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Impact of Artificial Intelligence Usage on Learning and Academic Activities Among Students in Navi Mumbai: A Study of Awareness, Usage Patterns and Challenges

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Abstract - *Artificial Intelligence (AI) has become part of students' everyday academic routines. Students use AI-based tools to get explanations, clarify difficult concepts, prepare assignments, carry out preliminary research, summarize study material and manage study time. This study examines awareness and use of AI tools among students in Navi Mumbai, the learning-related benefits they perceive, and their concerns about inaccurate information and overdependence. Primary data were collected through a structured Google Forms questionnaire of 12 questions, and 82 responses were analysed using frequencies and percentages. Awareness and reported use of AI for study were both 93.9%. Most respondents used AI to understand difficult concepts (62.2% yes), for assignments or research (72.0%) and for summarizing (70.7%), and 74.4% believed it saves study time. At the same time, 51.2% were concerned about incorrect information, 50.0% about overdependence, and 75.6% agreed that excessive use may reduce independent thinking. Only 40.2% always verified AI output. The study is descriptive and reports stated practices and perceptions; it does not show that AI directly causes better or worse academic performance. AI is best treated as a supplementary learning aid, used with fact-checking, critical judgement and academic integrity.*

Key Words: Artificial Intelligence, Students, Navi Mumbai, AI Tools, Academic Learning, Study Habits, Independent Learning.

1. INTRODUCTION

Artificial Intelligence has become increasingly visible in education, changing how students search for information, approach difficult topics and complete academic activities. AI tools can answer questions, provide examples, simplify explanations and organize information in a short time. For students who need an explanation beyond classroom teaching or textbooks, these features make AI a convenient learning resource. Students also use AI when preparing assignments, exploring research topics, creating summaries and revising for examinations [1], [5].

The growing availability of AI tools also raises questions about the quality and responsible use of the information they provide. An AI-generated answer may sound confident while still containing errors, incomplete explanations or outdated details. Students therefore need to compare important information with reliable sources instead of accepting every response unchecked [4], [5]. In academic work, they must also follow institutional rules and make sure that submitted work reflects their own understanding.

Another concern is overdependence. If students rely on ready-made answers for every task, they get fewer chances to practise problem-solving, analysis and independent reasoning. When used thoughtfully, however, AI can help students find gaps in understanding, ask follow-up questions and explore topics at their own pace. Its value depends not only on access to the tool but also on how students use and evaluate its output.

This study focuses on students in Navi Mumbai. It examines awareness of AI, reported use for academic activities, perceived benefits such as better understanding and saved time, and selected concerns about accuracy, overdependence and independent learning. The findings give a focused picture of the reported experiences of the surveyed students; they are not intended to describe all students or to prove cause and effect.

2. LITERATURE REVIEW

2.1 AI as Educational Support

Luckin et al. argued that AI can support education through more responsive learning experiences and through assistance for both teachers and learners. They

stressed that educational value depends on how AI is built into learning practice, not on the technology alone [1]. Holmes, Bialik and Fadel reviewed AI applications in education, including learner support and personalization, and described both opportunities and the pedagogical and ethical challenges that come with them [2].

2.2 AI in Higher Education

Zawacki-Richter et al. carried out a systematic review of AI applications in higher education. They found that technical applications need to be connected more closely to teaching and learning practice, which makes it important to study how tools are actually used in real educational settings [3].

2.3 Generative AI and Large Language Models

Kasneci et al. discussed how large language models can offer explanations, feedback and learning support, and also warned of inaccurate outputs and bias. Their review supports the view

that students should review AI-provided information instead of relying on it automatically [5]. Dwivedi et al. gave a multidisciplinary view of generative AI and ChatGPT, noting productivity gains alongside questions about reliability, ethics and responsible use [6].

2.4 Guidance for Responsible Use

UNESCO's guidance on generative AI emphasizes human-centred use, protection of learners, critical evaluation of AI outputs and appropriate institutional guidance [4]. These principles apply directly when students use AI-generated material for academic tasks.

2.5 Research Gap

The literature presents AI as a technology with real educational benefits and with practical and ethical limits. What is less visible is how students in a specific local setting report using AI and checking its output. The present survey adds to this discussion by describing the awareness, uses and concerns of students in Navi Mumbai.

