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EXPLORING THE LANDSCAPE OF AI TOOLS AWARENESS AND USE AMONG UNDERGRADUATE SCIENCE STUDENTS

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Abstract: This study explores Artificial Intelligence (AI) tool awareness and usage among science students at Government College Bhiwani. It aims to assess the extent of students' familiarity with various AI tools and the frequency of their application for academic purposes, particularly within a mobile-first, data-dependent, and largely rural demographic. A descriptive research design was employed, utilizing a survey questionnaire to collect data from 150 B.Sc. students across Medical, Non-Medical, and Computer Science disciplines. Data were analyzed using descriptive statistics, including frequency, percentage, and mean scores. The findings reveal a significant disparity between awareness of popular, versatile AI tools and specialized academic ones. While students showed high awareness and usage of applications like Canva (66%), Google Translate (59.3%), Gemini (46%), and ChatGPT (56%) , their familiarity with more niche tools was negligible. A key finding is the disconnect between behavior and perception: despite using AI tools regularly for academic tasks (an average of 3.45 times per week) , the students' overall perceived awareness of AI's broad academic capabilities was low, with a grand mean of 1.90, categorized as "Slightly aware". The study concludes that while AI tools are integrated into students' weekly study habits, their application is often superficial, and the full potential of AI as a comprehensive learning aid remains largely untapped.

Keywords : Artificial Intelligence (AI), AI Literacy, Higher Education, Student Awareness, Technology Adoption

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1.0 Introduction

The integration of Artificial Intelligence (AI) into sectors like research, business, and education has urged a significant increase in the awareness and use of AI tools. As these intelligent systems become more common, the ability to understand and effectively engage with them, known as AI literacy, is recognized as a critical skill. There is a growing interest in AI, with many people anticipating it will have a major impact on their lives. This is particularly evident in research environments where the adoption of AI, especially generative AI, has surged. A wide array of AI tools is now available, from widely recognized applications like ChatGPT to more specialized instruments. Businesses are using AI for everything from customer service chatbots to enhancing innovation and competitiveness , while AI-driven technologies are also reshaping HR practices. However, this rapid adoption is not without its challenges, including a lack of knowledge among users, and significant ethical concerns about privacy, over-reliance, and academic integrity. This study builds on existing literature by exploring these themes within a specific academic context.

2.0 Research Problem

Despite the widespread discussion about AI, there is a gap in understanding how students in specific educational settings, particularly in non-metropolitan areas, are engaging with these tools. While general trends show an increase in AI usage, the actual awareness and application of these tools for academic purposes may vary significantly based on demographic and technological factors. The provided data reveals a potential disconnect: while students may use certain AI tools frequently, their overall awareness of the full range of AI's academic applications remains low, described as "slightly aware". This suggests that usage might be superficial, concentrated on a few popular applications like Google Translate and Canva, while the broader potential of AI to enhance learning in areas like essay writing and analysis is not fully realized. The problem, therefore, is to determine the specific landscape of AI tool awareness and usage among science students at Government College Bhiwani, a population that is largely mobile-first and from rural backgrounds, and to understand the gap between their routine use of some AI tools and their limited perception of AI's broader academic capabilities.

3.0 Scope of the Study

This research focuses specifically on the science student population at Government College Bhiwani. The study surveyed 150 students pursuing B.Sc. degrees in Medical, Non-Medical, and Computer Science disciplines. The respondents were a mix of male (44%) and female (56%) students, with a significant majority (56.7%) residing in rural areas. The technological context is defined by a heavy reliance on mobile phones/tablets (82.7%) as the primary device for accessing the internet, predominantly through mobile data (64%) rather than Wi-Fi. The scope of the investigation is limited to assessing the students' awareness of 22 specific AI tools, their self-reported frequency of using these tools, and their perceived awareness of how AI can be applied to 15 different academic activities.

4.0 Objectives of the Study

1. The primary objectives of this study are:
2. To determine the demographic and technological profile of science students at Government College Bhiwani.
3. To assess the level of awareness among these students regarding a variety of specific AI tools.
4. To measure the frequency and patterns of AI tool usage for academic purposes.
5. To evaluate the students' perceived awareness of how AI applications can be utilized for various academic tasks, from problem-solving to improving writing skills.
6. To identify the gap between students' awareness of AI tools and their active utilization in their studies.

