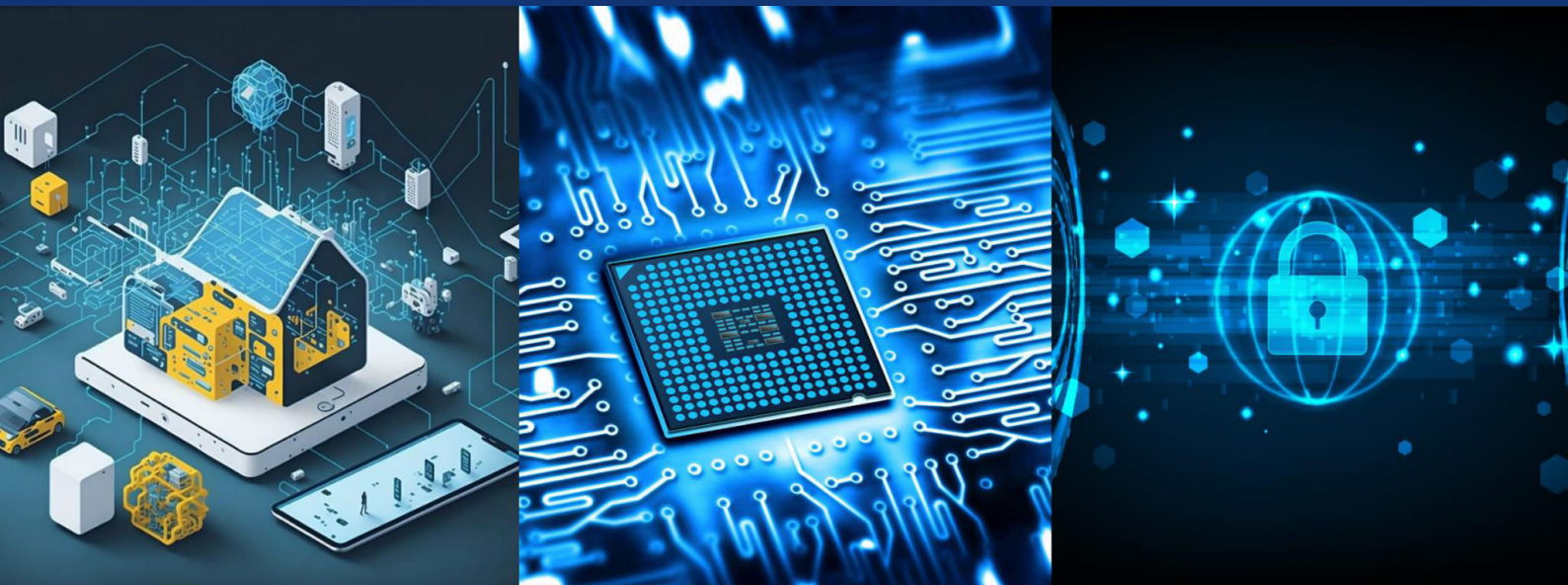
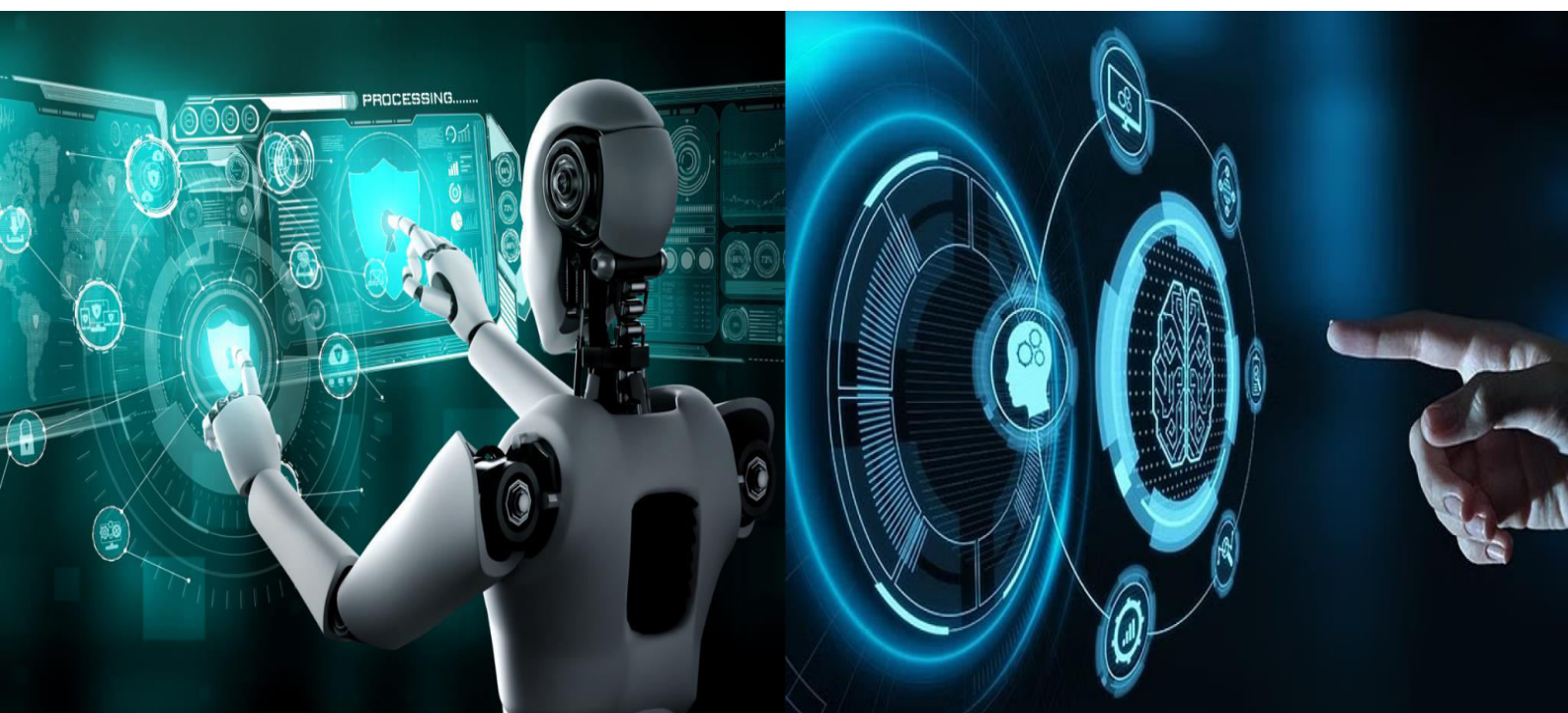




