

Perception of University Students towards the Use of ChatGPT in Learning and Academic Activities

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Abstract

AI tools like ChatGPT have become increasingly popular among the University students with the rapid advancement of artificial intelligence (AI) technologies. This paper tries to study the perception of students toward the use of ChatGPT in learning and academic activities. The primary objective of the study is to understand how students perceive ChatGPT and what are its benefits and challenges. Data were collected through questionnaires from a sample of university students. Students perceived that using ChatGPT provides them with various information, it also saves time and also helps in providing personalized tutoring services. The study also shows some barriers which are associated with the use of ChatGPT. The insights of the study will further contribute to ongoing discussion on the responsible use of AI in the learning and academic activities.

Keywords: ChatGPT, University students, perception, learning, artificial intelligence.

Introduction

Across the various sectors, artificial intelligence (AI) has evolved rapidly into a transformative force. With open AI's in learning and education ChatGPT is emerging as one of the most significant innovations. An AI based language model like ChatGPT is able to answer questions, generate human-like text and perform different Natural Language Processing (NLP) activities. Its rapid use in higher educational activities has stimulated both enthusiasm and concern among educators, researchers and students. ChatGPT offers a variety of opportunities such as self-directed learning, enhancing academic productivity and self-directed learning. Whereas on the other hand it raises ethical concerns which include the overall academic integrity, plagiarism and the genuineness of student learning. In recent years, Universities students have witnessed a rise in student's use of ChatGPT for academic purposes such as preparation of examination, summarizing content, programming and essay writing (Lipman & Distler, 2023). The models accessibility and versatility have made ChatGPT into a powerful aid in education, although it has blurred the difference between academic dishonesty and legitimate learning. Some scholars caution that the misuse of ChatGPT undermines the authentic cognitive engagement and could devalue the educational quality (Bozkurt & Sharma, 2020). By considering the different perspectives of AI in education, it is necessary to study how University students perceive the use of ChatGPT as a tool in their academic and learning activities. Integration of AI tools responsibly into higher

education systems requires a proper understanding of students' perception so that it further helps the educators and policymakers in designing effective guidelines. This paper seeks to explore the student's perception toward ChatGPT, the utilization of it in academic and learning activities.

Review of Literature

Uses of ChatGPT in Learning and Academic activities

ChatGPT has expanded its original application in a wide area which include a variety of educational and professional applications, such as language translation, text summarization and programming. Lipman and Distler (2023) highlighted the initial concern which centred on the fear towards academic dishonesty, however users soon recognized the ChatGPT's broader capabilities which include assisting in content creation and computer code. Several functional domains of ChatGPT have been identified by Barari and Kumar (2023) which include e-commerce application, chatbot development, and code debugging and poetry generation. ChatGPT because of its adaptability has made it a key asset for those students who are engaged in tasks which require problem solving, creativity and computational thinking.

ChatGPT has been used to support learning in programming and computer science in the educational context. Malinka et al. (2023) studied ChatGPT's effectiveness in undertaking programming related assessments and assignments. Their findings shows that ChatGPT can successfully optimize, debug and generate code, thus for students learning computational subjects it serves as an educational aid. Further they have also highlighted the importance of human oversight in AI assisted learning, as a limitation which exists in solving the complex numerical problem. These studies have shown that ChatGPT acts as a companion in supporting the different academic disciplines.

Challenges and Ethical Concerns

Despite its advantage, the integration of ChatGPT into learning and academic activities also shows pedagogical and ethical challenges. Bozkurt and Sharma (2020) highlighted that ChatGPT increases vulnerabilities and threatens academic integrity by enabling students to do assignments or examinations. Such wrong utilization diminishes the importance of academic learning and also creates a gap between those students who do not have access to AI tools and those who have access to AI tools. Sometimes, plagiarism detection software fails to recognize the AI generated work making it difficult for the educators (Lipman & Distler, 2023).

The role of AI in higher education remains divided. Some institutions resist the use of AI because of their concerns regarding the assessment fairness and authenticity while some others advocate that the integration of AI will act as a tool for innovation. Hirsh-Pasek and Blinkoff (2023) highlighted that when educational system emphasizes grades over knowledge acquisition, ChatGPT poses risk. Thus, in order to ensure learning objective that focuses on understanding instead of performance metrics, the ethical use of AI in education necessitates reconsideration of pedagogical approaches.

