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Impact of ChatGPT on Students' Learning vs Academic Assistance

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ABSTRACT

This study investigates the growing influence of ChatGPT—an AI language model—on student behavior in Indian higher education. With widespread adoption among students, ChatGPT is used for both conceptual learning and academic task completion. The research explores whether this AI tool contributes to deeper understanding or is largely utilized for administrative convenience. A survey of 120 university students was conducted using structured questionnaires, and data was analyzed through descriptive statistics and t-tests. Findings show a predominant use of ChatGPT for assignment completion and information retrieval, while only a small fraction of students associate it with deep learning. Ethical concerns, over-reliance, and regulation needs were also identified. The study suggests strategic implementation of AI with blended learning and ethical usage policies.

Keywords: ChatGPT, AI in education, student learning, academic assistance, digital learning, higher education, ethical AI use

I. INTRODUCTION

Background

Artificial Intelligence (AI) is reshaping global education systems. ChatGPT, developed by OpenAI, is one such innovation that offers instant and personalized support to students. In the Indian context, where challenges like high student-teacher ratios and limited academic support persist, ChatGPT emerges as a scalable educational tool.

However, while students benefit from real-time responses and simplified explanations, concerns remain regarding its actual educational value. Is ChatGPT helping students learn better, or is it merely aiding in faster task completion?

This study critically examines the dual role of ChatGPT in student learning and academic assistance.

Need for the Study

Despite AI's rising presence in Indian education, empirical studies on student behavior and outcomes remain scarce. This study is necessary to:

Examine the true contribution of AI chatbots in academic development. Differentiate between assistance and learning-based usage.

Offer institutional guidance on ethical and effective AI deployment.

Objectives

- To assess ChatGPT usage frequency and purpose among students.
- To evaluate perceived learning improvements.
- To analyze its utility in academic assistance tasks.
- To identify discipline-specific usage differences.
- To explore ethical concerns and regulation needs.

II. LITERATURE REVIEW

Recent research highlights that ChatGPT can be a valuable learning aid. For example, Tlili et al. (2023) showed that students who used ChatGPT for concept clarification and practice questions reported higher levels of confidence and improved understanding. Similarly, Ngo (2023) found that ChatGPT helped students prepare better for exams by offering quick summaries and simplified explanations of complex topics.

ChatGPT is especially useful for students in technical and business fields. In programming courses, for example, it can help students debug code and understand syntax. In business management courses, students use it for writing reports, drafting business plans, and solving case studies. This flexibility has made ChatGPT a popular tool across disciplines.

On the other hand, many students also use ChatGPT for non-cognitive tasks. Jing et al. (2024) found that more than 60% of students in their study used ChatGPT primarily for generating answers to assignments or preparing presentations quickly. This highlights a growing trend where students use AI to save time and effort rather than to improve understanding.

ChatGPT also assists in organising tasks, such as creating schedules, setting reminders, and formatting content. While these features increase productivity, they do not necessarily contribute to academic development. As a result, there's a risk that students may become overly dependent on AI for academic completion without engaging in deeper learning.

While ChatGPT has several benefits, it also presents some challenges. Studies like Popovici (2023) and Husain (2024) warn that students may start relying too much on AI tools, which could reduce their ability to think critically, write independently, or solve problems creatively. There's also the issue of accuracy—ChatGPT can sometimes provide incorrect or outdated information, especially if the student doesn't cross-check the response.

III. RESEARCH METHODOLOGY

Research Design

This study combines exploratory and descriptive approaches. Exploratory research helped define research questions and hypotheses, while descriptive research measured usage patterns and perceptions using structured surveys.

Data Collection

Data was gathered through a Google Forms questionnaire distributed via WhatsApp and social media platforms. A total of 120 complete and valid responses were recorded.

Sampling Design

The sample included undergraduate and postgraduate students from various Indian universities. A convenience sampling method, complemented by snowball sampling, was used. The sample was diverse in terms of gender, education level, and academic stream.