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Impact of AI Tutoring on Student Engagement and Self-Study Habits

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ABSTRACT: This study examines students' reported experiences with AI tutoring tools and their perceived relationship with student engagement and self-study habits. The analysis uses 54 submitted responses to a Google Forms questionnaire covering education level, AI-tool use, frequency of use, perceived learning support, independent practice, answer verification, and perceived risks of over-dependence. Descriptive analysis shows that 44 respondents (81.5%) reported using AI tutoring for academic learning. The most frequently selected overall impact was "Somewhat positive" (19 respondents; 35.2%), followed by "No significant impact" (17; 31.5%). Responses were less uniformly positive on specific learning statements: average ratings were 2.41/5 for understanding difficult topics, 2.85/5 for interactive learning, 2.69/5 for motivation, 2.98/5 for independent revision and practice, and 2.96/5 for identifying learning gaps. Most respondents said they sometimes verify AI-generated answers, while a majority answered that excessive dependence may reduce independent thinking. These are descriptive, self-reported results from a convenience sample; they do not establish causal effects or represent all students.

KEYWORDS: artificial intelligence, AI tutoring, student engagement, self-study, self-regulated learning, survey research.

I. INTRODUCTION

Students often balance classes, assignments, travel, work and personal responsibilities. When they have limited time to study, AI tutoring tools may offer quick explanations, examples, practice questions and revision support outside classroom hours. These tools may make it easier to return to a difficult topic, but fast access to an answer does not necessarily mean that a student has understood it.

AI tutoring includes conversational tools such as educational chatbots and systems that provide adaptive feedback. In principle, these tools can support learning by helping students clarify concepts and practise at their own pace. At the same time, students may become dependent on generated answers or accept incorrect information without checking it. Research reviews have similarly reported a mix of engagement and disengagement, and have identified study habits and self-regulation as areas needing further investigation [1–3].

This study explores students' self-reported experiences with AI tutoring, with particular attention to engagement, revision, independent practice and the perceived risk of over-dependence.

II. PROBLEM STATEMENT

Students with busy schedules may need flexible academic support, yet the use of AI tools does not automatically develop effective self-study habits. It is important to examine whether students perceive AI tutoring as useful for understanding and revision, whether they continue solving problems independently, and whether they verify AI-generated information.



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III. PROPOSED SYSTEM

Based on the study focus and the survey responses, this paper proposes a responsible AI-supported self-study model. The model is a recommendation, not a software system that has been developed or experimentally tested. It has five stages: (1) the student first attempts the topic or question independently; (2) the student asks an AI tutor for a hint, a simpler explanation or a practice example; (3) the student checks important information against class notes, textbooks or a teacher; (4) the student solves a similar question without AI; and (5) the student records remaining doubts and plans the next revision session. This sequence is intended to use AI for guidance while keeping planning, reasoning and final work with the learner. The survey indicates that answer verification and independent follow-up practice are areas worth emphasizing, but the survey alone cannot establish that this proposed model will improve outcomes. Future work could test the model with a larger sample and pre- and post-learning measures.