Perception and Adaptation of ChatGPT

Among university students the perception of ChatGPT is developed by their awareness of both the advantages and disadvantages. Students started to recognize ChatGPT as a learning companion which helps them in enhancing their comprehension and efficiency and it has become more embedded in academic routines. The findings of CTVNewsOttawa.ca (as cited in Lipman & Distler, 2023) shows that people's perception towards the AI generated contents differs significantly-many of the individuals find it difficult to differentiate between AI-generated text and handwritten text.

Overall the literature recognizes an increased tension between integrity and innovation in AI-driven education. While ChatGPT offers rooms for improving academic productivity and learning experiences it also challenges traditional concepts of effort and assessment.

Research Gap

Artificial Intelligence tools like ChatGPT have received an important attention in the academic context, however most of the existing studies have focused their studies on the technical abilities, pedagogical challenges and potential risk of academic dishonesty (Bozkurt & Sharma, 2020; Lipman & Distler, 2023). Limited research has studied the perception of university students who are the active users of ChatGPT for academic and learning purposes, especially in the context of a developing country like India. The existing literature on ChatGPT shows both scepticism and enthusiasm in respect to the ChatGPT's integration in higher level education, however it lacks insights into how to balance its perceived barriers and benefits. These study gaps call for a systematic exploration of perception of university students towards ChatGPT by emphasizing its ease of use, usefulness and associated cognitive and ethical concerns. Addressing this gap will guide the policymakers and educators by contributing to evidence based understanding in the responsible adoption of AI technologies in academic settings.

Statement of the Problem

The educational landscape has been transformed by the rapid advancement of AI technologies with the introduction of tools such as ChatGPT which help in generating human-like responses, instant access to information and help in academic activities such as writing assistance, summarization and problem solving. Apart from the capabilities to enhance academic efficiency and student learning, there is also a critical question which concerns the authenticity, over-reliance on automated systems and plagiarism. Therefore there is a need to examine the perception of University students towards ChatGPT and to identify its barriers, benefits and how it influences the overall academic arrangement. These will further help in providing a valuable insight for integrating AI into higher education responsibly and will help in designing a policy that promotes meaningful and ethical use of ChatGPT in academic settings.

Research Questions

The study seek to address the following research questions based on the identified gaps:

- In learning and academic activities what is the perception of the university students towards the use of ChatGPT?
- What are the benefits of using ChatGPT among the University students?
- When using ChatGPT what are the Challenges and barriers students experience?

Objective of the study

1. To study the students' perception on the use of ChatGPT as a tool in learning and academic activities.
2. To study the students' perception on the barriers and benefits of using ChatGPT as a learning tool among the students of the university.

Research Methodology

This study uses a descriptive research design which aims to provide an understanding of the perception of the university students towards the use of ChatGPT and the barriers and benefits associated with it in the academic and learning activities. The findings will serve as a foundation for more extensive research in the future. The target population of the research includes the students of Manipur University. The study includes a sample of 160 Manipur University students who are using ChatGPT for learning and academic activities. The participants of the study are selected through a random sampling technique.

For this study a customized questionnaire was used which is based on the previous research done by Zhai (2022), Else (2023), Baker (2021), Dhawan & Batra (2021), Mintz (2023) and Eaton et.al (2021). The questionnaire consists of two sections; the first section includes the demographic profile of the respondent and the second part of the questionnaire consists of the general perception of the university students towards ChatGPT, its benefits and barriers. A 5 point likert scale was used ranging from 5 (Strongly agree) to 1 (Strongly Disagree). The data collected was analysed by using SPSS software.

Analysis and Discussions

Demographic profile of the respondent

Table 1 shows the genders of the respondent that are included in the study. In order to ensure a perfect gender parity in the sample both male (50%) and female (50%) are equally selected among the 160 participants. The finding of the study highlights that the study are not biased regarding any particular gender.

