NWISA JOURNAL OF SOCIOLOGY
A Peer Reviewed and Refereed Journal ISSN Number 3048-6963 (Online)
Volume 2 Oct 2025

Impact of Artificial Intelligence on Student's Learning

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Abstract: *This research paper explores the growing influence of Artificial Intelligence (AI) on the learning behaviours and academic practices of students in Chandigarh, India. In an era of rapidly evolving digital education, students are increasingly engaging with AI-powered platforms and tools for academic assistance, including doubt resolution, content generation, assignment preparation, and personalized study guidance. The study adopts a mixed-method approach, drawing data from 60 students at the senior secondary and undergraduate levels through structured questionnaires and in-depth interview schedules. Notably, the research excludes the use of scales or gender-based categorization to maintain focus on content-based responses.*

The findings indicate that AI plays a significant role in improving learning efficiency, self-directed study habits, and access to instant academic support. However, the research also uncovers key challenges such as students' overdependence on AI-generated answers, limited understanding of AI operations, lack of content verification, and insufficient awareness of ethical concerns like plagiarism and data privacy. Students' reliance on AI tools has, in some cases, led to reduced critical thinking and minimal engagement with traditional learning resources.

The study concludes with a call for comprehensive AI literacy programs within educational institutions to ensure responsible usage. These programs should emphasize critical evaluation of AI-generated content, ethical digital behaviour, and the complementary role of AI alongside conventional learning methods.

Keywords: Artificial Intelligence, student learning, education technology, AI tools, academic behaviour, AI ethics, digital literacy, Chandigarh, mixed-method study, personalized learning

Introduction:

Artificial Intelligence (AI) is slowly but steadily making inroads into the Indian educational system and thereby making similar ripples on the global arena. AI-powered tools and applications are revolutionizing how students access information, prepare for examinations, complete assignments, and engage in personalized, independent learning. The usage of AI in education has grown substantially, where students are increasingly exposed to digital technologies and platforms.

Popular tools such as ChatGPT by OpenAI (2023), Doubtnut, Grammarly (n.d.), Google Lens (n.d.), and Khan Academy's Khanmigo AI Tutor (Khan Academy, n.d.) get integrated into students' academic lifestyles. These various tools functions: instant doubt resolution, language corrections, voice search for content, personalized test preparation, etc. They accommodate changes as per the needs each individual has, making them an essential feature in modern-day learning.

Nonetheless, while an increasing number of experts have also studied the role of AI in the overall educational system and faculty-mediated integration (UNESCO, 2022; CBSE, 2023), there is limited research focusing directly on how students themselves experience and respond to AI tools in their own learning environments. This research seeks to fill that gap, emphasizing the student perspective how they use, benefit from, and critically engage with AI in their academic lives.

Using a mixed-method approach, including structured questionnaires and interview schedules (without reliance on rating scales or gender distinctions), this study explores how AI is reshaping students' learning behaviour, study practices, and academic outcomes in Chandigarh's school and college settings.

Review of Literature

Artificial Intelligence (AI) is now rapidly changing student learning everywhere throughout the world. With intelligent tutoring systems, personalized content delivery, and automated feedback, AI improves student engagement and academic improvement (Holmes et al., 2019; Woolf et al., 2013). They allow such technologies to adjust themselves in real-time according to a learner's needs, pace, or knowledge gaps, and more effective and individualized educational experiences.

In India, the use of AI-based platforms such as BYJU'S, Doubtnut, Toppr, and Khan Academy's Khanmigo points to a massive change on how urban students approach learning (Khan Academy, n.d.; Gupta & Ghosh, 2022). These platforms provide academic support and help and personalized assistance many ways, AI has become in the everyday vocabulary of the average student. Of interest is that AI literacy has also emerged as a significant predictor of academic success. One recent study conducted with Gen Z students in the northern part of India, including Chandigarh, found that AI literacy were positively associated with better academic outcomes (Singh et al., 2025).

On the other hand, these benefits are not without their challenges. Although AI lessens stress and eases self-learning, a number of studies (Mishra & Sharma, 2023; Kaur & Verma, 2022) have raised concerns that students tend to use such tools as crutches, depending on the answers provided by AI without comprehensively learning the concepts involved. This could undermine long-term retention and deter cognitive involvement.

