Perceptions of Primary School Teacher Education Students to the Use of ChatGPT to Support Learning in the Digital Era

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***Abstract*—Technology advancements like Chat Generative Pre-Trained Transformer (ChatGPT) have given the educational sector new advantages as well as difficulties and demands. Academics often differ on the benefits and effectiveness of implementing ChatGPT in the classroom. It is important for students who use ChatGPT in classroom learning to express their views on the use of ChatGPT. Therefore, this study aims to explore students' perspectives in higher education towards utilizing ChatGPT as support for learning in the digital era. A mixed-methods—quantitative and qualitative research design is being used in this study. Forty-five University of Mataram Indonesia students studying elementary school teacher education participated in the research. Interviews and the distribution of questionnaires were used to collect research data. The conclusion of this study states that students find it easy to use ChatGPT. The use of ChatGPT is considered to increase their knowledge, provide fast and accurate answers to questions, and is able to increase the efficiency and effectiveness of learning time. In addition, students stated that the use of ChatGPT can provide additional motivation in the learning process. However, they have not been able to become more motivated to learn by using ChatGPT. They worry about unjust evaluations and the possibility of plagiarism, which can weaken one's capacity for critical thought. Based on the study's findings, experts recommend more investigation into ChatGPT's potential to improve student motivation in the classroom.**

***Keywords*—perceptions, primary school teacher education student, ChatGPT, learning, digital era**

I. Introduction

With its launch in January 2023, ChatGPT has become the most popular app ever. There will be 100 million active users by January 2023 [1]. Open AI created ChatGPT (Generative Pre-Trained Transformer), an artificial intelligence language model that can mimic human speech or writing [2–6]. Its application in the classroom has a lot of potential advantages, including raising student interest, enhancing the educational process, and enhancing instructional strategies [6–8].

According to the research of Bozkurt *et al.* [9], ChatGPT can accurately and helpfully answer a variety of queries and assist students in completing assignments, including writing essays and scientific papers [10–12]. Furthermore, according to the research of Wang and Chen [13], ChatGPT can boost student enthusiasm and activity levels, which could lead to better learning outcomes. Additionally, ChatGPT facilitates independent online learning [14–16]. Students are drawn to ChatGPT because of its many advantages and convenience. However, ChatGPT also presents several hazards and obstacles in the field of education. Providing student assessments and evaluations is one of these issues. Plagiarism can occasionally occur when completing tests or tasks [17–19]. Accordingly, Grassini [20] used plagiarism detector technologies to assess the originality of student writing, discovered that it was exceedingly difficult to discern between ChatGPT's work and material created by humans. There is little doubt that scholars in the field of education are concerned about this.

Two months after its launch, researchers found that 25% of students were utilizing ChatGPT to complete homework while they were studying. The tasks in question are classified as learning tasks or tasks that students can finish using ChatGPT. The assignments include problem-solving, conceptual understanding, and other learning activities related to using ChatGPT as a tool. Use ChatGPT to support their educational journey. This could cover a wide range of topics, including science, math, language, and more. Students who struggle with tough or complex subjects can benefit from using ChatGPT. It can answer students' questions about the subject matter or offer more thorough explanations. Students can get help addressing a variety of difficulties by using ChatGPT. The model can lead students through the required processes in problem-solving by offering solutions or suggestions.

According to a poll, 53% of American college students used ChatGPT to create papers and approximately 89% of them utilized it for completing tasks. Furthermore, according to the research of McGee [21], 22% of students utilized Chat GPT to produce scientific writing and 48% of students used it during tests. Several universities and schools abroad have prohibited the usage of ChatGPT after noticing this occurrence and labeling it a "threat" and an "education epidemic".

According to the research of Rosenzweig, the Los Angeles Unified School District and the New York City Department of the Education District prohibited the use of ChatGPT in their schools last month in December 2022, as indicated in the article by Setiawan and Luthfiyani [22]. The usage of ChatGPT is prohibited because it hinders students' ability to acquire critical thinking and problem-solving skills, which are essential for success in the classroom and beyond. It is impossible to ignore the discussion that took place among academics regarding the advantages and disadvantages of utilizing ChatGPT. ChatGPT has advanced significantly, but there are also worries over its improper use [23–25].

ChatGPT recognition as mentioned in several research results [3, 26–30] is the main topic of most of studies and

reports discussing ChatGPT. According to the research that is currently available, not much is known about how students see themselves when using ChatGPT for learning. Examining student views is crucial because it affects their academic performance, motivation to study, and participation in the learning process. Perception research was done to find out how an individual or group would react, accept, or see a certain issue. To build or enhance the learning process, this perspective can also be used as evaluation and reference material.

This study is critical because it captures university students' opinions and reactions to ChatGPT use in the context of digital learning, which makes it urgent. This research can help universities and related technology developers improve the quality of the learning experience for students by providing useful insights into the perceptions, knowledge levels, satisfaction, motivation, and engagement levels of university students.

However, this study's uniqueness comes from its in-depth examination of ChatGPT's application in higher education. This study aims to address particular and pertinent concerns concerning the perspectives, knowledge, motivation, satisfaction, and involvement level of students. Understanding how technology affects university students' experiences is a fresh and important addition at a time when technology is rapidly altering the way we learn. Additionally, this study lays the groundwork for ChatGPT's growing usage in the context of higher education.

The understanding and opinions of university students regarding the use of ChatGPT in the current digital environment were the main focus of this research topic. Key elements including usability, degree of knowledge acquired, motivation, contentment, and degree of student involvement with ChatGPT were among the issues that were found to be problematic.

Finding out how university students feel about using ChatGPT for studying in the current digital environment is the goal of this study. The features or indicators to be investigated in this study evaluate how students perceive the benefits of using ChatGPT, how much knowledge they learn from it, how satisfied they are with how quickly, and accurately it responds to their questions, and how university students feel about ChatGPT's ability to boost their motivation and encourage active learning. According to the above definition, the Research Question (RQ) is:

- RQ (1). What is the student's university perception of the ease of using ChatGPT?
- RQ (2). How does the student's university perceive their knowledge in using ChatGPT?
- RQ (3). How satisfied are students, university with using ChatGPT?
- RQ (4). How are students, university motivated to use ChatGPT?
- RQ (5). How active are students in using ChatGPT?

II. Literature Review

The speed and scope of technical advancements nowadays are accelerating. Students now find it convenient to provide written or spoken support for their studies. Education has been greatly impacted by this technological advancement. One is intended for postsecondary education. The current generation must benefit from advances in digital technology since they can simplify daily living [31, 32].