Table 1: Gender of the respondent

| Gender | Number of Students | Percentage (%) |
|--------|--------------------|----------------|
| Female | 80 | 50.0 |
| Male | 80 | 50.0 |
| Total | 160 | 100.0 |

Source: Primary data

Table 2 shows the distribution of the university students based on the device that they use while accessing the ChatGPT. 43.1% of the student that is majority of the students use mobile

phones to access ChatGPT whereas 38.8% of the student uses ChatGPT in both mobile phones and laptops. However 18.1 % of the students use ChatGPT only on laptops. The findings highlight that the most preferred device for using ChatGPT is mobile phones.

Table 2: Distribution of the University Students based on Use of ChatGPT in Devices

| Use of ChatGPT in device | Number of Students | Percentage (%) |
|--------------------------|--------------------|----------------|
| Mobile phone | 69 | 43.1 |
| Laptop | 29 | 18.1 |
| both | 62 | 38.8 |
| Total | 160 | 100.0 |

Source: Primary data

Table 3 indicates the distribution of the students in accordance with their level of education. 73.8% are pursuing a master degree whereas 26.3% are admitted in Ph.D. programs. This shows that the majority of the sample under study consist of postgraduate students.

Table 3: Level of Education

| Level of education | Number of Students | Percentage (%) |
|--------------------|--------------------|----------------|
| Master Degree | 118 | 73.8 |
| PhD | 42 | 26.3 |
| Total | 160 | 100.0 |

Source: Primary data

Table 4 represents the distribution of 160 students across the different academic disciplines. The highest respondent is from the Statistics department with 15.0% followed by mass communication with 13.8% and 12.5% are MBA students. Out of the total sample MCA students account for 11.9% whereas 10.6% are PhD scholars. Comparatively fewer students are from the departments such as Adult and Continuing Education with 10.0%, Life science (Botany) accounts for 6.3%. The lowest portion of the students is observed in the department of Political Science with 4.4%.

Table 4: Academic discipline Wise Distribution

| Academic Discipline | Number of Students | Percentage |
|--------------------------------|--------------------|------------|
| PhD | 17 | 10.6 |
| Political science | 7 | 4.4 |
| Mass communication | 22 | 13.8 |
| MBA | 20 | 12.5 |
| MCA | 19 | 11.9 |
| Statistics | 24 | 15.0 |
| Life SC Botany | 10 | 6.3 |
| Adult and continuing education | 16 | 10.0 |
| Geography | 10 | 6.3 |
| Education | 15 | 9.4 |
| Total | 160 | 100.0 |

Source: Primary data

Reliability statistics

Table 5 highlights the reliability statistics of the three constructs i.e. General perception, benefits and barriers. Cronbach alpha value of 0.676 shows a moderate level of internal consistency which is acceptable in the exploratory and preliminary studies. A Cronbach's alpha value of 0.786 in the benefit scale highlights a good internal consistency. A moderate level of reliability with the Cronbach alpha value of 0.670 is observed in the barrier scale. The result shows that the instruments used are adequately reliable and among the three constructs the benefit scale shows the strongest internal consistency.

Table 5: Reliability Statistics

| Items | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | Number of Items |
|---------------------------|-------------------------|---|------------------------|
| General Perception | 0.641 | 0.676 | 6 |
| Benefits | 0.784 | 0.786 | 7 |
| Barriers | 0.518 | 0.670 | 7 |

Source: Author's calculations

General perception of the ChatGPT

Table 6 shows the findings on the general perception of ChatGPT. The finding indicates that the respondents have a positive view towards the ChatGPT. The highest mean score is seen in the statement "ChatGPT is easy to use" with the mean score of 4.47 and SD (Standard Deviation) of 0.624 highlighting that most of the students agreed that ChatGPT is convenient to use. A high mean score is also seen in the statement "ChatGPT can give answers quickly" with the mean score of 4.25 and SD of 0.727 indicating that suggesting that the respondent agrees with ChatGPT efficiency in providing answers.

