

# From Homework to AI Work: How Generative AI Impacts Critical Thinking and Academic Honesty Among Undergraduate

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## ABSTRACT

With the rapid spread of Artificial Intelligence (AI) tools like ChatGPT, Microsoft Copilot, and Grammarly, the way college students handle academic tasks has changed drastically. Students rely more and more on AI-assisted systems for generating content, summarizing, developing ideas, refining language, and solving problems. These tools help students become more efficient and lessen their mental efforts, but the extent to which they affect students' thinking processes has not been sufficiently studied. Use of AI from a cognitive standpoint can help by developing cognitive readiness, that is, processing of information faster, strategic thinking, and awareness of one's own thinking or metacognition. However, if one becomes too dependent on them, one may experience cognitive fixation, reduced ability to think of different solutions, and passive learning patterns. The relationship between the management of tasks through AI and higher-order cognitive functions such as creativity, critical thinking, and self-regulated learning brings up very significant issues related to academic development and career preparedness in the long run. The purpose of this study is to empirically investigate how managing tasks with the help of AI affects students' creativity, learning effectiveness, and career readiness through primary data gathered from college students. The study attempts to make a theoretical and empirical contribution to the changing literature on AI and education in India by merging technology adoption behavior and cognitive theory.

**Keywords:** Artificial Intelligence, Cognitive Replacement, Cognitive Fixation, Learning Effectiveness, Career Readiness

## 1. Introduction:

Artificial intelligence like ChatGPT, Google Gemini AI, or Nano Banana is the most commonly used AI tools in 2026. They are already being used in various organizations, as they have made their work quite feasible. However, the question is, is artificial intelligence also supporting undergraduate students? AI is supposed to support undergraduate students with cognitive assistance to enhance creativity and honesty among them. But instead of using it as cognitive support for students, it is used as a cognitive replacement for the critical thinking of undergraduates. The part of critical thinking that is meant to be done by humans is being replaced by artificial intelligence. Undergraduates lack honesty in their work, as they use artificial intelligence even for the critical thinking and analysis part. Because of this, many undergrads suffer from cognitive offloading, the problem in which the mental efforts of undergrads are replaced by external artificial

intelligence tools, and also the problem of cognitive fixation, in which students tend to rely on AI-generated content rather than exploring any original alternatives. A study by Dr. Pratima Murthy (NIMHANS) highlights that excessive use of these tools blunts the critical thinking skills of students and shows how AI can easily fabricate data on its own, and students tend to believe it. Gerlich also reveals that excessive use of AI results in a significant negative correlation between frequent use of AI and critical thinking.

## 2. Review of Literature:

The integration of AI in higher education has profoundly influenced the critical thinking abilities of undergraduate students as well as their academic integrity. AI tools such as ChatGPT, Gemini, and Grok not only offer students tailored learning experiences but they also pose challenges to the traditional academic integrity and the critical thinking power of students. The dual impact on the undergraduate students results in a balanced approach, whereby students get the benefits of AI tools but also face the risk of possible drawbacks.

### Impact on Critical Thinking

- GenAI tools, when embedded within teaching methodologies, not only quadruple creative abilities and make learning more approachable but also nurture students' critical thinking skills. Instead of being passive consumers, learners become critical evaluators who invent bias, detection and source, validating techniques. (Rana et al., 2025).
- Nonetheless, worries about students' excessive dependence on AI tools have been raised. It has been feared that students' critical thinking may be weakened. According to some research, there is a weak to moderate positive relationship between the use of AI tools and the improvement of grades. This means that whilst understanding may be enhanced, critical thinking could be at stake. (Wiredu et al., 2024).
- A systematic review reveals that nearly a hundred located studies report GenAI as being helpful to critical thinking. However, the study design flaws retarded the generalization of the review findings. Thus, more research needs to be done. (Premkumar et al., n.d.).

### Impact on Academic Honesty

- The reliance on GenAI tools has given rise to considerable apprehensions concerning academic integrity, as most students express concerns about plagiarism going unnoticed and excessive dependence on AI for academic work (Khrisat, 2025).
- An array of ethical issues, like bias and the confusion of authorship, have been documented, thereby AI literacy programs and ethical guidelines in the use of AI are considered necessary to tackle such problems (Rana et al., 2025).
- After all, if used ethically, GenAI can foster student engagement and motivation, hence there is a possibility of positive outcomes if combined with suitable pedagogical backing (Khrisat, 2025; Sade et al., 2024).

On one hand, AI brings about risks, however to is also capable of significantly improving students' learning experience and outcomes. The solution is in creating thorough digital literacy and ethics curricula so that learners would be proficient and responsible when using AI tools in their studies. Such a strategy makes it possible to reconcile the revolutionary capabilities of AI with the requirement for educational integrity and the nurturing of critical thinking skills.