Information development calls on every aspect of higher education to change to stay up to date with technology, including the teaching profession. As technology advances, the education industry must likewise adjust to maintain its level of competency and skill. Artificial Intelligence (AI) is one of the technologies in question [33, 34]. Artificial Intelligence (AI) is a system that exhibits intelligent behavior to accomplish a certain task; it is implemented as a computer program that can run independently or be integrated into hardware for specific purposes [35]. AI is a technology that enables computers to perform tasks that would normally require human intelligence, such as decision-making, voice and image recognition, and natural language processing. In the Industry 4.0 era, the existence of Artificial Intelligence (AI) has changed various aspects of human life, including the scope of industry, complexity, and transformation [36].

Along with the advancement of artificial intelligence, new opportunities arise in various fields, including education. The use of artificial intelligence in student learning has become an increasingly relevant issue in the context of education [37, 38]. This issue we may conclude that this is quite beneficial in day-to-day living. Using ChatGPT is one of the advancements in Artificial Intelligence (AI) in the Fourth Industrial Revolution. Talk about ChatGPT, also known as Generative Pre-Trained Transformer. first created for the first time by an American startup named OpenAI.

According to the research of Mondal *et al.* [39], OpenAI is a technology business that specializes in the creation and development of AI-based technologies. The capabilities of AI are explained by Kanbach *et al.* [40]. AI is present in GPT chat and allows for the learning of a wide range of topics, both simple and complex, and can yield pertinent replies. However, because the sources are derived from online data, the responses aren't always precise. Thus, it may influence an incorrect reaction.

To provide a personalized response to questions posed, the GPT chat process is conducted as a discussion between two people [41–43]. ChatGPT is frequently used to respond to a case that an instructor presents during a task. The ChatGPT platform is widely favored by diverse demographics. Five days after its inception, ChatGPT breaks the record for being the platform with the quickest user growth, having reached one million members in just five days [44]. A lot of pupils use this app instead of doing an assignment that the teacher assigns. A lot of students use this ChatGPT chat to finish their final project's thesis [45]. This situation creates a challenge for the education system. Some lecturers think that interacting with ChatGPT can be risky and make students' learning outcomes in high school and college suffer, because it is difficult to distinguish whether the response comes from the student or ChatGPT. [23, 46, 47]. Completing assignments pertaining to resumes, summaries, tests, and article writing is also part of this for accounting students.

In the sphere of education, instructors find ChatGPT and other forms of artificial intelligence and information to be highly helpful. ChatGPT can assist teachers with a range of tasks, including creating study materials, offering advice to

students, performing research, enhancing the caliber of written work, and boosting productivity and efficiency at work [6, 8, 48]. Educators can also use it to rapidly assess student work and provide feedback, which has been demonstrated by Winstone and Boud [49], and Haleem *et al*. [50]. Researchers can employ ChatGPT in writing to create a framework to start their work. ChatGPT is self-repairing, which not only makes text drafting faster and more efficient, but also allows researchers to focus on other academic activities, such as teaching, research, or contributing to society.

In addition to ChatGPT's practicality and ease, it has a concerning tendency in the field of education [51, 52]. With ChatGPT, learners do not just rely on theory or experience anymore [53]. The statement emphasizes how crucial it is to strike a balance between preserving the value of students' thoughts and experiences and utilizing technology (ChatGPT) as a tool. It encourages a holistic method of instruction—all you have to do is type (bind input) and the solution will display based on what you wrote. In this manner, a decrease in the quality of education would also be improved. This is true because using ChatGPT to compile articles is simple and has led to plagiarism [53, 54].

The possibility of plagiarism is the main issue with using ChatGPT. Although the model is capable of generating responses based on input, there is a chance that the final product may be overly similar to previous inputs. Academic integrity and authenticity may suffer as a result. Education quality is likely to suffer if the learning process is reliant on ChatGPT-generated content [55]. Active student participation, debate, and independent inquiry are necessary for quality education and may be absent from this automation approach. It's possible that articles produced by ChatGPT do not always grasp certain situations or subtleties. ChatGPT can provide accurate and relevant answers to students' questions, however, sometimes, the answers are only brief information without considering the broader context and situation.

Students' concerns about the unfairness of subjective assessment can be one of the factors that trigger plagiarism. Students may feel that their final assignment grading is unfair or subjective, so they feel the need to copy or take ideas from other sources to improve the quality of their assignments [56]. Therefore, it is important to take a proactive stance against academic cheating and uphold the principles of honesty, integrity, and originality in the academic environment. Some actions that can be taken by lecturers to avoid plagiarism in the final project, which include: (a) Provide a clear explanation of what plagiarism is and its consequences; (b) Encouraging the use of accurate and relevant reference sources; (c) Teaching the correct ways of citing and writing a bibliography; and (d) Checking the final assignment using plagiarism detection software. Lecturers can provide detailed explanations to students about what is considered plagiarism, including its definition and types. In addition, emphasis on the consequences of plagiarism can also help students understand its negative impact on their academic integrity and career.

III. Materials and Methods

Both quantitative and qualitative methodologies are used in this kind of study. Google Forms questionnaires were distributed to gather quantitative data. A closed questionnaire featuring a Likert scale and five possible responses—Strongly Agree with score 5, Agree with score 4, Less Agree with score 3, Disagree with score 2, and Strongly Disagree with score 1—was distributed. The Likert scale is used to gauge people's attitudes, presumptions, and responses to social phenomena, either individually or in groups [56–58]. This method offers a spectrum of replies rather than a binary category, allowing for a more nuanced assessment of participants' perceptions, beliefs, or attitudes. It makes it possible for researchers to distinguish minute differences in respondents' ideas, determining whether or not participants agree, and how strongly they hold their viewpoints.

Furthermore, a multi-point scale offers a greater variety of response alternatives, which lessens the possibility that respondents will feel pressured or coerced to select a single category when their opinions may lie in the middle between Agree, and Disagree. As a result, the diversity of viewpoints among the research population may be more accurately represented. Thirty Mataram University Primary School Teacher Education students participated in the study as responders, and each of them had previously heard of and utilized ChatGPT.