Research Questions and Hypotheses

RQ1: Do students use ChatGPT more for learning or for assistance?

H1: Students primarily use ChatGPT for task-oriented assistance.

RQ2: What is the perceived impact of ChatGPT on student learning?

H2: Students see ChatGPT as helpful but not a substitute for deep study.

RQ3: Are there disciplinary differences in usage?

H3: Engineering students use it more for problem-solving; business students for report writing.

RQ4: Are students concerned about over-reliance?

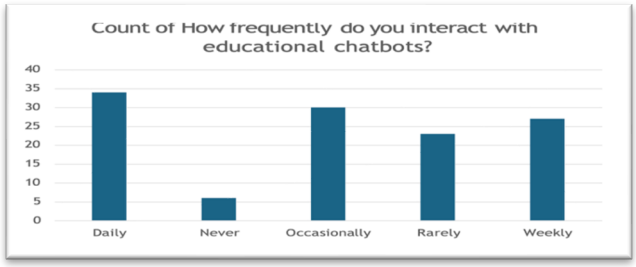
H4: Many students admit to relying on ChatGPT without fully understanding the content.

IV. DATA COLLECTION

Questions included multiple choice, Likert scale, and ranking items. Variables measured included frequency of use, perceived learning impact, and ethical perspectives. Data was analyzed using frequency distributions, bar charts, and thematic interpretation.

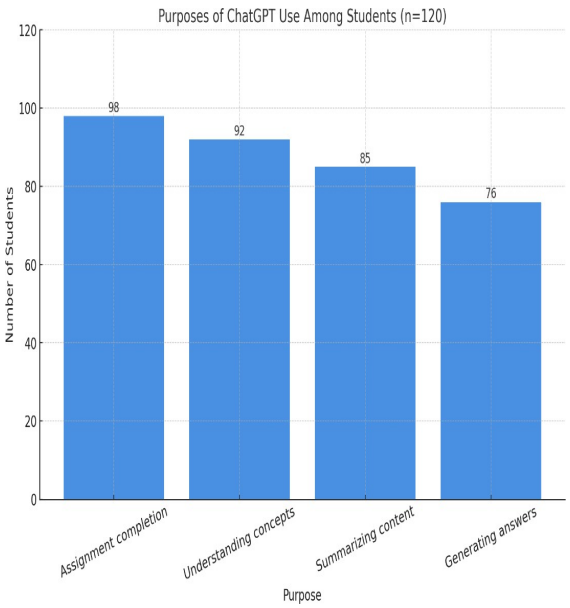
Data Analysis and Interpretation

- Demographic Overview: The study sampled 120 students from various Indian universities, comprising 56.7% undergraduates and 43.3% postgraduates. The gender distribution included 55.8% male and 44.2% female respondents, providing a balanced representation across academic levels and gender.
- ChatGPT Usage Frequency and Purpose: A significant portion of the respondents demonstrated regular engagement with ChatGPT: 28.3% reported daily usage, 25% used it occasionally, and 22.5% used it weekly.



The most frequent applications of ChatGPT included:

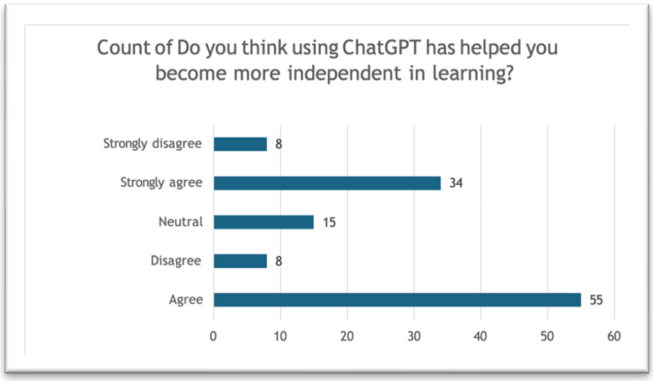
- Assignment completion (82.4%)
- Understanding academic concepts (76.9%)
- Generating answers or solutions (63.9%)
- Summarizing content (71.3%)



These patterns suggest that while ChatGPT serves a role in learning, its predominant use lies in academic task facilitation.