The Responsible AI for Youth initiative by NITI Aayog (2021) explores the double-faced role of AI in education. AI stimulates curiosity, creativity, and problem-solving but at the same time reveals the lack of students' knowledge about ethical frameworks, digital borders, and data privacy. All these issues grow with the growing use of generative AI tools such as ChatGPT and QuillBot, which, although useful, may facilitate plagiarism and diminish originality (OpenAI, 2023; Patel & Mehta, 2022).

Additionally, researchers such as Luckin et al. (2016) and Sarkar (2022) have advised against AI overdependence, which could lead to diminishing critical thinking and deeper understanding if not applied carefully. Consequently, international organizations such as UNESCO (2022) and the OECD (2021) strongly support AI literacy and ethics training courses to ensure that learners employ AI tools responsibly and with well-informed judgment.

Recent studies by researchers such as Sasikala & Ravichandran (2024) and Treve (2024) highlight that AI can create customized and innovative learning spaces. They also forewarn that ethical participation, strong digital infrastructure, and facilitation by teachers are necessary to extract AI's full potential in education.

Despite the wealth of literature on AI in education, current research is mostly focused on teacher preparedness, institutional policy, or platform design. There is a highly conspicuous absence of student-focused research, especially in semi-metropolitan cities such as Chandigarh, where digital access is strong, but formal AI integration is still in the process of evolving. This study addresses that gap by exploring how students in Chandigarh's urban educational institutions are engaging with AI tools analyzing their patterns of use, perceived benefits, challenges, and ethical awareness. Through this localized lens, the study contributes to a more grounded and student-focused understanding of AI's educational impact in India.

Objectives of the Study

- To explore the awareness and usage of AI tools among students in Chandigarh.
- To assess how AI tools affect academic tasks such as assignment completion, doubt-solving, and preparation.
- To identify the challenges and concerns students face while using AI in their studies.
- To gather qualitative insights into how students perceive AI's role in education.
- To explore how AI influences students' learning behaviour and study outcomes.

Research Methodology

The current study adopts a mixed-method research design, which integrates both quantitative and qualitative approaches to widely detect the impact of artificial intelligence (AI) on student learning in Chandigarh. Quantitative methods were employed to identify average trends and use patterns through the structured questionnaire, while qualitative methods explain student's individual experiences, perceptions and concerns through semi-structured interviews. The study was conducted in Chandigarh, which is known for its advanced digital infrastructure and educational diversity, in which senior secondary and graduate institutions were covered. A purposive sampling method was used to select 60 students who had prior experience using AI tools in their academic work.

The data collection tool included a structured questionnaire that identified the frequency and purpose of AI use, and a qualitative interview schedule designed to probe students' attitude about how AI affected their learning behavior. This dual-method approach provided in-depth knowledge, enabling a holistic understanding of the educational implications of AI in student learning.

Results and Analysis

Awareness and Access to AI Tools

Category	**Number of Respondents N=60**	**Percentage**
Used AI Tools	55	91.7%
Never Used AI Tools	5	8.3%
Common Tools Used	60	100%
Devices Used for Access	60	100%

In this table, a significant 91.7 per cent of the students interviewed had a direct application experience of using Artificial Intelligence for academic purposes. This translated into a perception of high prevalence of students being technologically persuaded. These students reported using AI tools to do their homework, study for tests, writing summaries or essays, clear doubts related to science and mathematics, and improving their grammar or writing skills. Their experience included platforms that offered direct academic support (e.g., Chat GPT, Khan Academy) and tools that improved study habits and writing (e.g., Grammarly, QuillBot). Most students reported having learned about an AI tool from a peer group and social media. The widespread use reflects how integrated AI has become in the academic lives of urban Indian students, particularly in digitally aware regions like Chandigarh. Students mentioned that the 24x7 availability, instantaneous feedback, and language flexibility made these tools especially attractive and helpful.

There is a small percentage (8.3%) of students who said that they have no experience using AI tools in their studies. Interviews revealed that their lack of exposure was mainly because they did not have access to internet-enabled devices,

especially among students from government schools or financially disadvantaged groups. Apart from this, Students often lack awareness about AI tools, using platforms like Google or YouTube without understanding their use, and depend on traditional methods such as textbooks and coaching institutes. This indicates a digital divide, with a small but significant number of the students possibly being deprived of the benefits of AI-based learning because of infrastructural or informational gaps. Among students who had used AI tools, there was common most frequently used platforms i.e. ChatGPT, Khan Academy, Google Search (AI-enhanced, YouTube Auto-Suggestions, Duolingo.