In this study, a stratified random sampling technique was used to randomly select participants from each stratum that has been determined based on certain criteria. A total of 45 students from Universitas Mataram Indonesia participated in this study, with the selected participants being 5th-semester students who were able to use and familiar with the ChatGPT application. In addition to using questionnaire instruments, data collection was also carried out through interviews with respondents who had filled out the questionnaire and were willing to be interviewed. The purpose of this interview was to find out more about students' perceptions of the use of ChatGPT in the learning process.

There are sixteen statements in the questionnaire used in this study. Following the categorization of statements into indicators according to the study variables, the validity and reliability of the indicators are examined to make sure the measurement tools are reliable and accurate in capturing the intended data. Reliability indicates the degree of consistent outcomes being measured, whereas validity evaluates the degree of truth of something being measured. Reliability is the degree to which measurement results are consistent and dependable, whereas content, construct, and empirical validity are examples of validity. To make sure that the measurement tools being used are appropriate for the study's goals and can be counted on to gather reliable, accurate data, validity, and reliability testing are crucial. Table 1 displays the results of the validity and reliability tests.

At a significance level of 5%, all estimated r values are greater than r-table, according to the validity test findings in Table 1. Therefore, it can be said that every statement in the questionnaire was deemed valid and approved for use in the subsequent research phase.

Table 1. Validity test results

Indicator	No	Statement	*r*-count	*r*-table	Note
Ease	1	ChatGPT is easy to use and access	0.684	0.294	Valid
	2	I find it easier to complete academic tasks using ChatGPT	0.785	0.294	Valid
	3	The explanations or answers provided by ChatGPT are easy to understand	0.820	0.294	Valid
Knowledge	4	ChatGPT helps me find new knowledge	0.812	0.294	Valid
	5	ChatGPT can help me improve my understanding of a subject	0.822	0.294	Valid
	6	ChatGPT can enhance my critical thinking skills	0.810	0.294	Valid
	7	ChatGPT improves my understanding of technological innovations	0.736	0.294	Valid
Satisfaction	8	ChatGPT is very interesting and enjoyable to use in the learning process	0.774	0.294	Valid
	9	I am very satisfied with the accuracy of the answers provided by ChatGPT	0.791	0.294	Valid
	10	I am very satisfied with the speed of ChatGPT in answering my questions	0.813	0.294	Valid
	11	ChatGPT helps me use my time as efficiently as possible	0.792	0.294	Valid
	12	I often use ChatGPT	0.670	0.294	Valid
Motivation	13	ChatGPT can motivate me to learn	0.784	0.294	Valid
	14	ChatGPT can motivate me to write scientific papers	0.764	0.294	Valid
Activeness	15	ChatGPT makes me more active in learning	0.840	0.294	Valid
	16	ChatGPT enhances my creativity in learning	0.798	0.294	Valid

Table 2 shows that the reliability test findings yielded a reliability coefficient value (Cronbach Alpha) of 0.917 for all indicators, which is greater than 0.6. This indicates that the research instrument is dependable. The produced questionnaire instrument can be employed at the next stage of the study based on the findings of validity and reliability tests.

Table 2. Reliability test results with Cronbach Alpha

Statement Number	Item Variance	Total Item Variance	Total Variance	Reliability
1	1.3	18.692	181.161	0.917
2	0.861			
3	1.072			
4	1.210			
5	1.376			
6	1.225			
7	1.018			
8	0.952			
9	1.158			
10	1.279			
11	1.007			
12	1.604			
13	1.136			
14	1.128			
15	1.179			
16	1.181			

In addition to employing a questionnaire instrument, many respondents who had completed the questionnaire were interviewed to obtain data. Using a purposive sample technique, interview subjects were chosen based on three criteria: they understood ChatGPT's purpose, had used it at least three times in their learning process, and were willing to participate in an interview. The purpose of this interview is to understand more about how students see the use of ChatGPT in the classroom [59].

The researcher employed a structured interviewing method in this one. Written questions that have been preplanned and prepared are the research instruments that researchers use when conducting structured interviews. A study technique called structured interviews is used to gather data using pre-planned research tools including written questions and questionnaires [60]. When interviewees are asked for their thoughts and opinions, the goal of structured interviews is to uncover issues more candidly.

Interviews were performed with questions based on the student perception indicators that were researched. These indicators included the students' opinions of ChatGPT's convenience, the knowledge they gained from using it, their satisfaction with it, how it increased their motivation to learn, and how it increased their engagement in the learning process. Next, a qualitative analysis was conducted on the interview data utilizing five different student perception variables.

IV. Result and Discussion

A. Perception of Ease of Use

The evaluation of three characteristics of respondents' use of ChatGPT—ease of use and access, ease of utilizing ChatGPT to complete academic assignments, and clarity of explanations or replies offered by ChatGPT—results in Fig. 1. For accessibility and ease of use, respondents generally rated ChatGPT highly (scoring 3 to 5). Several respondents (including those numbered 2, 21, 22, and 25) provided low scores (1 to 2), possibly as a result of problems or discontent with using or accessing ChatGPT.

According to the majority of respondents, ChatGPT made it simpler for them to do academic assignments (scoring 3 to 5). Respondents 15, 32, and 39 are among the exceptions with lower ratings, which would suggest that there is room for development in this area. Most respondents said ChatGPT's explanations and responses were simple to grasp (scoring 3 to 5). Respondents 2, 11, 26, and 43 have given comparatively low scores, suggesting that the answers' clarity or user comprehension might could be improved.

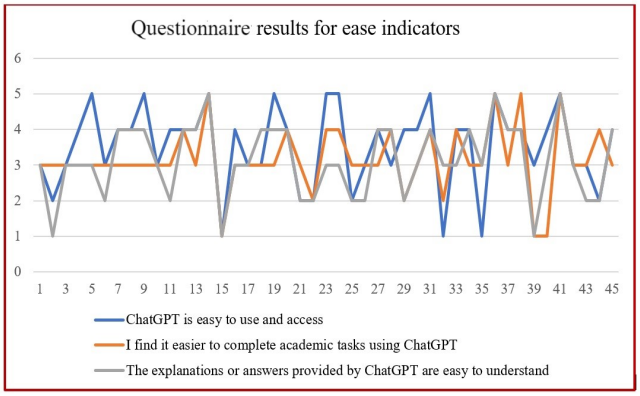

Fig. 1. Results of the perception of ease of use.

With scores that tended to be high, most respondents provided ChatGPT an overall positive evaluation. Increasing

accessibility, providing clearer explanations or responses, and comprehending variations in respondents' satisfaction levels are a few areas that might need improvement.