5.0 Literature Review

The rapid emergence of artificial intelligence (AI), particularly generative tools like ChatGPT, is fundamentally reshaping the landscape of higher education. This technological shift is presenting both unique opportunities and significant challenges for students and teachers alike (von Garrel & Mayer, 2023). The integration of AI tools has personalize the learning, automate tasks, and enhance academic outcomes, prompting a surge in scholarly research aimed at understanding the practical implications of this transformation (Yilmaz & Yilmaz, 2023; Oyeyemi et al., 2024). This review synthesizes current verdicts on university students' awareness and usage of AI, the factors driving its adoption, its perceived effects on academic performance, and the critical challenges related to its implementation, including academic misuse. Current literature indicates that AI adoption among university students is widespread, though awareness and access vary significantly by region and academic context. In Europe, usage rates are notably high; studies have found that almost two-thirds of students in Germany (63.4%) and 69% of students at a large European university have used AI tools for their studies (von Garrel & Mayer, 2023; Reiter et al., 2025). Similarly, a majority of Slovenian students' report using AI tools, with 51% using them "often" (Fošner, 2024). "The most commonly used tools across these studies include content generators like ChatGPT and writing assistants like Quillbot and Grammarly" (von Garrel & Mayer, 2023; Ventura & Lopez, 2024). However, access and awareness are not universal. A study in Nigeria found that a majority of university students were unaware of and lacked access to AI tools for learning, highlighting a significant digital divide (Alimi et al., 2021). This suggests that while AI integration is advancing rapidly in some regions, a lack of awareness and resources remains a primary barrier to adoption elsewhere.

Several studies have sought to identify the key factors that influence students' decisions to adopt AI tools. Frameworks such as the Technology Acceptance Model (TAM) have been adapted to this new context, revealing that general awareness, formal training, and seeming usefulness are significant predictors of AI adoption (Sova et al., 2024). Further extending this model, Reiter et al. (2025) found that students' trust in AI-generated outputs and their perception of opportunity costs—the sense of being at a disadvantage if they do not use these tools—are also crucial determinants of their intention to use AI. This is reinforced by research showing a strong, direct correlation between students' level of awareness and their frequency of use, suggesting that the more students know about AI tools, the more likely they are to integrate them into their academic routines (Ventura & Lopez, 2024). Beyond the drivers of adoption, research consistently shows that students perceive AI tools as having a positive effect on core academic competencies. A study of Nigerian university students found a significant positive relationship between the use of AI tools and students' self-reported learning abilities, problem-solving skills, and critical thinking abilities (Oyeyemi et al., 2024). In a similar vein, science education students perceive AI as a tool that enhances engagement, personalizes learning, and aids in the understanding of complex scientific concepts (Akintokun & Bolarinwa, 2025). These perceptions are supported by experimental research, which demonstrated that using ChatGPT as a learning aid significantly increased undergraduate students' computational thinking skills, programming self-efficacy, and motivation (Yilmaz & Yilmaz, 2023).

Despite the recognized benefits, the integration of AI is accompanied by significant challenges and concerns from both students and educators. Students express apprehension regarding the accuracy of AI-generated content, its potential to stifle genuine learning, and issues of academic integrity (Fošner, 2024). The most critical concern is the potential for academic dishonesty. A study employing a randomized response technique to encourage honest reporting estimated that 16% of students had misused AI tools in an examination context without disclosure (Reiter et al., 2025). Interestingly, students themselves are skeptical of AI's capabilities in this area; most Slovenian students disagreed that AI-generated results were undetectable by instructors or consistently accurate and reliable (Fošner, 2024). This indicates a nuanced student perspective that acknowledges AI's utility while also recognizing its limitations and ethical pitfalls. Collectively, literature underscores a consensus that the path forward requires proactive and balanced institutional strategies. A recurring recommendation across numerous studies is the need for universities to develop clear policies and guidelines for AI use (Akintokun & Bolarinwa, 2025; Ventura & Lopez, 2024). This comprises providing formal training for both faculty and students, integrating AI literacy into curricula, and exploring new forms of assessment that are less liable to misuse (Yilmaz & Yilmaz, 2023; Oyeyemi et al., 2024). Furthermore, ensuring equitable access to AI resources is critical to preventing a digital divide and leveraging AI's potential to generate more comprehensive learning environments (Alimi et al., 2021; Sova et al., 2024). By fostering a culture of responsible and ethical use, higher education institutions can better navigate the complexities of this technological shift and harness the transformative potential of AI for sustainable educational practices.