Some students use ChatGPT to solve doubts about subjects, write essays, summarize concepts, and write assignments. Khan Academy is for tutorial videos in science and math, with personalized learning schedules and practice tests. Google Search, with AI enhancements, is used to find just in time definitions, explanations, and tutorials, often optimized by AI to give more relevant results. YouTube Auto-Suggestions are how students discover educational content through AI-curated suggested videos that are often personalised to their learning preferences, and Duolingo is particularly popular with English as a second language or other language learners, with the lesson structure itself being gamified and AI-driven. The use of multiple AI-powered tools illustrates that students are not just using one application, but are building an AI-based study ecosystem, blending resources as per their needs.

Students accessing AI tools had to do so through at least one digital device. The smartphone, followed by the laptop/PC, are the most common ones. Almost all the students accessed AI apps via their mobile phones, thus embracing ease of access, portability, and data affordability. The apps frequently accessed via mobile were ChatGPT, Duolingo, and Google Search; Laptops/PCs are used, for instance, for typing assignments, accessing complex AI platforms, or using desktop-only AI tools like QuillBot or Grammarly in their full version. So, access to devices almost entirely determines how and how often students interact with AI. It also implies that mobile-first AI applications can effectively reach an extensive student base in India.

Patterns of AI Use

Use Case	Students Using N=60	Percentage (%)
Academic Assistance	42	70 %
Homework Help	35	58.3%
Test Preparation	28	46.6
Skill Development	22	36.6

According to data, 70 per cent of students employ AI technology for academic support, particularly for lesson summarization, explanation of difficult concepts, and answering of questions. Most students said they used ChatGPT and Google Search (AI-powered) to translate difficult concepts or generate quick explanations for subjects such as English, Science, and Social Studies, rather than waiting for a teacher to clarify or teach. Students stated that AI platforms provide academic provided instant academic guidance at any time of day. AI was especially helpful for those who preferred to learn self or were very nervous to ask questions in the classroom. However, many students also admitted that they sometimes copied the answers directly without reviewing the material, indicating surface-level engagement.

About 58.3 per cent of students used AI to do homework and assignments, mainly for essay writing, textbook questions and theoretical answers. Quillbot (for paraphrasing), Grammarly (for grammar improvement), and ChatGPT (for direct answer) were among the most popular apps. Many students said that the AI tool helped them to do homework on time, especially when they were constrained for time or could not fully understand the subject/topic. A few students said some disadvantages were that this convenience lent itself to a habit of over-reliance whereby they go straight to AI without first trying to do it themselves. This may hinder retention of the concept and reduce original thinking.

Almost 46.6 per cent of students used AI tools to prepare for the exams, including solving practice questions, revision notes, or watching AI-generated video tutorials. Auto-suggestions on YouTube, Khan Academy, and ChatGPT were some of the

resources often employed in preparing for unit tests, board exams, and college entrance assessments. The students liked AI for the speedy summarization of key points and prediction of questions in a short time. There were some students who requested AI tools to prepare quizzes or mock tests for self-assessment. This also indicates that AI is being used not just for passive learning but also for active test preparations.

Around 36.6 per cent of students indicated they used AI tools to develop soft & academic skills, including: Improved vocabulary, Enhanced grammar & written language, learning something new (coding, spoken English, general knowledge). Apps like Duolingo, Grammarly, Wordtune, and language modules were the most common AI tools at the Khan Academy. Students found AI tools engaging as they were gamified, provided immediate response, and tracked progress in a personalized manner. This type of use suggests that AI is helping students to remove the course-based learning, which promotes the culture of independent, discovery skills.

The data shows that AI tools play diverse roles in support of student learning, from fundamental academic assistance to higher-level skill development. However, the depth of critical engagement with the information varies. AI may speed up learning and increase access, but its misuse or overuse may lead to dependency, shallow learning, and reduced creative effort. We must find a way to balance AI support and traditional means of study to realize its full benefit.

Concerns and Challenges Identified

Challenge	**Students Affected N=60**	**Percentage %**
Accuracy Issues	25	41.6 %
Overdependence	30	50%
Distraction	20	33.3 %
Lack of Understanding	~60	100 %
Ethical Awareness	15	25 %

In this table 41.6 per cent students said they had encountered incorrect, incomplete, or misleading information while using AI tools. Students said although AI tools like ChatGPT or Google Search answered questions quickly but not every answer the AI provided was accurate, especially in science, history, or concepts pertaining to the subject students were studying. In some cases, students said the answers given by AI tools were related to the question asked but lacked the context or answer completely covered by the question. Oftentimes, the students were confused as they did not often have the understanding or expertise to do any fact-checking or cross-checking to verify accurate information.

