation.

### Results

This chapter illustrates the findings, analysis and interpretation of data gathered whose main objective is to find out the implications of Chat GPT as a tutoring system on a student learning outcome.

In the never-ending changing world, technology is one of the most ever useful that mankind has made which helps humans to work at ease and faster. One of the greatest inventions that has been invented was artificial intelligence which is Chat GPT where it helps the sector of education, especially the students to work with their school works faster and save more time.

This thematic analysis explores the use of Chat GPT as a tutorial aid, focusing on its potential benefits and limitations by examining real-world examples and academic studies through survey interviews. The study aims to investigate how this AI-powered chatbot can assist students in their learning journey by providing personalized feedback, answering questions, and explaining complex concepts. Additionally, it will evaluate Chat GPT's effectiveness in simulating natural conversations and adapting to individual learning needs.

Table 1. Aspects in which Chat GPT can be utilized as a tutoring system

Aspect	Number of Students	Percentage
Assignment	9	30%
Lesson plan, Rubric	7	23%
Research/Thesis	5	17%
Essay	4	13%
Assessment Task	2	7%
Article	2	7%
Project	1	3%
<b>Total</b>	<b>30</b>	<b>100%</b>

Based on the data presented in the table derived from the survey interviews, the results indicate that Chat GPT functions as a versatile platform which addresses a variety of academic concerns and provides support for a wide range of tasks and assignments.

Specifically, nine participants pointed out that Chat GPT's main strength lies in assisting students with their academic assignments.

Participant 1: *"For me ano working on my projects, assignments, and research."*

Participant 2: *"Chat GPT helps me in doing my assignment, essay, and other activities in school."*

Participant 10: *"I use Chat GPT to paraphrase my answers in assessment tasks."*

Participant 11: *"For me, Chat GPT assist us by generating responses in doing tasks."*

Participant 12: *"It helps me come up with fresh ideas, explore different angles and find relevant information much faster in doing assignments."*

Participant 18: *"Chat GPT helps me in studying, especially sa mga paggawa ng assessment task, sa mga essays na binibigay ng mga teachers."*

Participant 24: *"For me, yung Chat GPT nagagamit ko siya specifically in doing assignments."*

Participant 29: *"Research assistance whenever we need to gather information for a research paper or project, I could simply ask Chat GPT to assist me."*

Participant 30: *"When I was doing essays or if I'm struggling to think an idea. Nabibigyan nya po ako ng ideas kung pano ko sasagutan yung tanong na hindi ko maintindihan/masagutan."*

While, seven respondents brought up the tool's usefulness in aiding the creation of rubrics and lesson plans, demonstrating how it supports educators in structuring lessons and establishing assessment criteria.

Participant 3: *"For our lesson plan when I'm doing a lesson plan and activities need that a rubric, I'm using Chat GPT to get a rubric." "I use Chat GPT for creating a rubric for my activities that I'm doing in my lesson plan so that it will be less hassle for me. And also, for generating ideas."*

Participant 5: *"Ah, Chat GPT assist me in making rubrics in my lesson plan po." "For example, po, kapag po na hindi ko po siya totally kinukopera, nakuha lang po ba ng idea kung paano ko po gagawin yung essay at yung sa pagagawa po ng rubric."*

Participant 9: *"The task that Chat GPT always help me is doing creating lesson plan." "Chat GPT helps me on giving an idea that I can start on making a specific activity, especially sa paggawa ng lesson plan."*

Participant 10: *"Chat GPT assisted me in creating lesson plan so nag serech ako ng mga activities para magkaroon ako ng ideas about sa activity na gagawin ko."*

Participant 18: *"Nakakatulong po siya sa kinikita ng mga assessment task and tatanungin ko po si Chat GPT if relevant po ba or irrelevant yung information or authentic po yung information na ilalagay natin sa assessment task."*

Participant 21: *"In creating a lesson plan."*

Participant 29: *"By answering some of my queries such as script for acting, rubrics."*

Although response numbers for other aspects such as articles, assessment tasks, projects, research, thesis, and essays were lower, the collective input indicates a wide range of applications for Chat GPT within the academic domain. It has emerged as a tool in education, reshaping traditional learning by enhancing access to information, supporting varied academic tasks, and making things easier for learners.

In relation to the study of Alafnan et al. (2023) discuss Chat GPT's potential as an educational tool, proposing its integration into communication and business writing courses, with an emphasis on ethical usage and responsible integration within educational settings. It also leverages deep learning and powerful algorithms to perform various language-related tasks, such as text generation, question answering, and translation, while comprehending context to produce responses that resemble human language, Lund and Wang (2023). Besides, Vidal (2022) explains that AI is employed for its potential to offer intelligent tutoring services, adaptive learning platforms, and personalized learning systems. This denotes that Chat GPT serves its purpose and is an aiding tool for academics of students. Table 2. *Utilization of Information/Knowledge Acquired from Chat GPT*

Knowledge Acquisition	Number of Students	Percentage
Generating ideas/ information	22	73%
Expounding Knowledge	8	27%
<b>Total</b>	<b>30</b>	<b>100%</b>

The table shows that the majority of the participants answered that ChatGPT has become a valuable tool for knowledge acquisition, particularly in generating ideas and relevant information to facilitate the completion of academic tasks, which is the most prominent response by the respondents.