6.0 Research Methodology

The study utilized a descriptive research design to explore the landscape of AI tool awareness and usage among science students at Government College Bhiwani. The respondents were 150 science students, with a balanced representation from B.Sc. (Medical) (38.7%), B.Sc. (Non-Medical) (34.7%), and B.Sc. (Computer Science) (26.6%) programs. The sample comprised a slight female majority (56%) , and a huge portion (56.7%) resided in rural areas. Data was collected using a survey questionnaire designed to gather information on the respondents' profiles, their awareness and usage of specific AI tools, and their perception of AI's application in various academic activities. The collected data was then analyzed using descriptive statistics, including frequency counts, percentages, and mean scores, to profile the participants and quantify their awareness and usage patterns.

7.0 Data Analysis and Interpretation

Table 1. Profile of Respondents (N=150)

Profile Category	Particulars	Frequency (n)	Percentage (%)
Course of Study	B.Sc. (Non-Medical)	52	34.7
	B.Sc. (Medical)	58	38.7
	B.Sc. (Computer Science)	40	26.6
Sex	Female	84	56.0
	Male	66	44.0
Primary Device	Mobile Phone/Tablet	124	82.7
	Laptop	26	17.3
Internet Source	Wi-Fi	54	36.0
	Mobile Data	96	64.0
Area of Residence	Rural	85	56.7
	Urban	53	35.3
	Sub-urban	12	8.0

Table 1 offers a snapshot of the 150 science students surveyed at Government College Bhiwani, providing a picture of their academic, demographic, and technological backgrounds. Academically, the student body is quite balanced across the science disciplines, with B.Sc. (Medical) students forming the largest group at 38.7%, closely followed by B.Sc. (Non-Medical) at 34.7%, and B.Sc. (Computer Science) at 26.6%. Demographically, the group has a slight female majority (56%) over males (44%). Importantly, a substantial portion of these students (56.7%) reside in rural areas, with urban and sub-urban residents making up the rest. From a technological standpoint, the reliance on mobile phones/tablets is overwhelming, with 82.7% of students using them as their primary device, compared to only 17.3% using laptops. Furthermore, the majority (64%) access the internet via mobile data, with Wi-Fi usage at 36%. This profile suggests that the students are largely mobile-first, relying on personal data plans, and a significant number hail from rural backgrounds, factors that are vital when considering their access to and

interaction with digital tools like AI.

Table 2. Awareness of Specific AI Tools Among Science Students (N=150)

AI Tool	Frequency (n)	Percentage (%)
1. ChatGPT	84	56.0
2. Gemini	57	38.0
3. Microsoft Copilot	33	22.0
4. Grammarly	43	28.7
5. Quillbot	48	32.0
6. Canva	99	66.0
7. Slides AI	3	2.0
8. Perplexity	0	0.0
9. TOME	1	0.7
10. PDF Chatbot	15	10.0
11. DALL-E	1	0.7
12. Microsoft Math Solver	8	5.3
13. Yippity	0	0.0
14. Maple Calculator	3	2.0
15. Curipod	1	0.7
16. YouTube Summary Tool	23	15.3
17. Photomath	41	27.3
18. Microsoft Speaker Coach	6	4.0
19. Symbolab	2	1.3
20. Google Translate	89	59.0
21. Google Lens	52	34.0
22. Speechify	1	0.7
23. Others	23	15.3