In addition, AI platforms sometimes hallucinate a term used by students when they generate content that seems plausible but is fully fabricated. Without understanding the notion of what the students were asking, they may end up memorizing information or submitting incorrect information, which could negatively impact the student's academic performance and understanding of subject.

Half of students (50 per cent) acknowledged building a habit of relying on AI tools even when they were capable of solving a problem themselves. Rather than working through the understanding or analyzing of a topic, students indicated they preferred quick answers, which AI was provided. This over-reliance was especially evident in solving math problems step-by-step, writing essays or summaries and rephrasing answers for assignment questions. Students believed it was a convenient option to use AI, particularly in high-pressure situations. While it may have sped the pace of assignment completion and/or improved completer rates of assignments, it ultimately shattered their thinking and learning over time. Educators are particularly concerned that if students become passive recipients of AI-created content, their creativity, comprehension, and originality will steadily decline.

About one-third of the students (33.3 per cent) considered distraction a major problem in using AI-based platforms, especially apps like YouTube, Instagram, or other websites with AI-driven recommendation systems. Although these platforms typically suggest educational materials, they also present entertainment-related or similar material that may cause students to drift into non-academic browsing. For example, a student on YouTube watching biology explanations might soon be watching music videos and reels with AI-generated autoplay and suggestions.

This issue is especially true among mobile-first users who often learn in an unsupervised way, which indicates that they may have less time to study or have those study sessions shortened due to distractions.

Almost all students (100%) admitted to using AI tools without fully understanding the tools they were using. Students did not understand how AI generates content, whether AI responses are fact-checked, where AI stores or processes user data and what ethical guidelines govern its use. This blind usage results in uncritical dependence, where students trust AI answers without verifying them. Many students noted that they did not have the skills to determine if the content written was plagiarized, biased, or even relevant. Students were trained to apply for no digital literacy training, instead, they used AI like it was a perfect teacher, which it is not. Considering these findings, this underlines a clear need for education and awareness regarding the use of AI in the curriculum.

Only one fourth of students (25 per cent) stated any awareness of the ethical issues related to AI use in education. Most students were unaware that it is considered plagiarism to copy AI-generated content without citing it, AI tools might store or track data, some content developed using AI may have been influenced by bias or be manipulated, and overuse can cause issues relating to academic dishonesty. This lack of awareness makes students vulnerable to violating academic integrity policies, often unintentionally. Ethical concerns were raised especially in institutions where original writing or individual assignments were expected but students submitted AI-written responses. This finding indicates that students are entering into this AI age with no ethical guardrails and that can pose some serious long-term problems such as academic misconduct, privacy violations, and lack of accountability.

While the benefits to students are considerable, these findings show serious challenges to the quality and integrity of learning. The areas of inaccuracy, excessive usage, digital distraction, lack of understanding, and poor ethical understanding need to be addressed as a priority as they relate to AI use in educational contexts through, for example, AI literacy modules in curriculum, Workshops in critical scrutiny of AI content, and clear parameters about ethical AI usage in education. Without these interventions, students may trade depth, creativity and responsibility for speedy output in their learning journey.

Qualitative Insights of the respondents

To understand student's experiences with Artificial Intelligence (AI) tools more in-depth, qualitative interviews were conducted, in addition to the quantitative data. Interviews revealed several themes that represented student's opinions, behaviours and feelings toward AI-based learning.

Many students emphasized the speed and convenience of AI tools in academic work. One student said, *"AI helps me write essays faster, but I haven't always read or understand what it says,"* and points to a regular trade-off between efficiency and understanding. Thus, students think more about how quickly they can complete their work instead of thinking about the content that is fully generated when using AI platforms such as ChatGPT.

Another theme that came out was passive learning and academic guilt. A student confessed, *"Sometimes I copy answers from AI, but I feel guilty when I don't learn anything"*. The statement also illustrates this internal conflict between immediate gratification and so-called genuine knowledge. Students generally understood that over-relying on AI could negatively affect their growth as learners in the long run.

Despite widespread use of AI, students still expressed a strong preference for teacher guidance. One interviewee said, *"It's good for quick help, but even for answers, my teacher is better for explanations"*. This shows that it is good to use AI when seeking instant responses, but they consider AI to lack the necessary clarity and trust provided by human teachers.