B. Perception of Knowledge

Fig. 2 presents participants' opinions about four areas of ChatGPT: assisting in the discovery of new information, enhancing comprehension of a subject, refining critical thinking abilities, and enhancing comprehension of technological advancement. Most respondents (i.e., scores above 3) gave ChatGPT a positive overall evaluation for its ability to facilitate the discovery of new information. Although respondents' scores varied, most of them tended to concur that ChatGPT helped them learn new information.

The majority of participants rated ChatGPT's capacity to increase their subject comprehension favorably. There are a few low-scoring exceptions (respondents 2, 10, and 21), which might point to perceptual gaps or the need for development. The majority of participants evaluated ChatGPT's capacity to foster critical thinking abilities favorably. The majority of respondents gave ChatGPT excellent ratings, suggesting that they thought it was beneficial for honing their critical thinking abilities.

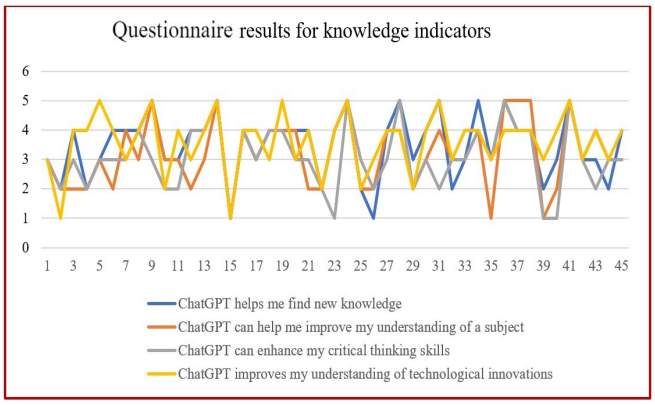

Fig. 2. Knowledge perception questionnaire results.

The majority of participants evaluated ChatGPT's capacity to deepen their comprehension of technological innovation favorably. Certain respondents (refer to numbers 2 and 36) provided low scores; this could be because of varying expectations or individual experiences with technological advancement. The majority of respondents felt that ChatGPT can be a useful tool for learning new information, expanding one's knowledge of a subject, sharpening one's critical thinking abilities, and understanding technological advancement. Numerous variants and poor scores can serve as useful information for additional assessment and development.

C. Perception of Satisfaction

Fig. 3 displays respondents' evaluations of the aspects of using ChatGPT in the learning process which include the ease of use of ChatGPT, evaluation of the reliability and intuitiveness of the ChatGPT application interface, and the availability of features that make it easier for users to use the application. In addition, the evaluation also covers the aesthetic aspects of ChatGPT regarding the visual design and presentation of the ChatGPT application, including the ergonomic and consistent feel of the graphical elements.

The majority of responders (scoring 3 to 5) said ChatGPT was intuitive and enjoyable to use for learning. Although opinions vary, most respondents believe that ChatGPT is an engaging and enjoyable tool. Scores ranging from 3 to 5 indicate that most respondents thought ChatGPT's answers were accurate. The majority of respondents expressed satisfaction with ChatGPT's accuracy of response.

Most respondents (scores ranging from 3 to 5) thought that ChatGPT answered queries quickly. The majority of respondents are happy with ChatGPT's response time. The majority of responders (scoring 3 to 5) thought that using ChatGPT was a time-efficient option. The respondents observed that ChatGPT enabled them to make effective use of their time. The majority of respondents (scoring 3 to 5) gave high marks for how frequently they used ChatGPT. The bulk of responders seem to use ChatGPT for learning regularly.

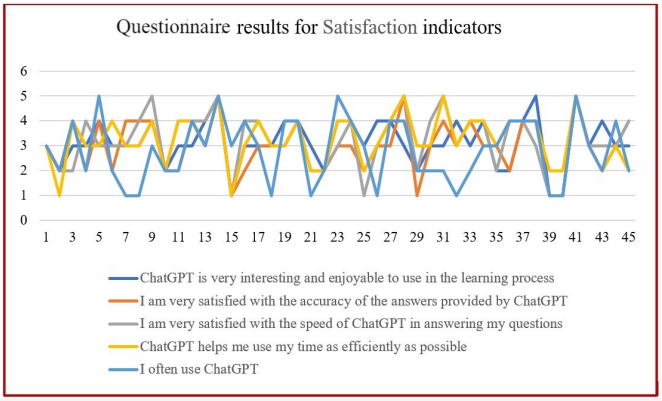

Fig. 3. Satisfaction perception questionnaire results.

The majority of respondents evaluated ChatGPT's aesthetics, accuracy and speed, time efficiency, and frequency of use favorably, indicating that they had positive experiences using it for learning. Although there were some variances in the ratings, suggesting that respondents' perceptions varied, overall, ChatGPT seemed to benefit the learning process.

D. Perception of Motivation

The evaluations of two characteristics, namely the potential of ChatGPT to inspire study and the ability to inspire writing scientific papers, are shown in Fig. 4. Most respondents (scoring 3 to 5) thought that ChatGPT was a good tool for encouraging learning. Most respondents believe that ChatGPT can boost motivation for educational endeavors. This aspect has a wider range of scores. A low rating (score of 1 to 2) was provided by some respondents, while a favorable assessment (score of 3 to 5) was given by others.

There was variation in respondents' perceptions regarding ChatGPT's ability to motivate writing scientific papers, and this may depend on individual needs and expectations. In general, respondents tend to see that ChatGPT can provide additional motivation to study. When it comes to writing scientific papers, there was variation in respondents' perceptions, and some may have felt that ChatGPT was not as effective in motivating them to write scientific papers.

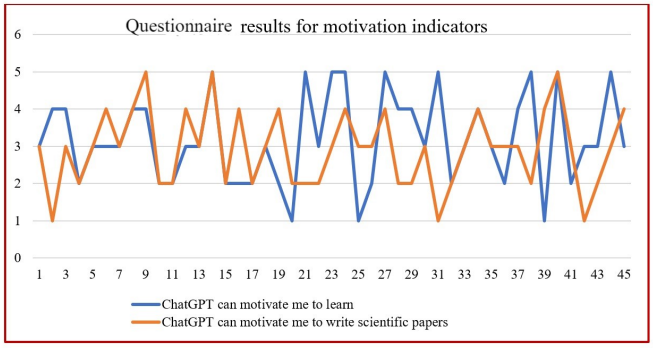

Fig. 4. Results of the perception questionnaire on motivation.