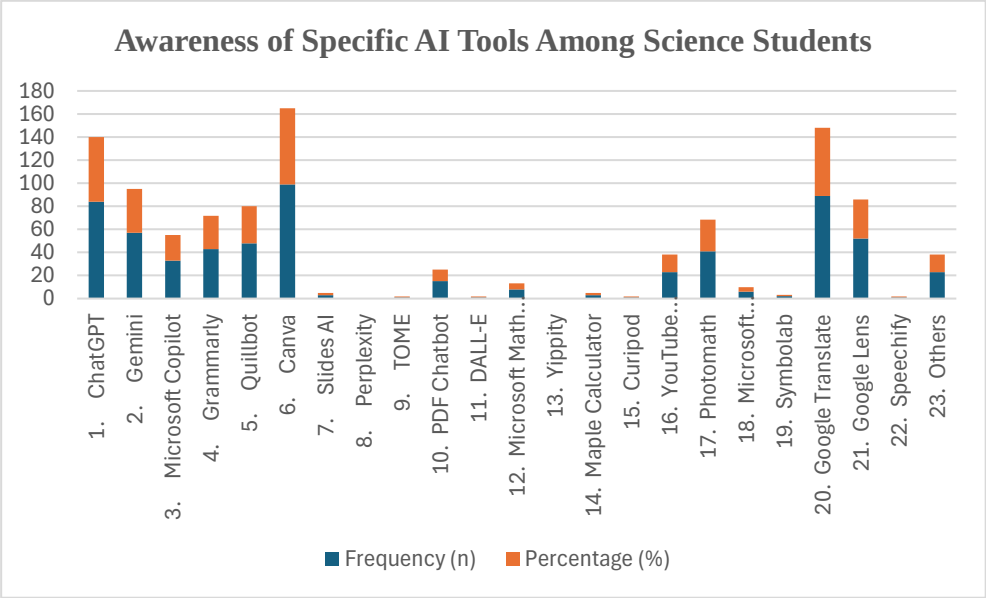

Figure 1: Awareness of Specific AI Tools Among Science Students

Table 2 shows that while science students demonstrate high awareness of popular and versatile AI tools like Canva

(66%), Google Translate (59%), and ChatGPT (56%), their familiarity drops significantly for more specialized or emerging AI applications, with many tools showing very low or zero awareness. This advocates that students are mostly aware of AI tools that offer immediate and practical utility for common tasks like creative design, language translation, and general information retrieval, but lack exposure to the broader spectrum of AI capabilities.

Table 3. Usage of Specific AI Tools by Science Students (N=150)

AI Tool	Frequency (n)	Percentage (%)
1. ChatGPT	62	41.3
2. Gemini	69	46.0
3. Microsoft Copilot	28	18.7
4. Grammarly	31	20.7
5. Quillbot	41	27.3
6. Canva	83	55.3
7. Slides AI	3	2.0
8. Perplexity	0	0.0
9. TOME	1	0.7
10. PDF Chatbot	11	7.3
11. DALL-E	1	0.7
12. Microsoft Math Solver	6	4.0
13. Yippity	0	0.0
14. Maple Calculator	3	2.0
15. Curipod	1	0.7
16. YouTube Summary Tool	21	14.0
17. Photomath	35	23.3
18. Microsoft Speaker Coach	4	2.7
19. Symbolab	2	1.3
20. Google Translate	89	59.3
21. Google Lens	42	28.0
22. Speechify	1	0.7
23. Others	18	12.0

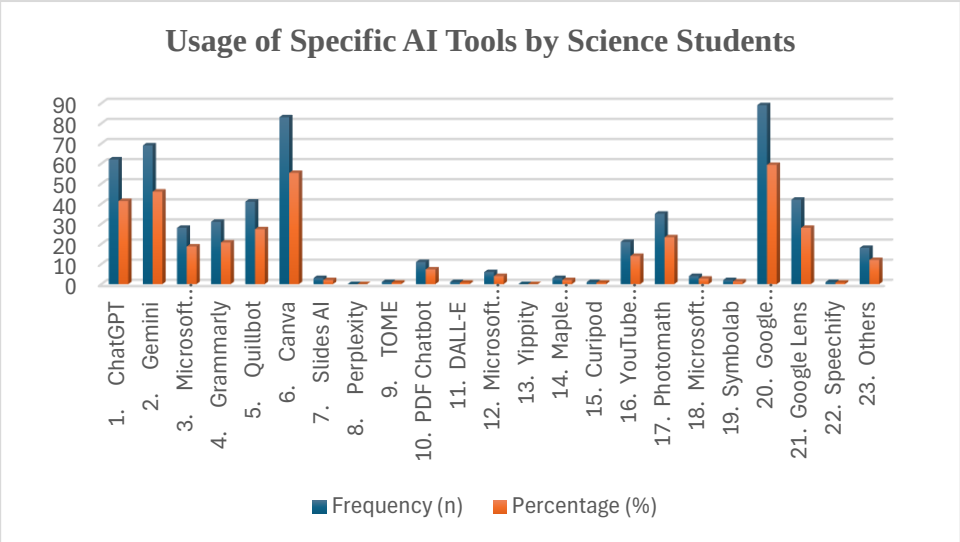

Figure 2: Usage of Specific AI Tools by Science Students

In Table 3 and figure 2, the usage data indicates that Google Translate (59.3%) and Canva (55.3%) are the most frequently utilized AI tools by science students, followed closely by Gemini (46%) and ChatGPT (41.3%). This confirms that students predominantly leverage AI for general utility and text-based tasks, while more niche or advanced AI applications, corresponding to their low awareness, see negligible to no usage, highlighting a direct correlation between awareness and active utilization.

