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Assessing Artificial Intelligence Literacy: The impact on Higher Education students on AI Usage Intention

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ABSTRACT

Purpose: The purpose of this study empirically examines the prevalence, purpose and predictors of AI usage among higher education students. **Design:** A descriptive survey was conducted based on a semi-structured scheduled questionnaire distributed using stratified random sampling among 1000 students of West Bengal State University. The responses were collected citing criteria fulfillment and elimination was done to remove improper response. Based on the current criteria 78.5% response rate was obtained for further examination. **Findings:** The investigation highlighted multi-dimensional proficiency of students evaluating ethical Awareness, authenticity concern, critical evaluation and practical application of AI indicating fluency gap where 86% students utilized AI for research, critical thinking, better learning, and academic task. Less than 40% students' demonstrated biasness which might vary based on the data set, sampling, labeling, algorithms and feedback loops. Empirical estimation will help universities support AI usage based on ways the students use them. Students use AI tools for academic scaffolding and cognitive offloading rather than a substitute for learning. ChatGPT is popular among students functioning as a

probabilistic knowledge synthesizer compressing vast information into concise outputs and **Interactive query refinement loop** not like static resources, ChatGPT supports iterative query where students refine research questions, hypotheses, and analytical approach through multi-turn interaction. **Originality:** The study provides India specific primary data from respected university students across various disciplines as AI literacy framework for inclusion in university curriculum emphasizing transition from passive AI consumption to informed ethical co-creation as policy and pedagogy cannot replace western findings.

1. Introduction: Technological improvement and influence in every prospect of our life must include the education system. The use of online learning has accelerated the integration of Artificial Intelligence (AI) in our education system.The application of Artificial Intelligence tools among library users has been continuously evolving since 1962 to the present. The year 2000 has seen a rise of digital libraries supported by Generative AI system and intelligence search components. Growing interest on AI adoption and students experience garnered AI influence among student's intention to adapt AI. Higher education limits innovative theoretical lens of understanding AI. Almond (2009) found that students with higher individual scores agreed to get lower group scores comparatively with lower individual scores achieved higher group scores. Though the effecton students AI usage intention are mainly for learning and exam oriented purpose. The lack of group work indicates lack of time management for individual project in a specific curriculum. The 2020s have seen a major shift in generative AI and large language models shifts like ChatGPT, Gemini and Deepseek which provide users with direct collaborative interaction with AI. Libraries are increasingly adopting AI assistant, Chatbot, Smart OPAC and personalized digital reference service. Today, AI supports various prospects such as research productivity, information management from the perspective of users, but raises questions about its accuracy and privacy. Overall, history has shown transformation form automation to intelligent interactive AI-powered learning and research facilities. Our study primarily emphasizes on the individual usage of AI among the students particularly for education purpose. These findings highlight the exact need to explore motivation types and assessment formats influencing student's intention on AI engagement. We examined direct usage pattern, AI tools moderating effects, intentions to use AI-specifically ChatGPT for individual and group based learning and exam context.

2. Objectives: The study discourses four research objectives. These are as follows:

i. Examination of empirical estimation and frequency of AI tools in academic activities.

ii. Identification of AI tools creating an impact among students.

iii. Highlight frequently used AI tools popular among students.

iv. Observation of awareness and authenticity concerning AI tools among students.