Table 6: General perception of ChatGPT

| General perception | Mean | Std. Deviation |
|--|-------------|-----------------------|
| ChatGPT is easy to use | 4.47 | 0.624 |
| ChatGPT can give answers quickly | 4.25 | 0.727 |
| ChatGPT makes me lazy to think | 3.64 | 0.993 |
| ChatGPT has functioned as a search engine | 3.86 | 0.792 |
| ChatGPT can be used with various input languages | 3.69 | 0.754 |
| ChatGPT is a useful tool for study | 4.04 | 0.764 |

Source: Author's calculations

The analysis shows a relatively high mean of 4.04 and SD of 0.764 is observed for the statement "ChatGPT is a useful tool for study" indicating that the respondents consider its value in academic and learning tasks. However a lower mean of 3.64 and SD of 0.993 is recorded for the statement "ChatGPT makes me lazy to think" highlighting that some of the respondents feel that ChatGPT reduces the requirement of effortful thinking while the other respondent did not consider ChatGPT in that way. Further a moderately high mean score is

seen for the statement “ChatGPT has a function as a search engine” with the mean of 3.86 and SD of 0.754 and the statement “ChatGPT can be used with various input languages” recorded a mean of 3.69 and SD of 0.754 indicating that the respondents are aware of the multiple use of the ChatGPT. The overall results highlight that the respondent of the study perceived ChatGPT positively and recognized its usefulness.

Table 7 shows a one-sample t-test, it is conducted to do a general comparison of the general perception of ChatGPT with the test value of 3. The result of $t(159) = 26.615, p < 0.001$ shows a statistically significant difference. The general perception score is higher than the neutral value indicated by the mean difference of 1.219. The findings of the test show a highly positive perception about ChatGPT indicating a strong agreement in case of its ease of use, usefulness and overall effectiveness.

Table 7: One-Sample Test (test value=3)

| One sample test | | | | | | |
|--------------------|----------------|-----|-----------------|-----------------|---|-------|
| | Test Value = 3 | | | | | |
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| General perception | 26.615 | 159 | <0.001 | 1.219 | 1.13 | 1.31 |

Source: Self calculation by the researcher.

Perception on the benefits of using ChatGPT in learning and academic activities

Table 8 highlights the analysis of the perceived benefits of ChatGPT showing that respondents viewed ChatGPT as an advantageous tool for academic and learning purposes. The highest mean score of 4.16 and standard deviation (SD) of 0.708 highlights that most of the respondents agreed with the statement “ChatGPT can help students save time”. The statement “ChatGPT can provide information in diverse fields” also received a relatively high mean of 3.93 and SD of 0.770 indicating that ChatGPT respondent’s recognition of the ChatGPT having a broad informational capacity in multiple subject areas. Similarly a mean score of 3.87 and SD of 0.680 in the statement “ChatGPT can illuminate ideas in writing and improve efficiency” and a mean score of 3.78 and SD of 0.806 in the statement “ChatGPT can help students better understand theories and concepts” got a moderate high mean scores, highlighting that many users of ChatGPT found it as helpful tool for increasing academic productivity and comprehension.

Table 8: Benefits of using ChatGPT

| Benefits of using ChatGPT | Mean | Std. Deviation |
|---|------|----------------|
| ChatGPT can help student save time | 4.16 | 0.708 |
| ChatGPT can provide information in diverse fields | 3.93 | 0.770 |
| ChatGPT can translate learning materials into different languages | 3.69 | 0.832 |
| ChatGPT can help students better understand theories and concepts | 3.78 | 0.806 |
| ChatGPT can illuminate ideas in writing and improve efficiency | 3.87 | 0.680 |
| ChatGPT can provide personalized tutoring and feedback | 3.72 | 0.778 |
| ChatGPT can offer personalized and adaptive learning experiences | 3.69 | 0.779 |

A slightly lower mean value is observed in the statement “ChatGPT can provide personalized tutoring and feedback”, “ChatGPT can offer personalized and adaptive learning experiences” and “ChatGPT can translate learning materials into different languages” with the mean score of 3.72, 3.69, 3.69 and SD of 0.778, 0.779, 0.832 respectively indicating a moderate agreement with the statements among the respondents. The result shows that overall the respondent perceived ChatGPT to act as an educational tool that helps them in saving time, improve learning efficiency and further gives access to diverse information.

Table 9 indicates a one-sample t-test, it was conducted with the test value of 3 to compare the mean score of perceived benefits of ChatGPT. $t(159) = 1.632, p = 0.105$ shows that the results are not statistically significant. The perceived benefits score was slightly higher than the neutral value with the mean difference of 0.119, although the difference was not significant.