E. Perception of Activeness

The evaluations of two characteristics, namely ChatGPT's capacity to foster greater student participation and innovation in the classroom, are shown in Fig. 5. The majority of respondents (scoring 3 to 5) thought that ChatGPT may help them become more engaged learners. The majority of respondents felt that ChatGPT improved their degree of learning activity.

The majority of responders (scoring 3 to 5) thought that ChatGPT may foster more creativity in learning. The ability of ChatGPT to foster creativity during the learning process was seen by the respondents. Respondents generally believe that ChatGPT has improved their learning by encouraging them to be more engaged and creative. With a few outliers aside, the majority of respondents indicated that ChatGPT improved their learning experience with their scores.

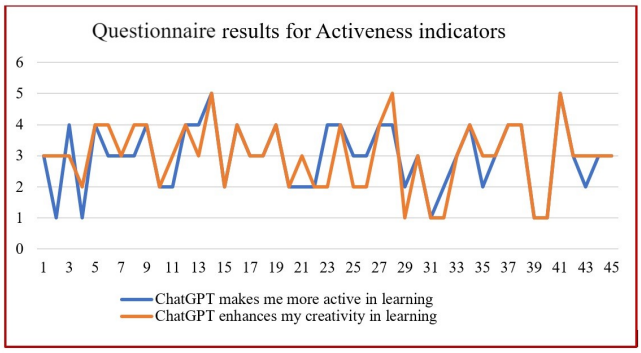

Fig. 5. Results of the perception questionnaire regarding activeness.

F. Analysis of Student Perceptions per Indicator

Based on the results of a descriptive statistical analysis, this presentation presents an overview of the characteristics of the observed data. Examination These descriptive statistics will offer details about the data center, distributed data, and data dissemination methods.

As a result, the following conversation will offer a more thorough comprehension of the factors that are noted as well as a grasp of the patterns that arise from the available data. Table 3 shows the standard deviations and mean.

Table 3. Average value and standard deviation per indicator

Indicator	No	Statement	Mean	STD
Ease	1	ChatGPT is easy to use and access	3.53	1.14
	2	I find it easier to complete academic tasks using ChatGPT	3.16	0.93
	3	The explanations or answers provided by ChatGPT are easy to understand	3.13	1.04
Knowledge	4	ChatGPT helps me find new knowledge	3.49	1.1
	5	ChatGPT can help me improve my understanding of a subject	3.18	1.17
	6	ChatGPT can enhance my critical thinking skills	3.04	1.11
	7	ChatGPT improves my understanding of technological innovations	3.60	1.01
Satisfaction	8	ChatGPT is very interesting and enjoyable to use in the learning process	3.16	0.98
	9	I am very satisfied with the accuracy of the answers provided by ChatGPT	2.98	1.08
	10	I am very satisfied with the speed of ChatGPT in answering my questions	3.24	1.13
	11	ChatGPT helps me use my time as efficiently as possible	3.24	1.00
	12	I often use ChatGPT	2.82	1.27
Motivation	13	ChatGPT can motivate me to learn	3.00	1.07
	14	ChatGPT can motivate me to write scientific papers	2.91	1.06
Activeness	15	ChatGPT makes me more active in learning	2.96	1.09
	16	ChatGPT enhances my creativity in learning	3.00	1.09

The respondents' evaluations of several ChatGPT-related indicators are shown in Table 3. A unique statement is used to measure each indication, and the average score is provided together with the Standard Deviation (STD) of the score. Let's talk about the outcomes for every category of indicators:

1) Usefulness

The majority of respondents thought ChatGPT was simple to access and use (Mean: 3.53). Positive evaluations were also given to statements about how simple it is to complete academic work with ChatGPT, albeit at a somewhat lower mean (3.16). A favorable evaluation was also given to the statement regarding ChatGPT's answers' ease of understanding, albeit with a somewhat lower score (Mean: 3.13).

2) Information

According to respondents, ChatGPT assisted them in learning new information (Mean: 3.49). Positive evaluations were likewise given to statements regarding ChatGPT's capacity to increase comprehension of a subject, albeit with a somewhat lower mean score (Mean: 3.18). Critical thinking abilities are also thought to be enhanced by ChatGPT (Mean: 3.04). According to the respondents, ChatGPT improved their comprehension of technological innovation (Mean: 3.60).

3) Contentment

Overall, respondents' satisfaction with ChatGPT is generally high. A positive assessment was given to the claim that ChatGPT makes learning interesting and enjoyable, even though the score was significantly below average (Mean: 3.16). A substantial percentage of respondents expressed satisfaction with ChatGPT's accuracy (Mean: 2.98). Positive

evaluations were also given to ChatGPT's quickness in responding to inquiries (Mean: 3.24). Additionally, respondents saw that ChatGPT aided in their effective use of time (Mean: 3.24). Lower scores were given to statements on how frequently users used ChatGPT, which suggests that user behaviors vary (Mean: 2.82).

4) Inspiration

The potential for ChatGPT to inspire learners was recognized by the respondents (Mean: 3.00). Though the evaluation of ChatGPT's capacity to inspire the drafting of scientific papers was likewise favorable, the statements obtained a somewhat lower mean score (2.91).

5) Intactness

Most respondents (Mean: 2.96) felt that ChatGPT encouraged them to take an active role in their education.

Positive evaluations were also given to statements on fostering creativity in learning, despite the statements receiving a somewhat lower score (Mean: 3.00).

Overall, the respondents' evaluations of ChatGPT's use and accessibility, comprehension of the responses, novelty, contentment, drive, and activities were favorable. Score variations could be a reflection of individual differences in expectations and preferences for using ChatGPT. The supplied Standard Deviation (STD) can reveal details regarding the degree of consistency or variation in respondents' evaluations. The responders' evaluations varied significantly with greater STDs.

G. Discussion

For every indicator in the questionnaire, data gathered by giving out surveys to 45 students is displayed graphically. The graph of the proportion of study findings for the first indicator—the simplicity of use of ChatGPT—is shown in Fig. 6.

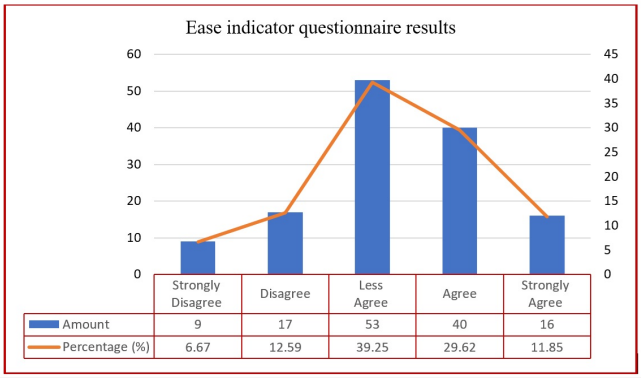

Fig. 6. Summary of ease indicator results.