3. Literature Review: Haris et al. (2025) deployed a questionnaire modified from a previous published work and distributed among academic library patrons in India through various digital channels. As a result, 383 responses were received in this regard. The researchers used inferential statistical methods (including ANOVA and Chi-Square test) in examining the relationship between demographic factors (gender, age, education) and user attitude (AI knowledge, propensity and optimism). Kannaujia and Patel (2025) conducted a study that included academic library users knowledge about artificial intelligent in the Banaras Hindu University automated central library using 285 response. It highlighted that only 45.88 % of the users were aware of AI tools like Chatbot, although 64.71% were aware of general automation. Aguilar-Guggembul et al. (2025)directed a study in which 238 responses were collected, representing 12% of the total students. Of these, 99.6% of respondents answered that they use AI tools for various purpose, including information retrieval, text translation and problem solving along with image creation. Majority of the respondents did not report experiencing and impact on educational formation, some highlighted the importance of independence leader and moral value to ensure responsible use of AI. Biwhajee et al. (2025) suggested the strong desire among students to use ChatGPT as an AI generative tool due to its efficiency, user-friendly nature and ease of use. While students have moderate confidence in the information reliability provided by ChatGPT, however they cited it as a valuable tool for information generation. Nugrahawati (2025) discussed AI usage in developing academic integrity, originality and independent scholarly skill. Finally, this study provides some recommendations for the responsible and effective use of AI in academic writing and research. Baah-Peprah et al. (2025) made a study on higher education students AI usage and its impact on their education. This study investigated how group based and individual assessment affect students intentions to use AI specifically ChatGPT- for learning and exams, considering autonomous and controlled motivations. Survey was conducted on 193 undergraduate and postgraduate business students using co-variance based structural equation modeling techniques. In the findings it is noted that group based assessments increase student's likelihood of using AI for learning. Dahri et al. (2024) Studied thoroughly examining students in Pakistan and Malaysia adopting artificial intelligent tools, creating a valuable impact on global discussion about the use of

technology in higher education. This research shows that students primarily believe on AI tools because it is user friendly helping them achieve good grades.

4. Methodology: A descriptive survey was conducted in the university campus to explore library user opinion on AI tools, awareness as well as problem encountered during its application among Postgraduate students. A semi-structured scheduled questionnaire was distributed among 1000 students by stratified random sampling to collect data from West Bengal State University. The Questionnaire was circulated and a total of 785(Male=325 and Female=460) responses was collected after criteria fulfillment and elimination due to improper response. Out of the total population of 1000 postgraduate students of WBSU, 785 valid responses were obtained, yielding a response rate of 78.5%. Among the respondents, 325 (41.4%) were male and 460 (58.6%) were female. A chi-square goodness-of-fit test indicated that the gender distribution significantly differed from an assumed equal representation (χ^2 = 23.22, df = 1, $p < 0.05$). The estimated margin of error at 95% confidence level was ±3.5%, indicating strong sampling adequacy. The refined data was tabulated and visualized for proper pictorial representation.

Scope and Limitations: The study is confined to Post Graduate students of West Bengal State University where findings cannot be generalized on other universities without comparative validation. The data was collected at a single point in time whereas AI usage behavioral results evolve rapidly due to technological advancements and policy changes. Female respondents (58.6%) outnumber males (41.4%) influencing the aggregated findings if gender differences in AI adoption exist. The response rate (78.5%) is high however 215 students did not respond showing changing behavioral pattern based on socio-economic background, digital literacy level, academic performance not included, explanatory depth constrained. AI tools evolve quickly creating temporal stability of the findings. This study with 785 valid responses with 78.5% response rate, while sample size ensures statistical adequacy with a ±3.5% margin of error at 95% confidence level where findings are institution specific relying on self-reported data leading to bias in response. Finally rapid technological AI advancement influence usage pattern limiting generalization of findings on a long term basis.

5. Data analysis:

5.1. Empirical Estimation of Respondents: Among 785 students we separated respondents based on gender. 71% participants were female students and only 29% students were male as the number of female students is higher than boys. We made a selective questionnaire format for collecting responses with an empirical estimation. It is noticed in Chart 1 that for individual assessment students are mostly using

Artificial Intelligence for completing their assignment(34%) but a minimal number of students are ready to use AI for their overall course curricula development that is 25%. In lessening workload they used AI mainly for qualifying their course (27.77%). In post-graduate level they have to depend on AI mainly for understanding new topic and its application (25.64%) on the particular field. For learning criteria students mainly use ChatGPT for their academic purpose (69.08%) which is highest that other criteria found in this level though they also used AI for inclusive learning purpose (56.82%) and future academic learning (14.62%).