Participant 2: *"Chat GPT helps me in doing my assignment, essay, and other activities in school. Example is, in writing an essay, Chat GPT helps me to broaden my knowledge about the topic that's given to me."*

Participant 8: *"For me as a student, madalas ko siyang nagagamit for outlining at para po ma-summarize yung isang article and marami pa pong iba."*

Participant 12: *"Usually, Chat GPT helps me to rephrase complex academic concept into simpler language or summarize key points from the length text."*

Participant 13: *"Yung information na na-generate niya ay nakakahelp para mas ma-deepen yung ideas ko. Tapos nag-gather din siya ng information for me."*

Participant 19: *"I just command Chat GPT to provide me answer on some questions and after that, when I receive or I get the answers from Chat GPT. I will modify it to fit my likings or the concept."*

Participant 25: *"For example, I used Chat GPT in grammar checking. Chat GPT is free. So, ginagamit ko siya for grammar checking."*

Participant 26: *"So, Chat GPT helps me recently nung naghahanap ako, especially doon sa teaching approaches. So, natulungan ako ng Chat GPT na ma-identify all those teaching approaches that we need in our field study subject."*

Participant 30: *"When I was doing essays or if I'm struggling to think an idea. Nabibigyan nya po ako ng ideas kung paano ko sasagutan yung tanong na hindi ko maintindihan/masagutan."*

On another note, ChatGPT has also proven valuable in expanding their understanding of a specific topic when seeking ideas.

Participant 2: *"Chat GPT helps me to broaden my knowledge about the topic that's given to me."*

Participant 6: *"It helps me in expounding more knowledge, giving me examples, clear examples... so I can give more knowledge or answer in my questions."*

Participant 9: *"Chat GPT helps me on giving an idea that I can start on making a specific activity, especially sa paggawa ng lesson plan."*

Participant 12: *"Chat GPT helps me to rephrase complex academic concepts into simpler language or summarize key points from the length text."*

Participant 13: *"Yung information na na-generate niya ay nakakahelp para mas ma-deepen yung ideas ko."*

Participant 19: *"I just command Chat GPT to provide me answer on some questions and after that, when I receive or I get the answers from Chat GPT, I will modify it to fit my likings or the concept."*

Participant 26: *"So, Chat GPT helps me recently nung naghahanap ako, especially doon sa teaching approaches. So, natulungan ako ng Chat GPT na ma-identify all those teaching approaches that we need in our field study subject."*

As Chat GPT advances, they provide new avenues for knowledge acquisition, personalized learning, and critical thinking development, but it also presents ethical challenges. In support, Liu (2023) discusses ChatGPT's high accuracy AI academic content generator, emphasizing its convenience for learners. Similarly, Dantas et al. (2023) highlight ChatGPT's effectiveness in generating clean, convention-aligned code snippets compared to both human and CROKAGE recommendations, underscoring its utility beyond text-based applications.

On another note, studies by Tlili et al. (2023) suggest that ChatGPT's interactive and personalized learning experiences can significantly boost student engagement and outcomes, especially in technology-based fields. Further supports this, identifying ChatGPT's potential in fostering self-determined learning by providing personalized feedback and resources that bolster skill acquisition, Baskara (2023). However, concerns regarding misuse are present, with King (2023) pinpoints caution against possible cheating and plagiarism, whereas advocating for ethical guidelines to manage these risks. This viewpoint aligns with Rege and Yarmoluk's (2023) observations on ChatGPT's potential to reduce cognitive load by managing repetitive tasks, thereby allowing students to focus on more critical thinking endeavors.

Critical thinking and responsible AI use are recurring themes, especially in Perera and Lankathilaka's (2023) work, which examines AI's role in enhancing knowledge transfer and encouraging analytical skills. The adaptability of ChatGPT to various educational contexts is further supported by Filipino student perspectives shared by Banzuelo (2023), showing its value in diverse learning environments. As per Alipio (2023) ChatGPT's contribution to health sciences is helpful as it becomes an interactive, responsive assistant capable of simplifying complex medical ideas and aiding learning at various levels of expertise.

It is noted that there are profound potential and pitfalls regarding ChatGPT uses. It underlined that while ChatGPT may enhance learning, it is essential to maximize the responsible use and ethical considerations of its benefits.

Table 2.2. *Application of Information Gained from Chat GPT to Develop Critical Thinking Skills*

Critical Thinking Skills	Number of Students	Percentage
Evaluating/ assessing information if it's correct and accurate	19	63%
Examining information if it's aligned and relevant to the questions	6	20%
Relating provided information to prior knowledge and to the concept	5	17%
<b>Total</b>	<b>30</b>	<b>100%</b>

The data illustrates that ChatGPT has influenced participants' critical thinking skills, especially in terms of assessing and evaluating the information it generates.