3. OBJECTIVES OF THE STUDY

- To study the awareness and use of Artificial Intelligence (AI) among students.
- To examine students' perceptions of the impact of AI on their academic performance.
- To understand how AI affects students' learning and study habits.
- To identify the benefits and challenges of using AI in students' academic activities.
- To study the impact of AI on students' critical thinking and independent learning.
- To suggest ways for students to use AI effectively and responsibly for academic purposes.

4. RESEARCH HYPOTHESES

Six hypotheses were framed from the objectives. Each has a null hypothesis (H0) and an alternative hypothesis (H1). They are assessed descriptively from the survey percentages, and no statistical test was applied.

Hypothesis 1: Awareness and use of AI (Q1, Q2)

- **Null Hypothesis (H0):** Most respondents are not aware of AI tools and do not use them for their studies.
- **Alternative Hypothesis (H1):** Most respondents are aware of AI tools and use them for their studies.

Hypothesis 2: Academic uses of AI (Q3, Q4)

- **Null Hypothesis (H0):** Respondents do not use AI to understand difficult academic concepts or for assignments or academic research.
- **Alternative Hypothesis (H1):** Respondents use AI to understand difficult academic concepts and for assignments or academic research.

Hypothesis 3: Saving study time (Q6)

- **Null Hypothesis (H0):** Most respondents do not believe AI saves study time.
- **Alternative Hypothesis (H1):** Most respondents believe AI saves study time.

Hypothesis 4: Verification of AI information (Q12)

- **Null Hypothesis (H0):** Respondents do not recognize a need to verify AI-generated information before using it academically.
- **Alternative Hypothesis (H1):** Respondents recognize a need to verify AI-generated information before using it academically.

Hypothesis 5: Support for learning and study habits (Q7, Q8)

- **Null Hypothesis (H0):** Students do not believe AI supports their learning and study habits.
- **Alternative Hypothesis (H1):** Students

believe AI supports their learning and study habits.

Hypothesis 6: Overreliance and independent thinking (Q10, Q11)

- **Null Hypothesis (H0):** Students do not recognize that excessive reliance on AI may affect critical thinking and independent learning.
- **Alternative Hypothesis (H1):** Students recognize that excessive reliance on AI may affect critical thinking and independent learning.

5. RESEARCH METHODOLOGY

5.1 Research Design

The study follows a descriptive survey approach and uses primary data collected through a Google Forms questionnaire administered to students in Navi Mumbai. The analysis describes patterns in the collected answers and does not claim causation or statistical significance.

5.2 Instrument and Sample

The questionnaire contains 12 closed-ended questions covering awareness of AI, use for studies, understanding difficult concepts, assignments and research, summarizing study material, saving time, perceived understanding, help in academic work, incorrect information, overdependence, independent thinking and verification. Most questions use Yes

/ No / Sometimes options; Q7 and Q11 use a five-point agreement scale and Q12 uses a five-point frequency scale. The final response summary contains 82 responses.

Table 1. Structure of the questionnaire

Q.	Topic	Response format
Q1	Awareness of AI	Yes / No
Q2	Use of AI tools for study	Yes / No
Q3	Understanding difficult concepts	Yes / No / Sometimes
Q4	Assignments or academic research	Yes / No / Sometimes
Q5	Summarizing study material	Yes / No / Sometimes
Q6	Saves study time	Yes / No / Sometimes
Q7	Improves understanding of topics	5-point agreement
Q8	Helps in academic work	Yes / No / Sometimes
Q9	Concern: incorrect information	Yes / No / Sometimes
Q10	Concern: overdependence	Yes / No / Sometimes
Q11	Excess use reduces independent thinking	5-point agreement
Q12	Verifies AI information	5-point frequency

5.3 Method of Analysis

Responses were summarized as frequencies and percentages taken from the Google Forms response charts (n = 82). Because the charts display rounded percentages, frequencies were back-calculated from them, and very small slices without a printed label were inferred so that each question totals 82. Counts may therefore differ slightly from the raw data where rounding applies, and the displayed percentages remain the primary source.