Sl. No.	**Criteria wise Responses with Gender Refinement**	**Query Estimation**	**Percentage(Out of total 785 Respondents, Male=325 &Female =460)**
1.	For individual assessment Male =272 Female= 328	a.For course demand b.For personal work c.For assignment purpose d.For laboratory assistant	**25%** **19.66%** **34%** **21%**
2.	Lessening workload Male =212 Female=256	a.Completing course by little work b.Only pass the course c.Make evaluation easy d.Not comprehending curricula properly	**22.64%** **27.77%** **23.93%** **25.64%**
3.	AI usage only for learning purposes Male=303 Female=415	a. Using ChatGPT only for academic purposes b. Using ChatGPT for future academic learning c. Using ChatGPT for academic inclusive learning purposes only	**69.08** **14.62** **56.82**
4.	AI usage only for exam purposes Male=269 Female=317	a.Using only for assignment and examination b. Using for future assignment and exam c. Using to prepare presentations related to course curricula	**53.58%** **48.80%** **43%**

5.	Medium of AI for Learner Male=325 Female=460	a. By Social media b.By Classes or workshops c.By friends and classmates d.By online videos or research articles Any other way	**71.21%** **58.72%** **32.10%** **63.18%**
Total			**100**

Chart 1: Empirical Estimation of Respondents

For examination purpose they have liked to use AI tool for their assignment and examination purpose (53.58%) that is higher than course curricula presentation purpose (43%).Students can explore AI tools using through multiple mediums by reflecting different information habits and interests. Mostly Social media (71.21%), online videos or research articles (63.18%)formal educational groups are introducing students to AI tools. The sources may depend on personal preferences and desired depth of knowledge and accessibility. Empirical estimation helps to measure actual data from university respondents defining how much and ways in which students use AI before drawing conclusions based on evidence rather than assumption.

5.2. Frequency of respondents Using AI Tools for their Academic Work:

As per our data interpretation of using AI showed in the Figure 1 observed that most of the students used AI sometimes (50.57%) as they may not need AI everyday but find it helpful for specific work.