## 3. Research Objectives and Methodology

### 3.1. Research Objectives

- To assess the impact of AI-based task management on students' creativity
- To examine the effect of the usage of AI on the learning effectiveness of undergraduate College students
- To examine how AI affect the career readiness among undergraduate college students

### 3.2. Methodology

a. Research Design: The research design is Descriptive and analytical research. b. Source of Data

- Primary Data: Data collected from a structured questionnaire
- Secondary Data: Secondary data is collected through Journals, Articles, and research papers

c. Sampling Method: Convenience / Purposive sampling

d. Sample Size: 50 college students

e. Tools for Data Collection: Google Form

f. Data Analysis Techniques:

We analyzed the data we gathered by using descriptive statistics and correlation analysis. To measure the association of the AI-driven task management with the dependent variables such as creativity, learning effectiveness, and career readiness, we used Pearson's correlation coefficient ( $r$ ). The p-value test of significance was used to find out if the relationships were statistically significant at the 5% significance level (i. e.  $p < 0.05$ ). Microsoft Excel was used for the analysis.

## **4. Problem statement and Hypothesis**

### **4.1. Problem Statement**

While AI tools are becoming widely accessible to students, there is limited empirical evidence on how the shift from manual task execution to AI- assisted task management affects students creativity, learning effectiveness, and career readiness.

Most existing studies focus on employees or organisational settings, leaving a gap in student-centred research. This study attempts to address this gap by examining students perception and experience with AI- assisted learning.

### **4.2. Hypothesis**

#### **a. Positive Hypothesis**

H1: AI-based task management significantly influences students' creativity.

H2: Use of AI tools significantly affects learning effectiveness among college students.

H3: AI exposure significantly influences career readiness among college student

#### **b. Null Hypothesis**

H01: AI-based task management has no significant influence on students' creativity.

H02: AI usage has no significant effect on learning effectiveness.

H03: AI exposure has no significant influence on career readiness.

## **5. Analysis I. Participant Profile**

This study represents the integration and impact of AI tools among the students in higher education. A total of 45 Valid Responses were recorded and analysed for this purpose.

The sample was collected from undergraduate students, and from them, 82.2% are commerce students, followed by 8.9% from Arts background, with minimal integration with Science and Engineering streams. From those 45 student's majorities are from the second-year total of 37.8%, and the third year, 33.3%. This suggests that AI usage and adoption are more in mid program students who are typically engaged in research projects, assignments, internships, and exam preparation.

Here, it is identified that AI penetration in academics is universal within the sample as 100% of the sample is using AI. The frequency of usage differs, where 44.4% students use AI on a daily basis, and 31.1% students use AI 3 to 5 times every week. The students use AI primarily for academic purposes, where they took help from ai 29% for draft writing assistance, 20% is for exam preparation and 51% of the time for concept clarity and brainstorming. This analysis indicated that AI is not merely an occasional support tool but an embedded academic support.

## II. Hypothesis Testing and Statistical Interpretation

H1: AI-based task management significantly influences students' creativity.

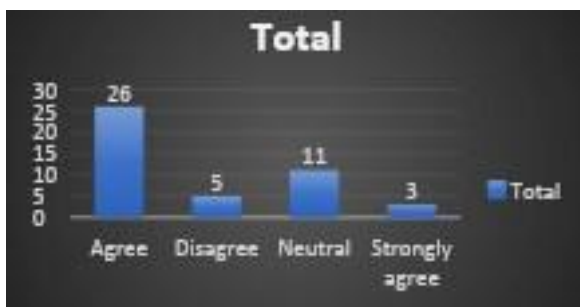
H01: AI-based task management has no significant influence on students' creativity.

The correlation Coefficient ( $r=0.292$ ) shows the moderate positive relationship between the AI-assisted task management and enhanced creativity. Which means that as students use more AI for deriving ideas and completing tasks, they tend to report higher creative output.

However, the statistical p-value is 0.051, which is slightly above the threshold limit of (0.05, which shows that these results are statistically significant at 95% confidence level.

Based on this data at 5% significance level, H01 cannot be rejected and at 10% significance level, the relationship between AI-assisted task management and creativity becomes significant. Which suggests that AI may function as a tool for creativity enhancement, but its effect is collaborative and not dominant. AI can help to generate or polish ideas if it is assisted by ideation. But students still perceive creativity as human driven process.

GRAPH 1: STUDENT PERSPECTIVE OF AI ENHANCING CREATIVITY THROUGH NOVEL IDEA SUGGESTIONS



### Hypothesis 2:

H2: Use of AI tools significantly affects learning effectiveness among college students.