6. DATA ANALYSIS

6.1 Awareness and Use of AI (Q1–Q2)

Table 2. Awareness and use of AI tools

Response	Q1. Aware of AI	Q2. Use AI for study
Yes	77 (93.9%)	77 (93.9%)
No	5 (6.1%)	5 (6.1%)
Total	**82 (100%)**	**82 (100%)**

6.2 Academic Uses of AI (Q3–Q5)

Table 3. Use of AI for academic activities

Response	Q3. Difficult concepts	Q4. Assignments / research	Q5. Summarizing
Yes	51 (62.2%)	59 (72.0%)	58 (70.7%)
No	12 (14.6%)	7 (8.5%)	7 (8.5%)
Sometimes	19 (23.2%)	16 (19.5%)	17 (20.7%)
Total	**82 (100%)**	**82 (100%)**	**82 (100%)**

6.3 Perceived Benefits (Q6, Q8)

Table 4. Perceived time-saving and academic help

Response	Q6. Saves study time	Q8. Helps academic work
Yes	61 (74.4%)	59 (72.0%)
No	4 (4.9%)	5 (6.1%)
Sometimes	17 (20.7%)	18 (22.0%)
Total	**82 (100%)**	**82 (100%)**

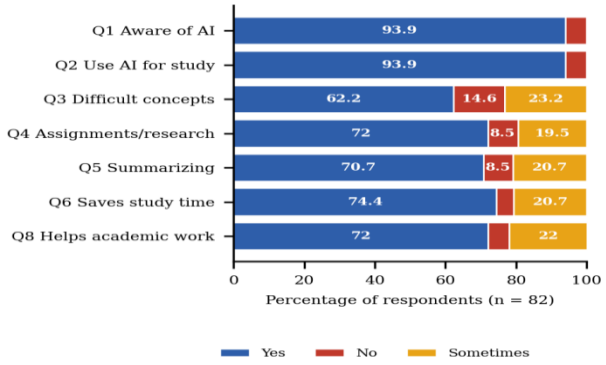


Figure 1. Awareness, use and perceived benefits of AI (Q1–Q6, Q8) Percentages of Yes / No / Sometimes responses.

6.4 Perceived Understanding (Q7)

On the five-point scale, 32 respondents (39.0%) strongly agreed and 41 (50.0%) agreed that AI improves their understanding of academic topics. Eight (9.8%) were neutral and one (1.2%) strongly disagreed. Together, 89.0% agreed or strongly agreed.

6.5 Concerns about AI (Q9–Q11)

Table 5. Concerns and perceived effect on independent thinking

Response	Q9. Incorrect info	Q10. Reliance	Q11. Reduces thinking
Yes / Strongly Agree	42 (51.2%)	41 (50.0%)	27 (32.9%)
Agree	–	–	35 (42.7%)
Sometimes / Neutral	32 (39.0%)	24 (29.3%)	17 (20.7%)
No / Disagree	8 (9.8%)	17 (20.7%)	3 (3.7%)
Strongly Disagree	–	–	0 (0.0%)
Total	**82 (100%)**	**82 (100%)**	**82 (100%)**

Note: Q9 and Q10 use Yes / Sometimes / No. Q11 uses the agreement scale: Strongly Agree, Agree, Neutral, Disagree. Q7 is reported in 6.4.

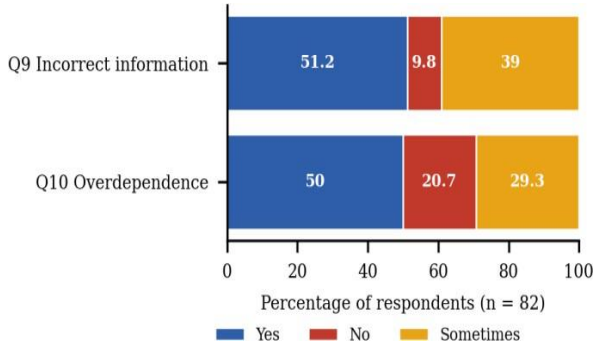


Figure 2. Concern about incorrect information and overdependence (Q9–Q10)

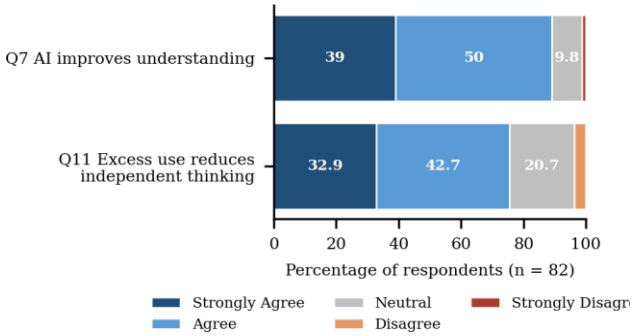


Figure 3. Agreement on understanding (Q7) and independent thinking (Q11)