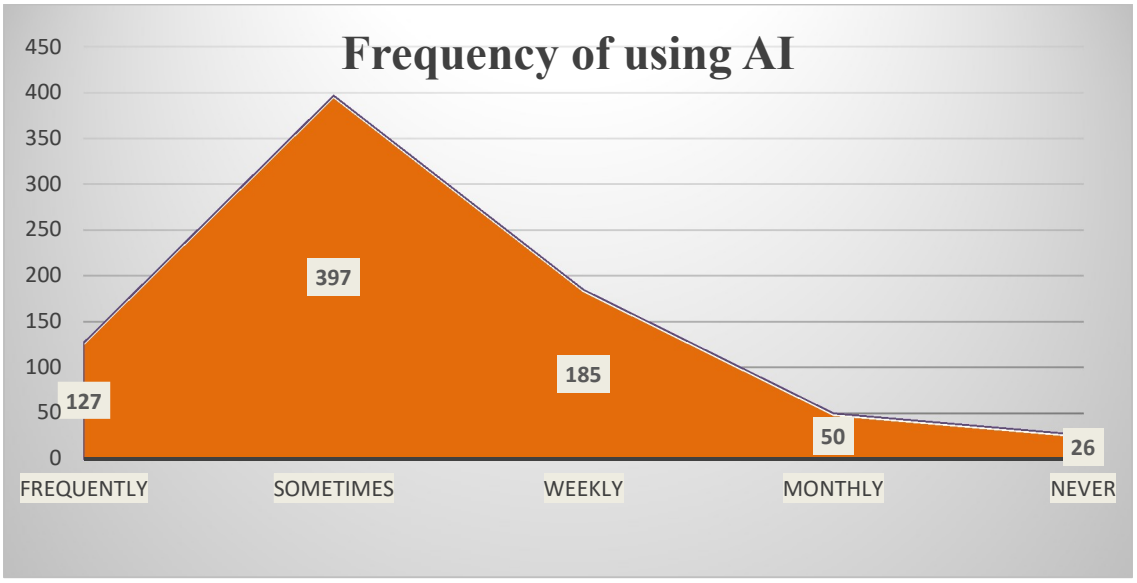


Figure 1: Frequency of Using AI

Some of them are using monthly (6.36%) and weekly (23.56%) as they may be aware of AI tools buts don't see a clear need of it. Frequent (16.17%) respondents likely works with AI integration and they may be early adopters who likes to explore new technologies and find ways to increase productivity. Interestingly, 26 respondents confessed that they never used AI that means they may be not aware of AI tools or have strong objection on it. Therefore frequency of AI usage acts a proxy indicator of adoption, skill gap, pedagogical alignment and policy readiness reflecting AI learning curve for institutions to intervene.

6. Precise Purpose of using AI tools among students:

The uneven adoption varies in academic stems. As a result, some students actively use AI tools for data collection, writing and coding but others may use them primarily for study and revision while a segment may not use them at all. This diverse use underscores the need for increase awareness; improve tool accessibility and ongoing discussion about ethical implications to encourage greater and more responsible AI integration in academic sector. At the chart 2 showed that in research and information gathering out of total 321 responses most of the AI tool observed ChatGPT (open Ai) that is 37.38% and the follower is Google Gemini (21.80%). So we can say that for research integration and data accumulation the students are mostly used these two tools but they also used Perplexity AI(19.93%),elicit(15.57%) consensus and Scispace also. In the 2nd criteria we have observed that for writing and editing purpose they also used ChatGPT (Open AI)(37.57%) mainly followed by QuillBot (25.14%),Grammarly (20.41%).Some other editing tools like Claude, Jasper and Paperpal also used by them. For data analysis and coding they used Blackbox AI mostly (30.24%)

Sl.No.	**Purposes and responses (Out of 785 respondents)**	**AI Tools**	**Percentage (%)**
1.	**Research and Information Gathering Total responses=321(40.89%)**	a. ChatGPT(Open AI) b.Google Gemini c.Perplexity AI d.Elicit e.Consensus f. SciSpace	**37.38%** **21.80%** **19.93%** **15.57%** **3.11%** **2.18%**
2.	**Writing and editing Total responses=338(43.05%)**	a. Grammarly b. ChatGPT (Open AI) c.Claude	**20.41%** **37.57%** **6.50%**

		d. QuillBot e.Jasper f. Paperpal	**25.14%** **7.39%** **2.95%**
3.	**Data analysis and coding** **Total responses=615 (78.34%)**	a.Notebook LM b.Julius AI c.Cursor d.Tableau AI e. claude 3.5 f.Polymer g. Blackbox AI h. Deepseek	**19.51%** **3.57%** **1.62%** **13.82%** **1.62%** **1.62%** **30.24%** **27.96%**
4.	**Studying and revision** **Total Responses=309(39.36%)**	a. ChatGPT(Open AI) b.Google Gemini c. NoteGPT d. Quizlet e. Notebook LM	**41.74%** **38.83%** **6.47%** **3.23%** **9.70%**
5.	**Image Editing** **Total responses=437(55.66%)**	a.Adobe Photoshop firefly b. Canva(Magic Studio) c.Gemini d. Pixlr e. Midjourney	**19.67%** **26.77 %** **38.44%** **8%** **7%**
6.	**Video Editing** **Total responses=318(40.50%)**	a.Canva AI Video Generator b.Runway Gen c.Google Veo d.Seedance e.Luma Dream Machine f.Descript g.Opus Clip	**29.24%** **25.78%** **10.06%** **17.92%** **14.77%** **0.62%** **1.57%**
7.	**Presentation** **Total**	a.SlideGo b.GammaAI	**46.31%** **28.97%**

	Responses=421(53.63%)	c.Presentation.AI d.Beautiful.ai e.PlusAI	**17.10%** **4.51%** **3.08%**
8.	**Other purposes** **Total responses=30**	Any other sources of AI except above tool	**3.82%**

Chart 2: Precise Purpose of Using AI

higher than other AI tools like Deepseek (27.96%), Notebook LM (19.51%). Study purposes they used in a high percentage (41.74%) of ChatGPT followed by Gemini (38.83%).