Additionally, the responses of the participants indicate that despite the benefits and usefulness of ChatGPT in supporting their studies, participants emphasize the importance of double-checking the accuracy of the answers it provides. So, participants are still scrutinizing whether the information provided by Chat GPT is factual and proper to the questions and topics at hand.

Participant 2: *"I evaluate the information generated para malaman if relevant siya sa question."*

Participant 4: *"Chat GPT encourage me to evaluate. Actually, if you are using mobile phone, po, at the bottom screen, Chat GPT says that it can make mistakes. So, consider checking important information, po."*

Participant 7: *"Yes, because not all answers in Chat GPT are accurate. So, you need to check it and review also."*

Participant 9: *"Yes, it's good to analyze if the information is not relevant to the activity. Kaya kailangan as a student and as an educator, magaling kang mag-filter ng information and hanapin lang yung specific data na kailangan mo para dun sa activity."*

Participant 10: *"For me, yes as a student... kapag may kailangan akong information na parang isasagot, dun ko siya nakukuha then chinecheck ko din kung relevant ba siya."*

Participant 12: *"Yes, Chat GPT encourages us to always check the details by a short reminder says that, di ba yung Chat GPT kapag ginagamit tayo nun, may note dun na sabi niya, Chat GPT can make mistakes. So, consider checking important information lagi."*

Participant 18: *"Nakakatulong po siya saakin if magagawa nga po ako ng assessment task and tatanungin ko po si Chat GPT if relevant po ba or irrelevant yung information or authentic po yung information na ilalagay natin sa assessment task."*

Participant 25: *"Yes, since Chat GPT can cover information within 2021 and recent. So, I make sure to double-check yung information na binibigay if it is reliable and accurate."*

To support these findings, Perera and Lankathilaka (2023) emphasize the ability of artificial intelligence (AI) to address learning issues, including enhancing knowledge transfer, clearing up misconceptions, and fostering the development of critical thinking abilities in students. Artificial intelligence, particularly AI models like ChatGPT, has sparked substantial interest in its role as a tool to enhance critical thinking and self-directed learning in educational settings. Similarly, Caratiquit and Caratiquit (2023) highlight ChatGPT's effectiveness on academic performance hinges on student learning motivation. Its effective and ethical use can significantly enhance motivation, fueling educational progress and achievement. Likewise, ChatGPT helps reduce cognitive load by automating simple tasks, enabling students to focus on complex, critical-thinking-oriented activities, Rege and Yarmoluk (2023). This aligns with Shanto et al. (2024), who found that students benefited from ChatGPT's support in idea generation and critical analysis. However, Shanto et al. also warn against over-reliance on AI, stressing the importance of maintaining a balance between independent thought and AI assistance. While ChatGPT can be a valuable asset in promoting critical thinking, it is essential to pair its use with guidance that encourages students to critically evaluate AI-generated content.

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## Conclusion

Based on the data presented in the tables from the survey interviews, the findings indicate that Chat GPT is a versatile tutoring system that meets a variety of educational needs and provides support for a wide range of tasks and assignments. Specifically, nine participants highlighted Chat GPT's primary strength in helping students with assignments, while seven respondents noted the tool's usefulness in supporting the creation of rubrics and lesson plans, which show educators how to structure lessons and develop assessment criteria. Although response numbers for other aspects such as articles, assessment tasks, projects, research, thesis, and essays were lower, the collective input indicates a wide range of applications for Chat GPT within the academic domain. Moreover, the majority of participants reported that Chat GPT has helped them in acquiring knowledge, particularly in generating ideas and information to complete their school tasks, which yielded the highest percentage results in the survey. Additionally, Chat GPT has proven beneficial in expanding their understanding of specific topics when seeking ideas, indicating that respondents are able to utilize and maximize the potential of Chat GPT for their school-related tasks. Furthermore, the data illustrates that Chat GPT has had an impact on the participants' critical thinking skills, particularly in assessing and evaluating information generated by Chat GPT. Participants are scrutinizing whether the information provided by Chat GPT is aligned and relevant to the questions and topics at hand.

## Recommendation

Based on the results and conclusions that we're mentioned above the following are recommended.

1. Make use of Chat GPT as an additional tool to enhance your learning experience. Although it is capable of offering immediate data as well as insights, it must be cross-referenced with reliable sources to ensure reliability.
2. Employ Chat GPT in the classroom as a learning aid to promote engaging and adaptive learning experiences. However, make sure that it supplements rather than replaces traditional teaching methods, and direct them regarding how to properly utilize the said AI tutoring system.
3. Incorporate ethical AI usage education into the school curriculum, emphasizing responsible usage of Chat GPT as a tutoring system.
4. Allocate resources for ongoing studies and developments to enhance the accuracy and reliability of AI tutoring systems. Promote collaboration between educational institutions and AI developers in order to create effective and safe learning tools.
5. Continuous research should be conducted for assessing the impact of AI tutoring system on student learning outcomes and to determine areas for future improvement.

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List all the material used from various sources for making this project proposal

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