6.6 Verification of AI-Generated Information (Q12)

Table 6. Verification of AI-generated information

Response	Frequency	Percentage
Always	33	40.2%
Often	14	17.1%
Sometimes	23	28.0%
Rarely	10	12.2%
Never	2	2.4%
Total	**82**	**100%**

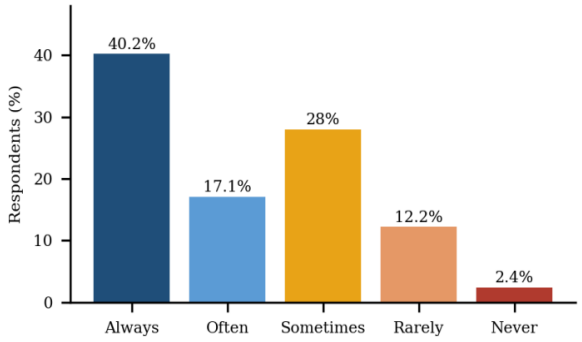


Figure 4. How often respondents verify AI-generated information (Q12)

7. INTERPRETATIONS

7.1 Awareness and Use

Awareness of AI and use of AI tools for study were both 93.9% (77 of 82). AI is therefore familiar to nearly all respondents and is part of their study routine, supporting Hypothesis 1 (H0 rejected). These figures reflect reported use only; they do not show how often each student uses AI or whether it improves grades.

7.2 Academic Uses

A majority use AI to understand difficult concepts (62.2%), and a further 23.2% do so sometimes, so 85.4% use it at least occasionally. For assignments or research the share is higher: 72.0% said yes and 19.5% sometimes. Summarizing study material follows the same pattern (70.7% yes, 20.7% sometimes). Hypothesis 2 is supported (H0 rejected), and AI appears to serve as a general-purpose academic aid used for understanding material and for completing tasks.

7.3 Perceived Benefits

About three-quarters (74.4%) believe AI saves study time and a further 20.7% say it does so sometimes, which supports Hypothesis 3. The saving may depend on the task and on the effort needed to check the answer. Perceptions of learning are also positive: 89.0% agree that AI improves their understanding of topics (Q7), and 72.0% say it helps their academic work, with 22.0% saying it sometimes does (Q8). This supports Hypothesis 5, though these are opinions and not measured learning outcomes.

7.4 Concerns

Concern is widespread. About half (51.2%) are concerned about incorrect AI information and another 39.0% sometimes are, while only 9.8% are not. Half (50.0%) worry about becoming overdependent and 29.3% sometimes do. Three-quarters (75.6%) agree or strongly agree that excessive AI use may reduce independent thinking, and only 3.7% disagree. This supports Hypothesis 6. Students use AI heavily and yet are aware of its risks.

7.5 Verification

Only 40.2% always verify AI output, and 57.3% do so always or often. Another 28.0% verify sometimes, and 14.6% rarely or never do. Although most respondents verify to some degree (85.4% at least sometimes), the habit is not consistent, which supports Hypothesis 4 only partly: recognition of the need to verify is clear, but practice varies. This is important because an answer that looks clear and detailed can still contain errors or omit context [5].

Table 7. Summary of hypothesis assessment

Hyp.	Evidence (question)	Result	Decision
1	Aware of AI, use for study (Q1, Q2)	93.9% Yes on both	H0 rejected
2	Difficult concepts, assignments (Q3, Q4)	62.2% and 72.0% Yes; 23.2% and 19.5% Sometimes	H0 rejected
3	Saves study time (Q6)	74.4% Yes, 20.7% Sometimes	H0 rejected
4	Verification (Q12)	57.3% Always/ Often; 85.4% at least Sometimes	H1 partly supported
5	Understanding and help (Q7, Q8)	89.0% agree; 72.0% Yes	H0 rejected
6	Overdependence, thinking (Q10, Q11)	50.0% Yes (Q10); 75.6% agree (Q11)	H0 rejected

Decisions are based on descriptive percentages only; no statistical test was applied.