From the above charts we can understand that 38.44% of total participants are using Gemini for image creation because it was available freely and sometimes for advanced features at a very low price, which followed by Canva (26.77%) for easy-to-use tools to be integrated with Google ecosystem such as Google workspace. Its security features, content filters and copyright awareness may be ideal for academic environments. Other AI tools are slightly popular among students.29.24% students among all the participants are using Canva AI video generator,25.78% are using Runway Gen, 10.06% are using Google Veo, 17.92% are using Seedance,1.57% are using Opus Clip and only 0.62% are using Descript for their academic works. It provides drag-drop editor; large library templates that make the assignments look professional without advanced skills. They appreciate it especially for presentation and video explanations. Above chart showed that highest using AI tool for presentation purpose is SlideGo (46.31%), Gamma AI (28.97%), Presentation.AI (17.10%), PlusAI (3.08%) and lowest one is Beautiful.ai (4.51%). But there is positive change, as we can see that almost all of them are quite popular among the participants. These tools provide ready-made professional slides with simple prompt which is visually appealing. Therefore AI tools primarily help in academic scaffolding and cognitive offloading used to draft assignments, retrieve and simplify information, examination preparation and augmentation rather than wholesome substitution to learning.

7. Most used AI agent: From the above we can understand that ChatGPT quite popular among all the participants cause it can any type of academic work like writing, coding, summarizing etc. in a efficient way. Either students are more acquainted with ChatGPT interface or maybe they are not aware of the features of the other tools mentioned above. There can be some biasness based on data training sets, human feedback, and safety fine tuning however preference on ChatGPT is high as students find it easy to use. Next place taken Google Gemini which is very frequently usable AI tools by the students of Post Graduate. As in Figure 2 showed the data of January 2025 our respondents also remarks on our selective

questionnaire. Though it is a statistical analysis we have also the same type of data found in our survey work. Some of the students are not aware of the AI usage in their reading purposes but they clearly mentioned that they used AI for their presentation preparation and image editing. But our main aim was to find out their motive to use AI in their study as well as their personal life. So, it is clear that figure 3 shows data that mentioned the number of respondents and their collective use of AI tools