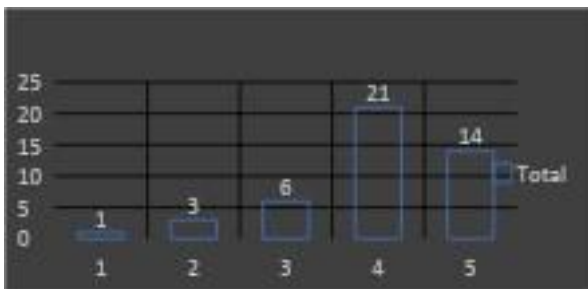
H02: AI usage has no significant effect on learning effectiveness.

In this hypothesis analysis, it is found that the R-value is 0.299 and p value is 0.045. Since p value is less than 0.05, the null hypothesis (H02) has been rejected. This indicated the positive relationship between AI tool usage and learning effectiveness. Although the correlation is moderate ( $r \approx 0.30$ ), it shows that AI usage significantly improves the learning outcomes of students.

In this study, it is found that students reported that AI simplifies complex theoretical concept, provides alternative explanations, enables faster revision, and enhances understanding before examination. Hence, it can be said that AI functions as a supplementary tutor that helps to clear the doubt immediately, and without hesitation, students can ask questions repeatedly.

These findings are statistically the strongest among all three hypotheses.

GRAPH 2: IS STUDENT RESPONSE ON AI SUPPORTS MY INDEPENDENT LEARNING OUTSIDE THE CLASSROOM.



### Hypothesis 3:

H3: AI exposure significantly influences career readiness among college students

H03: AI exposure has no significant influence on career readiness.

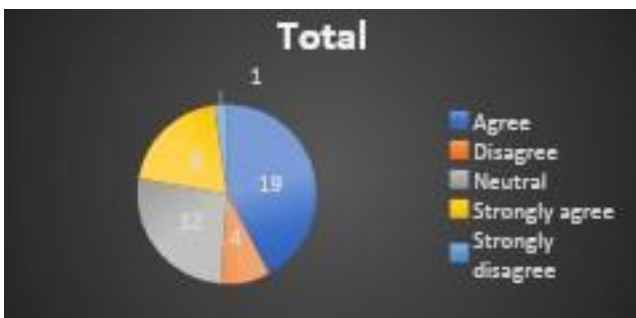
In this hypothesis analysis, it is found that the R-value is 0.242 and p value is 0.107. Since the P-value is more than 0.05, the null hypothesis cannot be rejected. There is no significant relationship between AI exposure and career readiness. However, it is noticed that the mean of the career readiness score is 4.1 out of 5. This high average leads to ‘Consensus Effect.’”

Students strongly believe that AI proficiency is essential, AI provides a competitive advantage, and Future carers will demand AI-related skills and literacy. The statistical significance does not imply irrelevance; instead, it suggests the career readiness perception is universal and not depend on the frequency. In other words, even occasional users believe that AI skills are necessary and important for future career growth.

No statistical significance was found, which means that career readiness might not be just about how often one uses AI. There are a number of other factors contributing career readiness like hands-on experience, internships, communication skills, interaction with industry professionals and vocational training. Even though many students think being knowledgeable about AI will be a key factor in future job market, data show that simply using AI is unlikely to make students ready for professional careers. Hence, getting to know AI is more of a supplementary skill than an essential criterion for career readiness.

GRAPG 3: STUDENT RESPONSE ON HOW THEY CRITICALLY VERIFY

AI-GENERATED INFORMATION BEFORE USING IT



### III. Integrated Statistical Summary

Hypothesis	Independent Variable	Dependent Variable	R-value	p-value	Decision
H1	Brainstorming Support	Creativity	0.292	0.051	Marginal
H2	Usage Frequency	Learning Efficiency	0.299	0.045	Significant
H3	Exposure Frequency	Career Readiness	0.242	0.107	Not Significant

## 6. Implications for Higher Education

### 6.1. Theoretical Implications:

The findings under this study align with constructivist learning theory, where knowledge is built actively rather than being received passively. It can be noticed that students believe that their creativity is enhanced after brainstorming the ideas with AI-assisted tools, the efficiency of learning has significantly appreciated and the career readiness is culturally internalized as a necessity in the AI era.

### 6.2. Practical Implication:

Based on the findings of the study, it is necessary for the institutions to integrate the AI literacy modules in the courses, and faculties should design the assignments that are AI-assisted rather than banning AI. Ethical use of AI is necessary, and such guidelines must be incorporated into the curriculum. The AI training program should be conducted before any internship. The gap between academic training and industry expectations may rise if the education sector ignores AI integration.