Many students also accepted the value of AI in promoting independent education, especially during the examination. A student explained, *"AI made it easy to study alone, especially during the exam time"*. For those who lacked access to tutors or peer groups, AI became a self-directed support system that helped them to modify them efficiently.

Nevertheless, it should be noted that there were some responses indicating greater dependence. As one student noted, *"Now I use AI even for small questions I would have thought through beforehand"*. This suggests that, if not used ethically and responsibly, AI can undermine student problem-solving dispositions over time. Another student noted the helpfulness of AI for language: "Before I was hopeless at speaking or writing in English, but Grammarly and ChatGPT made me confident". This is an example of the way AI was able to assist individuals with

English language development and self-esteem from backgrounds that were not English medium.

Problems with accuracy and misinformation also arose. One student commented, *"ChatGPT sometimes provides wrong answers, but I only realized after submit it"*. This raises the question of verification of facts of any AI-generated response before using it for a task or test. There was also confusion around ethical use. One student asked, "I heard that the use of AI is cheating. I don't know where the line is." This lack of clarity reflects the urgent need for digital ethics education in academic institutions.

Some students also emphasized how AI-focused search engines would improve their learning experience. One student said, *"Every time I find something on Google, the AI response is the first to appear, and it is therefore very easy to find the right answer than to browse many links"*. This shows how AI changes, not just what students learn, but how they can access knowledge and shape how self-guided learning will work in the future.

Interestingly, there were students who perceived AI as being a source of intellectual curiosity. One student stated, *"AI showed me subjects that have been no longer even within the textbook, and I appreciated gaining knowledge of those"*. For these students, AI created opportunities to expand the exploration beyond the course, and they demonstrated the free thinking and habits of learning for a lifetime.

In conclusion, the interviews highlighted the relationship between students and AI, which included convenience, dependence, curiosity, and hesitation. Students used AI as a helpful addition to their journey; however, they admitted that there are risks with overuse, misinformation, and ethical ambiguity. The findings suggest that AI use should be structured so that AI supports education instead of changing meaningful education.

Discussion

The findings from this study clearly imply that Artificial Intelligence (AI) has become an essential aspect of student learning. Students (91.7 percent) stated that they use AI equipment for educational purposes, and this data also shows increasing dependence on technology in educational practice. Students use AI not only for general educational work, such as homework and exam preparation, but also for skill development and independent education. This indicates a change for a learning

experience from a traditional teacher-centric perspective that is driven by students supported by digital resources.

The predominant AI applications like ChatGPT, Khan Academy, Google Search with AI predictions and Grammarly show the flexibility and accessibility of AI remains in curricular and co-curricular purposes. A consideration of diverse learning styles and accessibility in easy explanations, is valued by students who may need immediate help and those who prefer to learn independently.

Additionally, the research highlights several areas of concern. One of the largest concerns is that the accuracy of the AI information, as a significant number of students (41.6 per cent) described the information as wrong or incomplete, perpetuating a lack of critical evaluation approach to using AI. The support for this conclusion came from the qualitative aspects as students explained that they simply trusted "the AI" without understanding or verifying the information provided. Nevertheless, the findings also present substantial concerns. Most notably, it is troublesome that accuracy of AI information is the foremost issue students expressed relative to AI use.

Another pressing issue is overdependence. Half of those surveyed admitted to using AI even when they could try the tasks themselves. This behaviour suggests a weakening of problem-solving abilities and cognitive engagement. Luckin et al. (2016) and Sarkar (2022) stated in their studies on the risks of passive learning. While AI offers efficient solutions, learning effectiveness may decline if it replaces rather than supplements cognitive effort.

The interviews also highlighted a persistent theme of academic guilt and ethical ambiguity that these students shared. Many students expressed that they were unsure what constitutes acceptable and even expected uses of AI and, in assignment writing, many students felt they were potentially breaking academic rules by using AI and stated that they had strong feelings of guilt or fear because of it. There was only a small portion of students who identified their awareness of anything regarding data privacy, plagiarism, or limitations to the content produced by AI, revealing a significant need for AI ethics education in schools and colleges.