Fig. 6 shows that 9 respondents (6.67%) strongly disagreed with the claim that ChatGPT is easy to use. Although this percentage is modest, it should be highlighted that some respondents find ChatGPT to be extremely uncomfortable or difficult to use. A total of 17 participants, or 12.59%, disagreed with ChatGPT's simplicity of use. Even though the number is still small, it indicates that some responder groups have many challenges when utilizing ChatGPT. 53 respondents in all (39.25%) said they disagreed with this statement. Most respondents reported feeling less confident or finding ChatGPT to be a little challenging to use. There were forty people (29.62%) that agreed. Some respondents thought ChatGPT was rather simple to use, despite the fact that the majority disagreed or felt less confident. The ease of use of ChatGPT was strongly agreed upon by 16 respondents (11.85%) in total. Despite the small sample size, this data indicates that a subset of respondents expressed high satisfaction with ChatGPT [23, 60].

When it comes to ChatGPT's ease of use, the majority of respondents (52.22%) tend to feel less confident or agree only somewhat. Just 11.85% of respondents expressed high satisfaction with ChatGPT's user-friendliness. The following are the results of student interviews regarding the ease of students using ChatGPT:

Question: Do you think ChatGPT is easy to use and access? Explain and why?

Student Answers:

- It's easy because we just type the question clearly and then the answer comes out quickly.
- Yes, ChatGPT is easy to access as ChatGPT is available on multiple platforms, including web, Android, and iOS. This makes ChatGPT more accessible to users from various circles and the registration process is fast and easy.
- Easy because it can answer various user questions or commands quickly and naturally. ChatGPT is designed as a bot that can respond to user questions in chat rooms with natural responses similar to human conversation
- In my opinion, it's easy, because just by typing ChatGPT in Google, ChatGPT will come up and we just have to access it and when we ask something it's immediately given and the answer we want comes out.
- For me, ChatGPT is very easy to use and access because the accessibility is very fast, and easy and meets my needs.
- Easy, because ChatGPT is easy to access on Google services and makes the user's work easier
- Easy to use and access because we just go to the website, log in and immediately search for what we want to look for
- In my opinion, accessing ChatGPT is very easy, because it can help in searching for several questions, and the answers given by ChatGPT are quite accurate.

Based on the above interview results, students generally view ChatGPT as an easy-to-use and accessible tool. This is demonstrated by the platform-neutral design, which emphasizes ease of use through simple processes like typing questions, and by the quick registration process and availability of ChatGPT across a variety of platforms. Regarding simplicity of use, ChatGPT's natural reaction is another advantageous feature. These findings supported the research of Sakirin and Said [61], Nazir and Wang [62], which found that ChatGPT's user-friendliness is yet another fantastic feature. With ChatGPT, users may converse, send text messages, and take photographs. Furthermore, ChatGPT can identify emotions in natural language and suggest appropriate words or phrases for written communication.

Considering Fig. 7, 11 respondents, or 6.11%, expressed significant disagreement with ChatGPT's contribution to students' knowledge development. Despite the limited sample size, it is important to note that some respondents had

highly negative opinions of ChatGPT's contribution. Thirty-one respondents (17.22%) disagreed with ChatGPT's contribution to students' knowledge development. This indicates that a subset of respondents, have doubts or are dubious about ChatGPT's ability to help students advance their knowledge. 53 respondents in all (29.44%) said they disagreed with this statement. The majority of responders tended to be a little dubious or uncertain about ChatGPT's ability to advance students' understanding. 58 (32.22%) of the respondents said they agreed. The majority of respondents agreed with this statement, demonstrating their perception of ChatGPT's potential to advance students' understanding. Twenty-seven respondents, or fifteen percent, said they strongly agreed with ChatGPT's contribution to students' knowledge development. Despite the small sample size, the results indicate that a subset of respondents have highly positive opinions regarding ChatGPT's contribution in this area [63, 64].

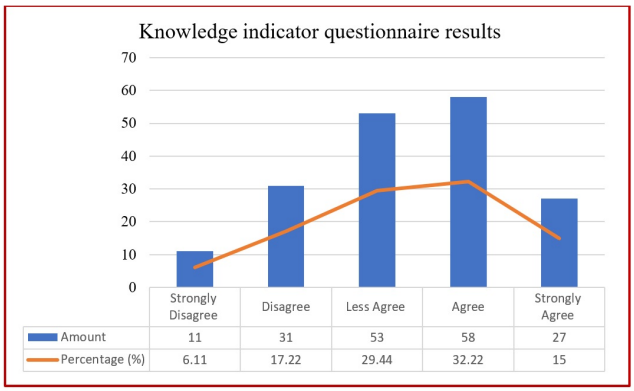

Fig. 7. Summary of knowledge indicator results.

The bulk of participants (47.66%) expressed agreement or strong agreement with ChatGPT's role in enhancing students' understanding. This is also in line with Hammour's statement which reflects a significant level of agreement [65], indicating that the majority of participants saw the positive potential or good impact of using ChatGPT in improving students' understanding. The percentage of respondents who agreed was rather significant, even though some expressed skepticism or disagreement. The following are the results of student interviews related to student knowledge about ChatGPT:

Question: Can ChatGPT help you improve your understanding of the material? Explain why?

Student Answers:

- Yes, it's very helpful, because ChatGPT is also taken from several sources to be used as answers.
- Yes, ChatGPT can help me improve my understanding of a material. If I'm having trouble understanding a particular concept, I can ask ChatGPT to provide a more detailed explanation. ChatGPT can break down complex concepts into smaller, easier-to-understand parts.
- ChatGPT can help in understanding knowledge because the answers given are quite short and easy to understand so ChatGPT can increase understanding of material.
- It could be, because if the material you want to study is (Example) Mathematics, ChatGPT calculations cannot detect the question being asked, this is different from questions that are explanations of sentences or reasoning. Sometimes the answers given by ChatGPT are wrong, therefore users have to be clever in finding the desired material again.
- Yes, because on ChatGPT we can get all the information and we can ask about material in more detail and depth.