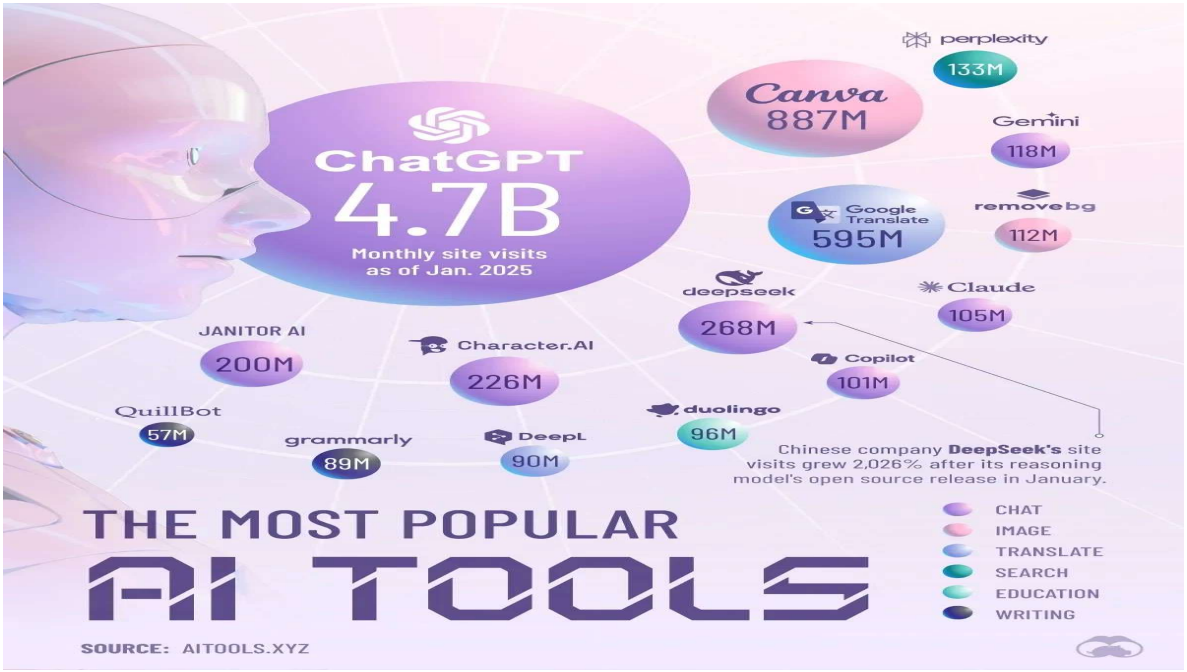


Figure 2: The most popular AI tools (Source:https://www.visualcapitalist.com/ranked-most-popular-ai-tools-by-monthly-site-visits)(As per the data published on January,2025)