While students appreciated the freedom and confidence that AI tools afforded them especially from their perspective as students struggling with English or lack of academic support, they nevertheless reaffirmed the role of human teachers. AI was

seen as an assistant, but not replacement for personal explanation, mentorship, or emotional understanding. This balance between AI support and teacher trust reinforces the idea that AI can augment but not replace traditional educational structures.

Finally, the discussion will be incomplete without accepting digital equity. A small number (8.3%) of students did not have access to AI equipment, mainly due to limited digital infrastructure or awareness. It also highlights a digital division into urban environments such as Chandigarh and emphasizes the importance of inclusive policies that ensure that all students also benefit from technological advances.

In conclusion, although AI has clearly improved student learning by providing increased access to learning, providing learning that is more adaptive and efficient, the evidence supports the need for clear structure and guidance, ethical awareness, and critical engagement. Moving forward, educational institutions must approach pedagogy with the integration of AI tools as more than just integrating AI tools. We need to educate our students on responsible, nuanced, and informed usage of artificial intelligence, and how to use and implement tools and resources ethically and responsibly, all without compromising the benefits of AI on student learning and growth.

Conclusion

This study investigated the effect of Artificial Intelligence (AI) on student learning in Chandigarh. This study specifically concentrated on the way in which AI tools were used, perceived, and experienced among students at the senior secondary and undergraduate levels. The study found that AI has become deeply embedded in students' academic routines, offering support for assignment completion, test preparation, language improvement, and independent study. For many students, AI tools like ChatGPT, Khan Academy, Google AI search features, Grammarly, and Duolingo have become study partners within the digital space.

The research indicates that students like AI for its ease of access, immediate feedback, and ability to save them time, but there are also serious concerns regarding dependent use of AI, the lack of conceptual understanding, ethical considerations, and limited understanding of how AI works. Students copy the

content from AI without verifying the accuracy or originality of its generated results, and it raises questions about academic integrity and critical thinking.

The qualitative data further highlights the tension of AI use: it is both empowering and risky, helpful and potentially misleading. While language skills can independently be learnt and a sense of confidence developed (read: independent agency), AI also creates paths for shortcuts or lazy learning and confusion about acceptable ethical boundaries.

To conclude, AI can be at least to some extent good, as well as somewhat bad, it depends on how it is used. AI is powerful, and the results largely depend on how it is used. If students do not know how to use AI with proper guidance or digital literacy, they can eventually use these devices ineffectively and reduce their own results as a learner. Therefore, the response to education should be active, structured and student-centered

Recommendations

Based on the findings, the following recommendations are proposed:

- Schools and colleges should integrate AI awareness and literature programs to teach students what AI is, how it works and how they can use it in a responsible way. This should include sessions to verify AI-generated information and understand its limitations.

- Institutions must change and clear guidelines for ethical AI use. These should cover plagiarism, privacy and acceptable AI assistance in assignments and exams. Students should be educated on the difference between using AI as a tool and misusing it as a crutch.

- Teachers should be trained in integrating AI meaningfully into the instruction and mentoring students on when and how they use these tools. Teachers can play a key role in encouraging critical thinking and prevent excessive overdependence.

- Encourage students to combine AI with traditional learning methods such as textbooks, peer discussions and teacher guidance. AI should supplement, not replace, core learning practice.

- Address the digital divide by ensuring that all students irrespective of socio-economic background have access to devices, internet connectivity, and AI-based learning resources.

- Students should be learned to question, interpret and validate the answers provided by AI tools. Critical commitment, rather than passive consumption, must be promoted through classroom activities and tasks.

Scope for Further Research

Although this study provides valuable insight into how students in Chandigarh use and experience artificial intelligence (AI) tools in their academic work, it also unbolts opportunities for further study. Future research can expand the sample size and include students from different regions rural, semi-urban and metropolitical to compare AI use patterns across different socio-economic and geographical groups.

In addition, longitudinal studies can measure the long-term cognitive and behavioral effect of persistent AI use on learning outcomes, critical thinking and academic integrity. Further studies can also explore subject-specific influences, and search whether AI supports or hinders learning in disciplines such as mathematics, humanities or science differently.

Moreover, when the AI technology continues to develop rapidly, future studies should examine students' awareness of new tools, their ethical understanding and role of parental or institutional guidance in the design of responsible digital habits. Researchers can also explore the psychological effects of AI addiction, such as reduced attention span, reduced motivation or feelings of academic disconnection. Finally, comparative studies between teacher-assisted and AI-assisted learning environments will help determine the most balanced and effective educational strategies at the age of intelligent technologies.

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