### 6.3. Ethical Concerns and Risks of AI in Education

While AI-supported learning has some academic benefits, we should not overlook its risks and ethical issues. One of its biggest threats to education is cheating, since students might hand in AI-created papers without citing the source and without doing their own work. Another problem is that some people may get so dependent on these AI tools that they stop thinking for themselves, lose interest in reasoning, and have fewer opportunities to solve problems. Besides these challenges, the widespread use of AI might lead to a "digital gap," where students from different economic backgrounds do not have the same level of access to AI tools and reliable digital infrastructure. There are also ethical issues like the biases built into the algorithms, spreading false information, and the uncertain authorship of content generated by AI that raise major questions for educational institutions. Consequently, colleges and universities should set up detailed ethical rules, create programs for understanding AI, and make plans for its usage so that AI can help the students to learn yet not put academic integrity at risk.

## 7. Conclusion:

The swift incorporation of Artificial Intelligence instruments like ChatGPT, Microsoft Copilot, and Grammarly in higher education has drastically changed the way undergraduate students handle their academic tasks. This paper studies the cognitive and academic consequences of AI-assisted task management through an empirical lens, concentrating on the aspects of college students' creativity, learning effectiveness, and career readiness. The results indicate that the use of AI has a complex and varied impact.

Firstly, AI-based task management is somewhat positively linked to creativity. The correlation was marginally significant at the 5% level, but at the 10% level it becomes statistically significant, implying that AI is more of a collaborative ideation partner than a creative substitute. It seems that students utilize AI for brainstorming, upgrading their ideas, and getting over mental blocks; nevertheless, the main source of creativity is still human.

Secondly, through AI usage, a positive statistically significant impact on learning effectiveness was confirmed. The correlation results show that AI can be seen as a supplementary academic support system that can help students by breaking down complex theories, giving different explanations, and allowing them to clear up doubts immediately. Therefore, AI acts as a cognitive amplifier that enhances learning efficiency when used appropriately.

Thirdly, there was no statistically significant relationship between career readiness and exposure to AI. Nevertheless, the fact that career readiness had a high mean score indicates that students generally agree that being literate in AI is crucial for future employment. This implies that career readiness in the AI era may be influenced more by shared perceptions and expectations rather than the frequency of AI usage alone.

From a cognitive perspective, the study highlights an important balance. While AI can enhance information processing speed, strategic thinking, and metacognitive awareness, excessive dependence may lead to cognitive offloading and fixation. If students rely passively on AI-generated outputs without reflection or verification, there is a risk of weakening independent analytical capabilities.

The paper contributes to the ongoing discussion on AI use in higher education in India by combining perspectives from cognitive theory and technology adoption behaviour. The findings suggest that educational institutions should focus on structured AI literacy programs, ethical guidelines, and AI-assisted teaching methods in order to maximize the benefits of AI while minimizing potential risks.

Artificial Intelligence has now moved beyond experimentation and has become structurally integrated within the academic ecosystem. The findings of this study indicate that AI significantly enhances learning effectiveness and moderately supports creativity when used responsibly. Although AI exposure does not statistically determine career readiness, students widely perceive AI literacy as an essential requirement for future professional success. Therefore, the future of higher education lies not in resisting AI but in developing an environment where human intelligence and artificial intelligence complement each other while preserving critical thinking, creativity, and academic integrity.

## 8. Limitations:

The study was conducted on a small sample where ( $n = 45$ ), while it is sufficient for exploratory correlation analysis. The study was conducted on a relatively small sample ( $n = 45$ ). While sufficient for exploratory correlation analysis, a larger and more diverse sample would increase statistical power and generalizability. Because of this H1 relativity to creativity turned marginal where  $p=0.051$ , a large sample might have pushed it into full satisfaction. The majority respondent were commerce students being total 82.2% of total sample. This creates academic stream biasness. AI usage pattern may differ significantly in engineering where technical coding tools requires AI assistants and Arts where creative writing is assisted and science where data simulation tools. Hence, cross disciplinary comparison was not possible. All dependent variables like creativity, learning effectiveness and carrier readiness were measured through perception-based likers scales and objectives academic metrics like CGPA change and Assignment grades were ignored. This study captures responses at one point in time and it does not consider the long-time dependency on AI, skill retention without AI and academic performance trends over semesters. A longitudinal design would offer stronger causal interpretation.

## 9. Future Scope of Research

Future research should include multiple colleges and different geographical regions with cross-stream comparison. This type of research would allow ANOVA testing between streams, gender-based comparison, and urban vs rural analysis. Future scope also includes the Experimental research of two different groups of AI-assisted learning group and Traditional learning group and then can compare exam scores, creativity task performance and project innovation levels which would establish the casual relationships. There are many aspects of AI-assisted learning which could be study where researcher can explore that does excessive usage reduce independent problem-solving ability. Career readiness can also studies informs of internship placement, employers' perception of AI-skilled students which validates whether perceived career advantage translated into real employment or not. While the study relates the usage of AI by students the integrity, ethics and institutional AI policy awakened would also help universities to develop responsible AI frameworks

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