Perceived Learning Impact

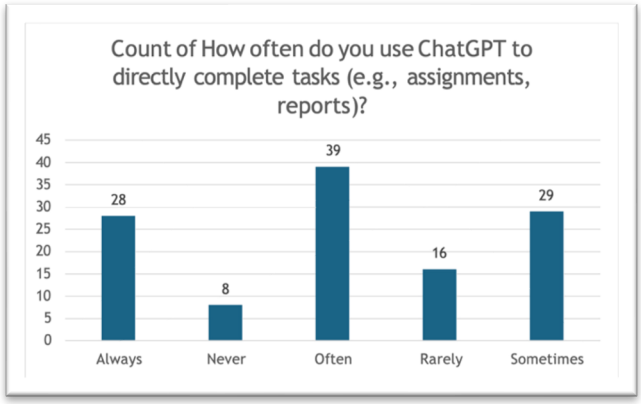
When assessing learning enhancement, 40% of students reported that ChatGPT improved their understanding to a great extent, while 43.3% noted improvement to some extent. Furthermore: 74.1% believed ChatGPT made them more independent learners.



These results support the notion that ChatGPT, when used effectively, fosters autonomous learning behaviors and intellectual curiosity.

Academic Task Assistance and Over-Reliance

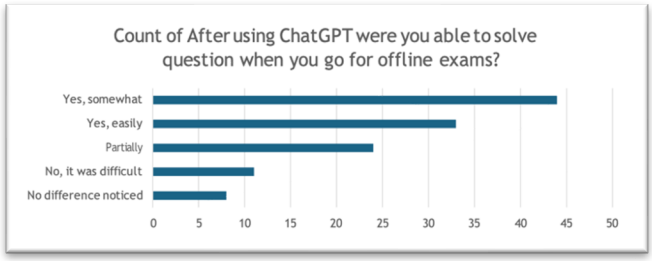
ChatGPT was widely used for direct academic assistance:



- 32.5% of students reported using it often for task completion.
- 23.3% said they always used it for such purposes.
- 73.3% found it helpful in meeting academic deadlines.

However, a critical insight emerged regarding over-reliance: 55.8% of students admitted to using ChatGPT without fully understanding the content. This trend highlights a risk of passive learning and validates Hypothesis 4 (H4) regarding the potential decline in critical thinking and conceptual engagement due to AI dependency.

Confidence and Exam Readiness



- 64.2% felt they could “somewhat” solve offline exam questions after using ChatGPT.
- Only 27.5% expressed ease in applying what they learned during exams.
- A mere 22.5% reported feeling “very confident” when explaining concepts learned through ChatGPT.

These findings imply that while ChatGPT supports surface-level comprehension, it may fall short in equipping students for deep analytical thinking required in offline assessments.

Discipline-Based Usage Differences

- The study revealed notable differences in ChatGPT use across disciplines, aligning with Hypothesis 3 (H3): Engineering and technical students used ChatGPT for solving numerical problems, debugging code, and clarifying technical concepts.
- Business and humanities students relied on it for drafting essays, generating project ideas, and content summaries.
- This suggests that ChatGPT adapts effectively to different academic needs, but the mode of use still heavily leans toward productivity rather than pedagogy.

Ethical Perspectives and Calls for Regulation

- Ethical concerns were clearly expressed: 62.5% of students supported the regulation of ChatGPT in academic settings.
- Key concerns included: Plagiarism due to unoriginal content submission, Unfair academic advantages,
- Reduction in authentic thinking and skill-building.
- This underscores a growing student awareness of the ethical implications surrounding AI use in education and reinforces the need for formal institutional guidelines.