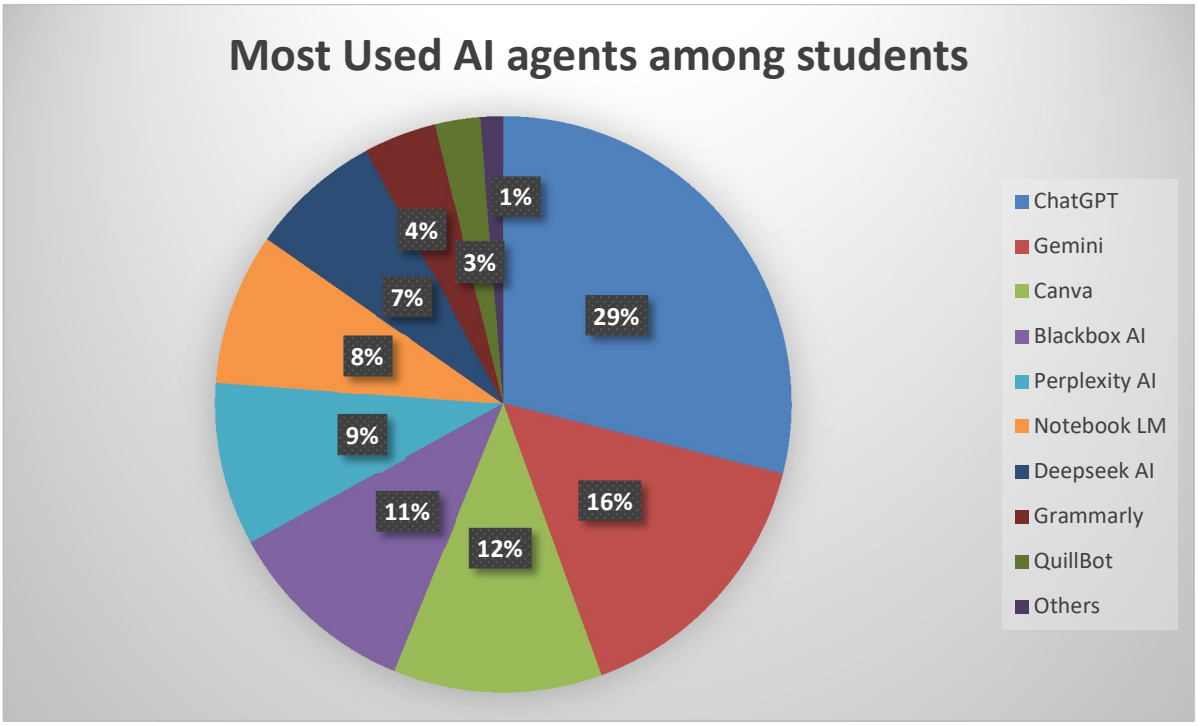
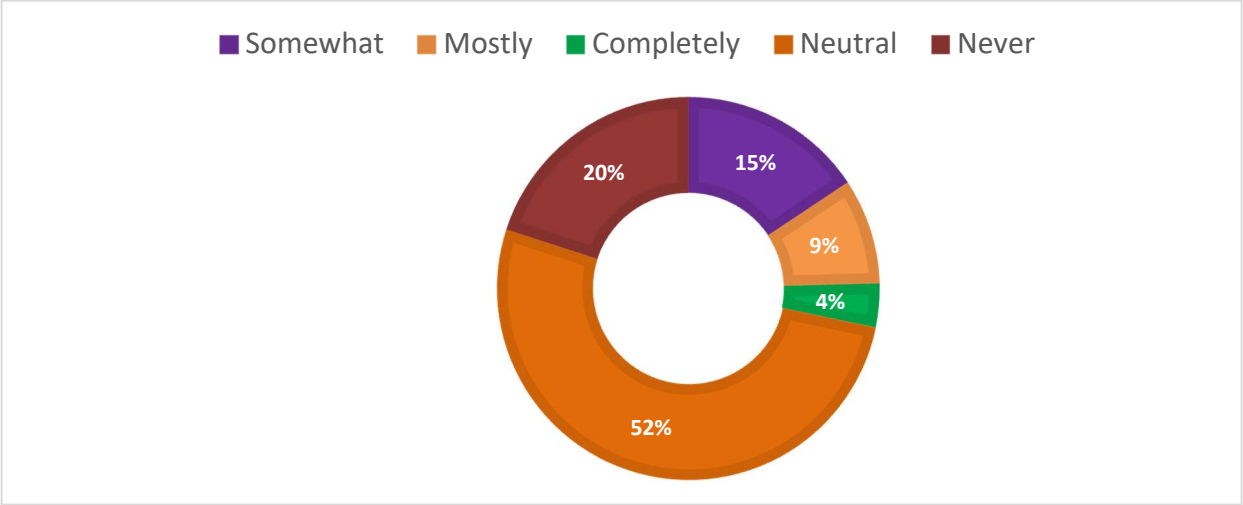


Figure 3: Most used AI agents

8. Awareness and authenticity on AI generated information among students:

Somewhat	Mostly	Completely	Neutral	Never
123	70	29	406	157



52% students of total participants trust on AI generated information in neutral way, 15% trust somewhat, 9% trust mostly, 4% trust completely and Whereas 20% students don't trust AI generated information at all because it can provide out dated content, errors or bias outputs. AI tools often provide answer without any exact or rightful explanations which can't be considered accountable as human experts. Certain rules that are to be kept in mind such as never trust and always verify the output, reference sources must be cross verified and citations must be done before drawing conclusions.

6. Conclusion:

The study achieved a high response rate (78.5%), indicating strong engagement. Female participation (58.6%) significantly exceeded male participation (41.4%). Chi-square analysis confirms statistically significant deviation from equal gender distribution. Margin of error remains within acceptable academic research limits (±3.5%). The sample size (n=785) is statistically adequate for advanced inferential analysis such as regression or SEM. Approximately 85-86% of students and a high percentage of faculties in higher education are actively using generative AI for academic tasks, mainly to support learning due to perceived benefits driving adoption. While AI is increasingly essential, adoption is

tempered by significant concerns over accuracy, bias, academic integrity, and a need for better training. The data reflects that AI has attained normalized academic support tool for routine task indicating technology diffusion and urgent need for library led AI literacy for critical ethical use.

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