Table 4. Perceived Awareness of AI Tool Applications for Academic Activities

Statement: I am aware that I can use AI tools to...	Mean Score
1. Analyze scientific and mathematical problems	1.98
2. Gain a deeper understanding of lessons	1.80
3. Summarize lessons and notes	1.96
4. Translate languages	2.04
5. Take down notes	2.01
6. Create detailed illustrations	1.92
7. Solving mathematical problems	2.02
8. Review lessons	1.78
9. Write essays	1.88
10. Improve presentation skills	1.78
11. Write grammatically correct sentences and paragraphs	1.68
12. Create presentations	1.84
13. Present detailed solutions to math problems	2.30
14. Anticipate potential questions from teachers	1.94
15. Rephrase essays	1.58
Grand Mean	**1.90**

Note: 3.25-4.00: Extremely aware; 2.50-3.24: Moderately aware; 1.75-2.49: Slightly aware; 1.00-1.74: Not aware at all

As shown in Table 4, the respondents' awareness of using AI tools for various academic tasks is generally low, with all items falling under the category of "slightly aware." The grand mean score of 1.90 reflects limited familiarity with the potential applications of AI in education. The respondents showed relatively higher awareness in using AI to present detailed solutions to math problems (Mean = 2.30), translate languages (Mean = 2.04), and solve mathematical problems (Mean = 2.02). On the other hand, the lowest awareness was recorded for rephrasing essays (Mean = 1.58), writing grammatically correct sentences and paragraphs (Mean = 1.68), and improving presentation skills (Mean = 1.78).

Table 5. Mean Frequency of AI Tool Usage for Academic Purposes (Times per Week)

Statement: I use AI tools to...	Mean (times per week)
1. Analyze scientific and mathematical problems	3.46
2. Gain a deeper understanding of lessons	3.20
3. Summarize lessons and notes	3.56
4. Translate languages	2.79
5. Take down notes	3.54
6. Create detailed illustrations	3.40
7. Solving mathematical problems	3.55
8. Review lessons	3.40
9. Write essays	3.30
10. Improve presentation skills	3.10
11. Write grammatically correct sentences and paragraphs	3.23
12. Create presentations	2.98
13. Present detailed solutions to math problems	3.49
14. Anticipate potential questions from teachers	3.32
15. Rephrase essays	3.37
Grand Mean	**3.45**

Table 5 shows the science students' frequency of using AI tools for academic purposes. The average indicates a modest baseline of about three to four times a week, suggesting these technologies are integrated into the students' routines, but not extensively. Students show consistent engagement across most activities, with lesson and note summarization being the highest at 3.56, followed by problem-solving (3.55) and note-taking (3.54). Even slide creation and presentation practice that rank lower still hover around the 3x/week mark. Overall, it appears that students do not employ AI daily or across every task; however, during core academic tasks such as comprehension checking, problem solving, and organization several times a week, students are seemingly leveraging AI actively supportive ways.

8.0 Findings of the Study

The study yielded various key findings regarding the profile of respondents and their engagement with AI tools:

- The student sample comprised a balanced representation across science disciplines, with B.Sc. (Medical) students forming the largest group at 38.7%, closely followed by B.Sc. (Non-Medical) at 34.7%, and B.Sc. (Computer Science) at 26.6%.
- A slight female majority (56%) was observed among the respondents, with males accounting for 44%.
- A significant portion of the students (56.7%) resided in rural areas, with urban and sub-urban residents making up the rest.
- Technologically, there was an overwhelming reliance on mobile phones/tablets as primary devices (82.7%), compared to only 17.3% using laptops.
- The majority of students (64%) accessed the internet via mobile data, with Wi-Fi usage at 36%. This indicates a mobile-first, data-dependent user base, particularly relevant given the rural demographic.
- Students demonstrated high awareness of popular and versatile AI tools such as Canva (66%), Google Translate (59%), and ChatGPT (56%).
- Awareness significantly dropped for more specialized or emerging AI applications, with many tools (e.g., Perplexity, Yippity) showing extremely low or zero familiarity.
- This suggests students are mostly aware of AI tools that offer immediate practical utility for common tasks like creative design, language translation, and general information retrieval, but lack exposure to the broader spectrum of AI capabilities.
- Usage patterns mirrored awareness , with Google Translate (59.3%) and Canva (55.3%) being the most frequently utilized AI tools by science students.
- Gemini (46%) and ChatGPT (41.3%) also showed substantial usage.
- Niche or advanced AI applications, corresponding to their low awareness, saw negligible to no usage, highlighting a direct correlation between awareness and active utilization.
- The overall perceived awareness of how AI tools can be applied to diverse academic activities was categorized as "Slightly aware," with a Grand Mean of 1.90.
- Students showed slightly higher perceived awareness for mathematical problem-solving (mean: 2.30) and language translation (mean: 2.04).
- However, their understanding of AI's utility for tasks like essay rephrasing (mean: 1.58) and grammatically correct writing (mean: 1.68) remained limited, suggesting a superficial grasp of AI's comprehensive academic potential.
- Despite being only "Slightly aware" of the full scope of AI applications, students reported a regular and active integration of AI tools into their studies, with a Grand Mean usage frequency of 3.45 times per week.
- Students most frequently used AI to summarize lessons and notes (3.56 times/week), solve mathematical problems (3.55 times/week), and take down notes (3.54 times/week).
- Even less frequent applications, such as creating presentations or improving presentation skills, still showed usage of around 3 times per week. This overall pattern suggests that while students might not be

using AI tools daily for every task, they are actively leveraging them several times a week to support core academic functions like content comprehension, problem-solving, and organization.

9.0 Limitations of the Study

The study was conducted at a single institution, Government College Bhiwani, with a sample of 150 science students. So, the results may not be generalizable to students in other disciplines, colleges, or geographic regions, particularly those with different demographic profiles or better access to technology like laptops and Wi-Fi. The data on awareness and usage frequency relies entirely on the students' self-reported answers. This methodology is subject to recall bias and social desirability bias, where students might overstate or understate their actual engagement with AI tools. The study assessed a predefined list of 22 AI tools. This list is not exhaustive, and students may be aware of or using other AI applications not involved in the survey. The research measures awareness and frequency of use but does not qualitatively assess the depth of the students' understanding or the proficiency with which they use these tools.

10.0 Conclusion

The study reveals that science students at Government College Bhiwani are active but selective users of AI tools. While they show high awareness and frequent use of popular, multi-purpose tools like Canva, Google Translate, Gemini, and ChatGPT , their familiarity with more specialized academic AI applications is strikingly low. This indicates that students primarily engage with AI for general and practical tasks rather than for deep, subject-specific academic enhancement.

A key finding is the significant disconnect between usage frequency and perceived awareness. Despite using AI tools on average 3 to 4 times per week for academic tasks like summarizing notes and solving math problems , the students' overall understanding of AI's potential applications in their studies is "slightly aware". They have a limited grasp of how AI can assist with more nuanced academic work, such as improving grammar, rephrasing essays, and enhancing presentation skills. The study underscores that the student population is largely mobile-first and from rural areas, which shapes their interaction with digital technologies. Ultimately, while AI has been integrated into their weekly study routines, its full potential as a comprehensive educational partner remains largely untapped.

11.0 Recommendations and Suggestions for Improvement

As implemented from the results, different methods are developed to ensure complete integration of technology on an academic level.

i. **To Recognize The Importance of AI In Education:** The institution starts by arranging classes designed to get students out from under functional, general-purpose technology. These classes aim at providing easy-to-use AI applications like mobile-powered ones specific to scientific data analysis, literature reviews, and advanced problem-solving because the majority utilize app resources due to lack of knowledge regarding available options.

ii. **Incorporate teaching of ethics surrounding AI into curriculum across all levels-Technology:** The curriculum must be updated across all levels to include the teaching of AI ethics. This ethical foundation should guide the redesign of assignments, moving them away from simple, rote tasks to those that require higher-order cognitive engagement. For example, students should be taught to critically evaluate AI-generated content through a structured process: first, by vetting the quality of the input they provide; next, by analyzing the AI's output; and finally, by validating that output against independent, reliable standards. The ultimate goal is to foster advanced collaboration, empowering students to use AI as a partner to tackle highly complex problems and achieve innovative results that would be unattainable alone.

iii. **Shifting Focus to Practical Skills in Problem Solving:** Using tools that provide instantaneous answers can lead to learning without real understanding. Though, when these tools are used with proper guidance, they can lead to profound and deep comprehension. This combination unlocks a feeling of effortless creativity and limitless potential, making the process of learning feel blissful and freeing.

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