Respondents generally view ChatGPT as beneficial but the perceptions of the respondent are not strong enough to be statistically significant, they were only moderately positive.

Table 9: One-Sample Test (test value=3)

| One-Sample Test | | | | | | |
|-----------------|-------|-----|-----------------|-----------------|---|-------|
| Test Value = 3 | | | | | | |
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| Benefits | 1.632 | 159 | .105 | .119 | -.02 | .26 |

Source: Self calculation by the researcher

Perception on the barriers of using ChatGPT in learning and academic activities

Table 10 shows the perceived barrier of ChatGPT highlighting that respondents have moderate concern over the potential drawbacks and limitations of ChatGPT. The highest mean score is observed in the statement “ChatGPT is unable to cite sources accurately” with the mean score of 3.57 and Standard deviation (SD) of 2.537 indicating that accuracy of the citation remains an issue whereas the high standard deviation shows a variation in responses. A relatively high mean score is seen for the statement “ChatGPT can provide inaccurate or false references” with the mean score of 3.56 and SD of 0.815 and statement “ChatGPT can provide unreliable information” with the mean score of 3.54 and SD of 0.800 shows that respondents are aware of lack of source of reliability and occasional inaccuracies.

Table 10: Barriers of using ChatGPT

| Barriers of using ChatGPT | Mean | Std. Deviation |
|---|------|----------------|
| ChatGPT can provide unreliable information | 3.54 | .800 |
| ChatGPT can provide inaccurate or false references | 3.56 | .815 |
| ChatGPT is unable to cite sources accurately | 3.57 | 2.537 |
| ChatGPT is unable to replace words or use idioms wisely | 3.15 | .779 |
| ChatGPT responses weaken after several paragraphs | 3.25 | .965 |
| ChatGPT cannot assess the reliability of sources | 3.28 | .745 |
| ChatGPT can exhibit logical errors or contradictions. | 3.43 | .758 |

The above table shows a moderate level of agreement is observed in the statement “ChatGPT can exhibit logical errors or contradictions” with the mean score of 3.43 and the SD of 0.758 and in the statement “ChatGPT cannot assess the reliability of sources” highlights a mean score of 3.28 and the SD of 0.745 it indicates that respondent recognize the potential limitation and flaws in the source. Lower mean of 3.25 and the SD of 0.965 is observed for the statement “ChatGPT responses weaken after several paragraphs” and a mean score of 3.15 and the SD of 0.779 for the statement “ChatGPT is unable to replace words or use idioms wisely” indicating that these issues under study are were less perceived by the respondent as a barrier. The finding shows that respondents know the weakness of the ChatGPT mainly related with the reliability and accuracy of its citations and information. Instead of strongly negative respondents shows a moderate concern.

Table 11 shows a one sample t-test with the test value of 3 to compare the mean score of perceived barriers of ChatGPT. $t(159) = -2.537, p = 0.012$ shows a statistically significant difference. The score of the perceived barrier was significantly lower than the neutral value indicated by the mean difference of -0.144. This highlights that respondents disagreed with the statement which describes the barriers indicating that the respondent did not perceive major difficulties or obstacles in using ChatGPT. The findings show that the users of the ChatGPT experienced few barriers while using ChatGPT in their learning and academic activities.

Table 11: One-Sample Test (test value=3)

| One-Sample Test | | | | | | |
|-----------------|----------------|-----|--------------------|--------------------|--|-------|
| | Test Value = 3 | | | | | |
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| Barriers | -2.537 | 159 | .012 | -.144 | -.26 | -.03 |

Source: Authors' calculation

Mean score of general perception, benefits and barriers of using ChatGPT

Table 12 shows that the highest mean is recorded with the general perception of ChatGPT with the mean score of 4.22 and The Standard Deviation (SD) of 0.579. An overall favourable attitude is seen in the analysis of respondents towards the ChatGPT indicating that they strongly agreed with the usefulness and ease of use of the ChatGPT. Mean score of 3.12 and the SD of 0.921 shows that the perceived benefits of ChatGPT were above the neutral value of three indicating that respondents recognized its advantages moderately although there is variation in the response which is reflected by the higher standard deviation.