V. FINDINGS & DISCUSSIONS

Widespread Adoption and Frequent Use

The study revealed near-universal adoption of ChatGPT among respondents, with all 120 participants confirming they had used the tool at least once for academic purposes. A significant portion—28.3%— used it daily, while 25% used it occasionally and 22.5% weekly. This pattern indicates ChatGPT's integration into students' academic routines, demonstrating its role as a primary support tool, especially when traditional support (teachers, peers) is not immediately available.

Assistance-Oriented Usage Dominates

- The majority of students reported using ChatGPT for task-oriented activities such as:
    - Completing assignments (82.4%)
    - Writing essays and reports (57.4%)
    - Generating answers or summaries (71.3%)

These uses fall more under academic assistance than conceptual learning. This supports Hypothesis 1 that students primarily use ChatGPT for productivity enhancement rather than intellectual engagement.

Limited Deep Learning Support

Although 83.3% of students acknowledged that ChatGPT improved their understanding of academic concepts to some or a great extent, only 15.8% considered it a tool for deep learning and conceptual understanding. The bulk of the responses (43.3%) suggested moderate learning support, with "some extent" being the most frequent response. Thus, ChatGPT seems to serve more as a supplementary aid than a primary educational tool.

Perceived Boost in Academic Independence

Interestingly, despite the dominance of assistance-related usage, over 74% of students agreed or strongly agreed that ChatGPT made them more independent learners. Students appreciated being able to revise content on their own time and use AI for clarifications, especially outside regular class hours. However, this independence is partly superficial if students are not critically engaging with the material.

Concern About Over-Reliance

A significant concern emerged regarding over-reliance on AI tools. About 25.8% of respondents admitted to frequently using ChatGPT without first trying to understand the material, and another 30% did so occasionally. This suggests that over 55% of students are, at least occasionally, bypassing active learning in favor of convenience, which may compromise their ability to develop independent thinking and long-term retention.

Varying Usage Across Disciplines

The study found differences in ChatGPT usage based on students' academic disciplines:

- Engineering and technical students used ChatGPT more for solving problems, debugging code, and writing technical explanations.
- for content generation, report writing, and idea brainstorming.

- This finding supports Hypothesis 3 and indicates the adaptability of ChatGPT across domains, albeit with different focal points.

Student Awareness and Ethical Concerns

- A total of 62.5% of students agreed or strongly agreed that ChatGPT use in academics should be regulated.
- Their concerns revolved around: Plagiarism risks Misinformation Lack of fairness
- The possibility of bypassing academic effort
- This shows that while students value ChatGPT, many are aware of the ethical implications of its unchecked use and support institutional guidelines to maintain academic integrity.

VI. LIMITATIONS

Limited Sample Size and Scope

The study was conducted with 120 student respondents, which may not fully represent the diverse landscape of Indian higher education. Although efforts were made to include participants from various streams and universities, the sample size remains small for national-level generalization.

Cross-sectional Nature

The data was collected at a single point in time (May 2025). Hence, the study cannot capture changes in ChatGPT usage patterns over time or assess long-term impacts on learning and performance. A longitudinal study could better track how reliance on ChatGPT evolves and affects academic outcomes.

Self-Reporting Bias

Data collected via questionnaires are subject to response bias. Students may underreport unethical usage (e.g., copying assignments) or overstate benefits like improved understanding. There was no triangulation with academic performance data or observational studies.

Lack of Non-User Perspective

Only students who were aware of and had used ChatGPT were included. Students who chose not to use the tool, either due to lack of access or personal choice, were not surveyed. Their perspectives could offer contrasting insights on AI adoption and academic integrity.

Uneven Discipline Distribution

Although the study aimed for diversity, it lacked detailed stratification by academic discipline, year of study, or institution type. Thus, field-specific findings (e.g., ChatGPT use in law or medicine) remain anecdotal and merit more focused research.

VII. RECOMMENDATIONS

For Academic Institutions

Incorporate ChatGPT into Teaching Frameworks

Rather than discouraging its use, universities should integrate ChatGPT into the academic process through structured assignments that require:

- AI-generated outputs to be critically reviewed
- Comparative analysis between AI and human-created content
- Justification for using AI in any submission

This not only encourages critical thinking but ensures that students don't become passive consumers of AI-generated information.