8. KEY FINDINGS

- AI awareness and study-related use are both 93.9%, i.e. 77 of 82 respondents.
- Most respondents use AI to understand difficult concepts (62.2%), for assignments or research (72.0%) and for summarizing study material (70.7%).
- 74.4% believe AI saves study time, and 89.0%

agree that it improves their understanding of academic topics.

- 72.0% feel AI helps their academic work, and a further 22.0% feel it helps sometimes.
- 51.2% are concerned about incorrect information from AI, and 39.0% are concerned sometimes.
- 50.0% are concerned about overdependence, and 75.6% agree that excessive use may reduce independent thinking.
- Verification is inconsistent: 40.2% always verify, 17.1% often, 28.0% sometimes, 12.2% rarely and 2.4% never.

9. LIMITATIONS OF THE STUDY

- The study uses self-reported responses, so it reflects perceptions and stated practices and not measured behaviour.
- The sample (n = 82) should not be assumed to represent all students in Navi Mumbai or elsewhere.
- Frequencies were back-calculated from percentages rounded to one decimal place, so small differences are possible.
- The study is descriptive and does not test causal relationships or statistical significance.
- It does not compare actual academic grades before and after AI use, so it cannot show that AI use causes better or worse performance.
- The questionnaire does not record how often AI is used or which tools are used, and the sample is not broken down by course or year.

10. FUTURE STUDIES

- Using a wider and more diverse student sample, and comparing patterns across courses and academic levels.
- Examining whether reported AI use is linked to measured learning outcomes.
- Comparing types of AI use, such as concept explanation, assignment planning, summarization and revision, to see which students find most useful.
- Investigating how students verify AI-generated information and which sources they consult.
- Evaluating educational activities that encourage responsible AI use, independent thinking and academic integrity.
- Using interviews or focus groups for more detail on students' experiences.

11. CONCLUSIONS

This study examined AI awareness, academic use, perceived benefits and concerns among 82 students in Navi Mumbai using a Google Forms survey. AI tools are widely used for study: awareness and use were both 93.9%, and respondents often find AI helpful for understanding concepts, supporting assignments and research, and saving time.

The study also shows concern about inaccurate information and excessive dependence. Half of the respondents worry about overdependence, and three-quarters agree that heavy use may reduce independent thinking. Verification habits vary, and only 40.2% always check AI-generated information. The usefulness of an AI response depends on its accuracy and on the student's ability to evaluate it. AI should therefore be treated as a supplementary learning tool and not as a replacement for independent effort, classroom learning or critical judgement.

Students should cross-check important information with reliable sources, follow academic integrity requirements and make sure that submitted work reflects their own understanding. They can use AI to clarify concepts, generate practice questions or organize ideas while still completing their own reasoning and review [4]. Because the findings rest on self-reported responses, they describe participants' experiences and are not proof of a direct effect on academic performance. Future studies with wider samples and measured learning outcomes can build on them.

12. REFERENCES

1) Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). Intelligence Unleashed: An Argument for AI in Education. Pearson.

2) Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Center for Curriculum Redesign.

3) Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? International Journal of Educational Technology in Higher Education, 16, 39.

4) UNESCO. (2023). Guidance for Generative AI in Education and Research. UNESCO.

5) Kasneci, E., et al. (2023). ChatGPT for good? On opportunities and challenges of large language

models for education. Learning and Individual Differences, 103, 102274.

6) Dwivedi, Y. K., et al. (2023). So what if ChatGPT wrote it? Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. International Journal of Information Management, 71, 102642.

7) Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. International Journal of Educational Technology in Higher Education, 20,22. https://doi.org/10.1186/s41239-023-00392-8

8) Labadze, L., Grigolia, M., & Machaidze, L. (2023). Role of AI chatbots in education: Systematic literature review. International Journal of Educational Technology in Higher Education, 20, 56. https://doi.org/10.1186/s41239-023-00426-1

9) Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. International Journal of Educational Technology in Higher Education, 20, 43. https://doi.org/10.1186/s41239-023-00411-8

10) Chiu, T. K. F., Xia, Q., Zhou, X., Chai, C. S., & Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. Computers and Education: Artificial Intelligence, 4, 100118. https://doi.org/10.1016/j.caeai.2022.100118.