It is known from the above interview results that students see ChatGPT as a knowledge resource that can enhance their comprehension of the subject matter. However, Lingard [66] indicates that ChatGPT can help with content creation, including composing articles and stories, in addition to offering information and answers to users' concerns. Consequently, students may view ChatGPT as a knowledge resource that can enhance their comprehension of the subject. Strengths include the variety of information sources available, the capacity to demystify difficult ideas, and the provision of clear, succinct explanations. Weaknesses are brought to light, particularly in specialist fields like mathematics where mistakes in calculations and difficulties identifying specific topics can happen.

According to Fig. 8, 21 respondents (9.33%) said they strongly disagreed with the part about ChatGPT being a source of satisfaction for students. This figure indicates that a subset of students had particularly negative experiences using ChatGPT. Of the respondents, 44 (19.55%) disagreed when asked if they were satisfied with ChatGPT. Despite being reasonably high, the numbers do not account for the majority of the percentage, suggesting that student opinions vary. One third of the respondents, which is 73 people, said they were not quite satisfied with ChatGPT. Most respondents expressed some degree of dissatisfaction or doubt about their ChatGPT experience.

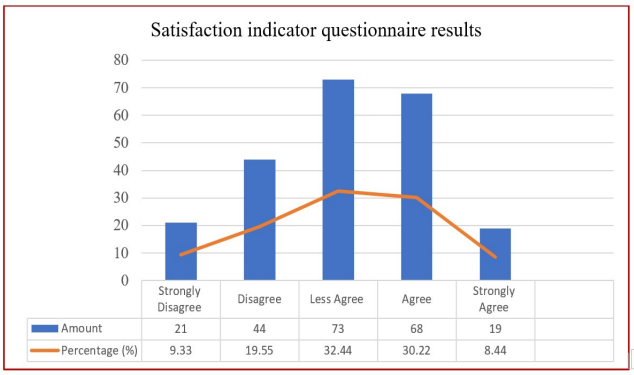

Fig. 8. Summary of results of satisfaction indicators.

There were 68 (30.22%) responders who agreed. While a small percentage of students expressed satisfaction with ChatGPT, it was not statistically significant. Nineteen respondents (8.44%) expressed strong agreement about their satisfaction level when utilizing ChatGPT. Despite the limited sample size, the data indicates that a subset of students express high levels of satisfaction using ChatGPT. These results are in line with researches by Menon [63], and Kocoń *et al.* [67]. The degree to which students are satisfied with ChatGPT usage varies. When it comes to their experience utilizing ChatGPT, the majority of respondents (38.66%) typically feel unsatisfied or somewhat uncertain. While not predominating, some students (38.66%) expressed satisfaction or extreme satisfaction with their use of

ChatGPT.

According to Fig. 9, eight respondents (8.88%) said that the statement about why they used ChatGPT was not something they strongly agreed with. Although this percentage is tiny, it does point to the existence of a subset of students who use ChatGPT with very little motivation.

Contrary to these findings, research indicates that using ChatGPT has been linked to increased student motivation in several studies. For instance, a study on ChatGPT's effects on learning English revealed that, on the whole, ChatGPT encourages students to improve their writing and reading abilities [68]. According to a different study, students' motivation increased when they used ChatGPT technology as a learning resource [69]. Additionally, ChatGPT is a source of inspiration and encouragement for students, assisting them in overcoming obstacles and achieving their academic objectives [70]. Furthermore, studies demonstrate that ChatGPT enhances students' interest and involvement in the educational process [71].

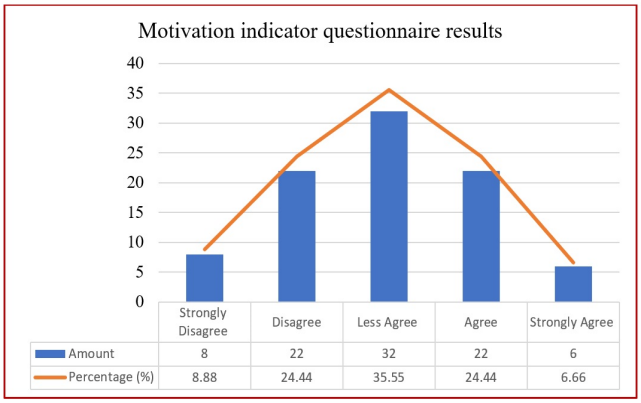

Fig. 9. Summary of motivation indicator results.

Twenty-two respondents, or 24.44%, said they didn't agree with the reason they used ChatGPT. Despite being very high, the numbers do not account for the majority of the percentage, suggesting that student motivation varies. Thirty-two respondents, or 35.55%, said they disagreed with the reason they used ChatGPT. Most respondents said they were a little less inspired or unsure about utilizing ChatGPT.

There were 22 responses (24.44%) that agreed. While utilizing ChatGPT does not dramatically increase student motivation, some do. Six respondents (6.66%) said they strongly agreed with the statement that their reason for utilizing ChatGPT was clear. Despite being somewhat modest, the number indicates that there is a subset of students who find ChatGPT to be very motivating. This result is not the same as the research results of Deng and Tavares [72] which stated that some students were not motivated to use ChatGPT. The degree to which students are motivated to use ChatGPT varies. Most responders (64.99%) report feeling less motivated or having some doubts about ChatGPT. While not predominating, some students (31.1%) reported feeling highly inspired or motivated as a result of utilizing ChatGPT.

The following are excerpts from student interviews regarding motivation for using ChatGPT:

Question: Do you think ChatGPT can motivate you to write scientific papers? Why?

Student Answers:

- Yes. Because the answers given make us understand better what we will compile in a scientific work.
- No, because writing scientific papers is not the result of answers from ChatGPT but we are required to think critically.
- I don't think so, because ChatGPT didn't help me to develop the critical thinking skills needed in writing scientific papers.
- A little motivating, because ChatGPT is not completely reliable, especially for students writing scientific papers, of course, ChatGPT cannot be completely relied on.
- Yes, because through ChatGPT it is easy to get reference sources. I think this convenience can be a motivation to write scientific papers.
- No, because in ChatGPT there are no reference sources that can be used as accurate sources for scientific work.

Divergent opinions exist about whether ChatGPT can serve as an inspiration for producing scientific papers, based on the findings of the aforementioned interviews. While some students believed that ChatGPT did not aid in the development of critical abilities required for writing scientific articles, others noticed benefits in grasping the content and having access to references.