Launch Mandatory AI Literacy Programs

Regular workshops or certificate courses should be offered to students and faculty covering:

- How AI tools like ChatGPT work
- Their strengths and limitations
- Guidelines for ethical and productive use
- Techniques for verifying AI responses

These efforts can help foster a culture of informed and responsible AI usage.

Establish Clear Ethical Use Policies

Academic integrity policies should be updated to include:

- What constitutes fair use of AI (e.g., grammar checks, brainstorming)
- What qualifies as misconduct (e.g., submitting AI-generated work as one's own) AI disclosure requirements in submitted work

Having clear policies can protect both institutions and students from misuse or unintentional violations.

Encourage Blended Learning with AI

Educators should explore integrating ChatGPT with flipped classrooms, peer learning, and case-based teaching. For instance:

- Students could be asked to bring ChatGPT-generated responses to class discussions
- Teachers could design assignments that require critical evaluation of ChatGPT outputs

Monitor Usage Through Research and Analytics
Institutions can develop dashboards or periodic surveys to track student usage of AI tools. Internal research cells could analyze patterns and propose improvements in learning methods.

For Future Researchers
Longitudinal Impact Studies
Future studies should track students over multiple semesters to determine how ChatGPT affects academic outcomes, engagement, and critical thinking in the long run.

Discipline-Specific Analyses
Focused studies should investigate how students in fields like law, medicine, literature, or mathematics use ChatGPT differently, and how their learning outcomes vary.

Comparative AI Tool Studies
Research should not be limited to ChatGPT. Tools like Google Gemini, Microsoft Copilot, Claude, or subject-specific AI assistants should be studied to understand comparative strengths and weaknesses.

Investigate AI's Role in Student Mental Health
Since ChatGPT helps students meet deadlines and manage workloads, its role in reducing stress or contributing to cognitive overload due to dependency should be explored.

Policy Design and Testing
Experimental models can be designed to test AI integration policies (e.g., mandatory citations, AI-free exams) and evaluate their impact on learning, fairness, and student satisfaction.

VIII. CONCLUSION

This study set out to explore the evolving role of ChatGPT in the academic lives of university students in India. As AI technologies rapidly gain ground in educational environments, it becomes imperative to assess not just their accessibility and usability, but their actual impact on learning outcomes, academic behaviors, and intellectual development.

The findings reveal a clear duality in how students perceive and utilise ChatGPT. On one hand, it has become an indispensable academic assistant, helping students streamline tasks such as assignment writing, summarising content, and retrieving information. On the other hand, its function as a deep learning facilitator remains modest, with only a small subset of students using it for conceptual understanding, revision, or skill development.

The study confirms that academic assistance is the dominant mode of engagement with ChatGPT. This is reflected in the high frequency of use for task execution and the reported improvements in productivity and time management. However, this convenience comes with potential drawbacks. Over half of the students admitted to using ChatGPT without attempting to understand the content themselves, highlighting a growing dependence on AI that could compromise cognitive skill development, critical thinking, and academic independence in the long run.

Interestingly, students expressed a high level of awareness regarding the ethical risks associated with ChatGPT. The majority favored the regulation of its academic use to avoid unfair advantages, preserve originality, and prevent over-reliance. This shows a promising level of maturity and critical awareness among the student population, which educational institutions must acknowledge and support through policy design and guided usage.

The study also brings to light disciplinary variations in ChatGPT usage. While technical students relied on the tool for computational and problem-solving tasks, students from business and humanities backgrounds leveraged it for content development and report structuring. This variation underscores the versatility of ChatGPT and the need for discipline-specific AI integration strategies in higher education.

While ChatGPT is not a replacement for educators or deep study, it is undeniably a valuable complementary educational resource. If implemented responsibly, it can enhance engagement, support independent learning, and reduce academic workload pressure. However, its benefits will only be fully realized if students are trained not just to use AI—but to think beyond it.

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