Table 12: Mean score of general perception, benefits and barriers of using ChatGPT

| Items | Mean | Std. Deviation |
|--------------------------------|-------|----------------|
| General Perceptions of ChatGPT | 4.22 | 0.579 |
| Benefits of ChatGPT | 3.12 | 0.921 |
| Barriers of ChatGPT | 2.85 | 0.711 |
| General Mean of ChatGPT | 3.396 | 0.825 |

A lower mean is observed in the barriers to use of ChatGPT with the mean score of 2.85 and the SD of 0.711 indicating that the users of the ChatGPT generally disagreed with the statements which describe the limitation or difficulties in using the ChatGPT for academic and learning activities. It is confirmed that respondents held a general positive perception of the ChatGPT with the overall mean score of 3.40 and the SD of 0.825. This finding collectively highlights that some respondents showed moderate perception with regards to its specific advantages while a wide number of the respondents consider ChatGPT as a user-friendly and beneficial platform.

Table 13 shows a one –sample t-test which is conducted with a test value of 3 to compare the general mean perception of ChatGPT. Here $t(159) = -2.012$, $p = 0.046$ indicating a statistically significant difference. The general perception was slightly lower than the neutral value with the mean difference of -0.131. Thus it can be concluded that overall perception towards the ChatGPT is less positive and they did not strongly favour ChatGPT.

Table 13: One-Sample Test (test value=3)

| One-Sample Test | | | | | | |
|-----------------|----------------|-----|--------------------|--------------------|--|--------|
| | Test Value = 3 | | | | | |
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| General Mean | -2.012 | 159 | .046 | -.13125 | -.2601 | -.0024 |

Source: Self calculation by the researcher

Findings

The finding of the study shows that university students have a positive perception towards the use of ChatGPT in academic and learning activities. The descriptive analysis shows that ChatGPT act as an important tool as most of the respondent agreed that ChatGPT is easy to use with the mean score of 4.47 and the SD of 0.624, it provides quick answers with the mean score of 4.25 and SD of 0.727 and it also serve as useful tool for study with the mean score of 4.04 and SD of 0.764. The one-sample t-test suggest a strong positive attitude toward ChatGPT as the general perception of ChatGPT was significantly higher than the neutral value ($t(159) = 26.615$, $p < .001$)

In the perceived benefits , respondent recognize ChatGPT ability to save time with the mean score of 4.16 and SD of 0.708, provide information across diverse fields with the mean score of 3.93 and the SD of 0.770 and enhances writing and comprehension with the mean score of 3.87 and SD of 0.680. The one-sample t-test highlighted that their views with the ChatGPT is moderately positive.

In the barriers the results highlight that respondents have moderate concern about citation accuracy and reliability. The highest mean score is received for the statement “ChatGPT is unable to cite sources accurately” with the mean score of 3.57 and SD of 2.537 and “ChatGPT can provide inaccurate or false references” with the mean score of 3.56 and SD of 0.815. The one-sample *t*-test shows that while using ChatGPT students did not have major obstacles.

Limitations of the study

- The study was limited only to 160 students of Manipur University, Manipur. And it may not represent the perception of students from other universities or other regions.
- Data was collected for a specific period of time and perception of the student may change as ChatGPT is evolving.

Conclusions

The findings of the study shows that university students perceive ChatGPT as an beneficial and accessible learning tool, these findings align with the previous research which showed AI's ability in helping self-directed and personalized learning (Malinka et al., 2023; Lipman & Distler, 2023).

The study identifies a dual perception of ChatGPT as both a potential source of cognitive and ethical risk as well as an empowering educational tool. It concludes that ChatGPT is a support tool for academic and learning activities. Students appreciate its quick response time, ease of use and helpful in accessing diverse information. Students acknowledge that ChatGPT has certain limitations such as reliability concerns and citation inaccuracies but this barrier is not considered by the students as significant discouragement while using ChatGPT. The result shows that ChatGPT offers students a platform for efficient, personalized and interactive learning. Although, ethical and responsible use of ChatGPT remains important to ensure that without compromising academic integrity, students benefit from AI tools.

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