Regarding their active use of ChatGPT, 10 respondents (11.11%) from Fig. 10 said they strongly disagreed with the assertion. The fact that this percentage is so low suggests that there are some students who feel particularly passive or who don't use ChatGPT at all. Twenty percent of the respondents, or eighteen people, disagreed with their active use of ChatGPT. Despite the very small number, it indicates that there is a subset of students who feel less engaged with ChatGPT. Thirty-one respondents, or 34.44%, said they disagreed with one another about actively using ChatGPT. The majority of respondents said they were unsure about utilizing ChatGPT or felt a little less engaged.

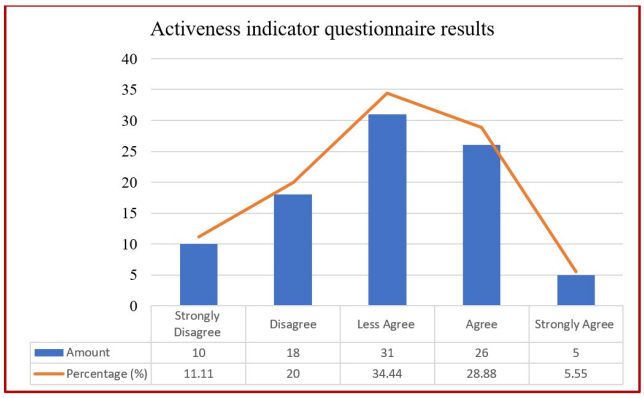

Fig. 10. Summary of activeness indicator results.

There were 26 (28.88%) responders that agreed. While a small fraction of students, use ChatGPT frequently, some feel fairly active about it. Five respondents, or 5.55% of the total, said they strongly agreed with the statement that they actively use ChatGPT. Despite the relatively small number, it indicates that there is a subset of students who feel highly engaged with ChatGPT. In summary, there exist disparities in the degree of student engagement with ChatGPT. Sixty-five percent of the respondents generally feel less active or are not very unsure about utilizing ChatGPT. While the figure did

not predominate, some students (34.43%) believed that they were utilizing ChatGPT actively or extremely actively.

V. Conclusion

The majority of university students believe that using ChatGPT is relatively easy, according to the research findings regarding their impressions of the platform's usability. This impression has been influenced by the availability of an easy-to-use and intuitive interface. The study's findings indicated that there were differences in university students' perceptions of their level of ChatGPT expertise. While some pupils need more assistance, others possess in-depth understanding.

The majority of parties expressed pleasure with ChatGPT's use when it came to universities' and students' degree of satisfaction. This degree of pleasure is the result of several factors, including the accessibility of resources, the dependability of the system, and the beneficial influence on the learning process. The results indicated that different universities and students had different reasons for utilizing ChatGPT. While some students were inspired by the desire to increase their efficiency or learning skills, others were motivated by the convenience of access to information.

This survey found different degrees of activity among students using ChatGPT. While some students use the technology more sparingly, others actively employ it as a crucial component of their education. This study offers a thorough picture of the attitudes, expertise, contentment, drive, and usage of ChatGPT among college students. Universities can use the results as a foundation to maximize ChatGPT's applicability in an educational setting.

It is advised that colleges offer more resources and help in response to the variations in students' level of familiarity with ChatGPT. To help students who need more advice, this could involve providing in-depth instruction, tutorials, or guides. Because students' opinions of how easy something is to use are influenced by an intuitive design, institutions should keep improving ChatGPT's user interface. Maintaining the tool's usability helps boost student adoption and acceptability. In response to high satisfaction linked to resource accessibility, universities can continue to increase student access to information and resources that promote the usage of ChatGPT. This could include updates to the digital library, accompanying software, or technical assistance.

Given the wide range of student motivation, it is advised that academic institutions create individualized teaching strategies. This can entail offering rewards or implementing programs that are customized to each student's requirements and motivations. Universities might promote student cooperation and set up forums for experience sharing given the variations in ChatGPT usage. This might make it easier to share tips and best practices for using ChatGPT for educational purposes. Universities can keep an eye on and assess ChatGPT use in the classroom constantly. This makes it possible to modify tactics in response to shifting student dynamics and demands.

While the study's findings offer insightful information on how university students see and utilize ChatGPT, it is important to acknowledge its limitations. Firstly, because the study only includes a limited number of universities or student groups, the research findings are not very generalizable. The conclusions derived from this sample do not accurately represent the variety of experiences found in various settings or educational levels.

Second, opinions regarding ChatGPT's use and degree of satisfaction might vary greatly and be shaped by personal tastes. Each person has a different perspective on these things, and additional variables like prior technological experience level could have an impact. Thirdly, while this study offers a broad overview at a particular moment in time, student requirements and the dynamics of ChatGPT usage may evolve. As a result, it is necessary to evaluate the study's findings in light of shifting technological and contextual factors.

Based on the study's findings, instructors and students should consider the following practical advice:

Suggestions for Teachers:

- Adapt supplementary materials and help the student's level of ChatGPT comprehension. This could involve providing students who require more help with tutorials, in-depth education, or guidelines.
- Constantly update the user interface of ChatGPT to make it more intuitive. Students' perceptions of usability can be enhanced by an intuitive design, which will lead to greater acceptability and adoption.
- Monitor and assess ChatGPT use in the classroom on an ongoing basis. This makes it easier for teachers to modify their lesson plans in response to the shifting ways that pupils use technology.
- Develop individualized lesson plans that take into account the requirements and motivations of each student. The implementation of incentives or awards programs developed expressly to adapt to shifts in motivation levels could fall under this category.
- Encourage student cooperation and provide a platform for experience sharing. Students can use this to exchange advice and best practices about how to use ChatGPT for teaching.

Suggestions to Students:

- Actively engage with ChatGPT as an integral element of the instructional process. The ideal way for students to incorporate this technology into their learning activities will maximize their benefits.
- Utilize extra resources supplied by the college, such as tutorials and manuals, to deepen comprehension of ChatGPT. For pupils who require further assistance, this can be helpful.
- Taking part in forums or events where students exchange experiences. This gives people the chance to benefit from one another's experiences and increase comprehension of how to utilize ChatGPT to its fullest.
- Provide feedback to the institution on the experience of using ChatGPT and provide suggestions for further improvement. Student contributions can shape improvements in the use of technology in educational settings.

Conflict of Interest

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

MT came up with the concept and wrote the essay, while GPS, WPA, and INS did the data analysis, developed the model, and carefully proofread the piece. All authors had approved the final version.

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