IV. OBJECTIVES

1. To describe respondents' reported use of AI tutoring tools for academic learning.
2. To examine perceived effects on understanding, engagement, motivation and independent revision.
3. To describe how often respondents verify AI-generated answers.
4. To explore respondents' views about the risk of over-dependence on AI.
5. To identify practical implications for using AI as a support for, rather than a replacement for, independent study.

V. LITERATURE REVIEW

5.1 AI and student engagement

Lo, Hew and Jong synthesised 72 empirical studies of ChatGPT and student engagement. They reported evidence of both engagement and disengagement: interaction and perceived interest appeared in some studies, while concerns included academic dishonesty, reduced critical thinking and over-reliance. They also noted that research on students' study habits requires further attention [1].

5.2 Educational chatbots and self-regulated learning

Guan and colleagues reviewed 27 publications on educational chatbots and self-regulated learning. Their review found that chatbots had been used to help students access learning resources, apply strategies and monitor study. Support for goal setting, planning and reflection was more limited, and some reported effects were mixed or non-significant [2].

5.3 AI-supported learning in higher education

Lan and Zhou reviewed 14 studies of AI-supported self-regulated learning in higher education. They found that AI applications may support different phases of learning, while emphasizing the importance of student autonomy and thoughtful learning design [3].

5.4 Research gap

Prior reviews identify both the potential of AI to support engagement and the risk that it may substitute for students' own effort. This survey adds a small, descriptive snapshot of respondents' reported use, answer-checking practices, independent practice and overall perceptions. Because it is a single questionnaire with a limited convenience sample, it should be treated as exploratory rather than a definitive test of AI's impact.

VI. METHODOLOGY

A cross-sectional, descriptive survey design was used. Responses were collected through a Google Forms questionnaire containing 13 questions. The questions covered education level, use and frequency of AI tutoring tools, perceived learning support, independent practice, verification of generated answers, perceived risk of dependence, and overall impact. The supplied spreadsheet contained 54 response records.

The data were summarized using counts, percentages and descriptive statistics. Five 1–5 rating questions were summarized using means, where 1 represents the lowest rating and 5 the highest according to the questionnaire. Pie charts are included for selected categorical questions. No inferential tests were conducted, and no causal conclusions are drawn.



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Sampling and data-quality limitations: the supplied file does not document a probability-sampling method, recruitment procedure, institution-wide population or response rate. Results are therefore reported as responses in this dataset, not as representative estimates for all students. One frequency response appeared as “Option 1Daily” in the export and was normalized to “Daily” for reporting. The questionnaire also includes some apparent inconsistencies between the self-reported prior-use question and reported tool/frequency selections; these were not silently corrected and should be checked against the original form before journal submission.

VII. RESULTS

7.1 Respondent profile

Education level	n	%
Postgraduate	21	38.9%
Diploma	18	33.3%
Undergraduate	12	22.2%
Other	3	5.6%

The largest group was postgraduate respondents (21; 38.9%), followed by diploma students (18; 33.3%), undergraduates (12; 22.2%) and respondents selecting other (3; 5.6%).

Respondents by education level

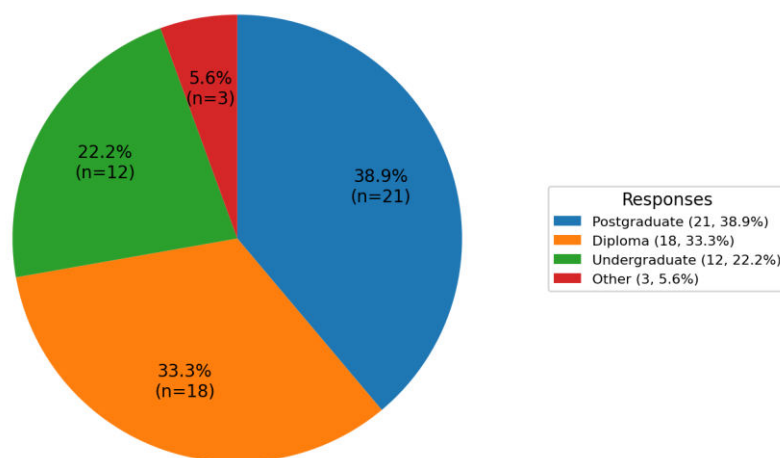


Figure 1. Respondents by education level.

7.2 Use of AI tutoring tools

Prior academic use	n	%
Yes	44	81.5%
No	10	18.5%

Forty-four respondents (81.5%) answered that they had used AI tutoring tools for academic learning, while 10 (18.5%) answered no.



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Have used AI tutoring for academic learning

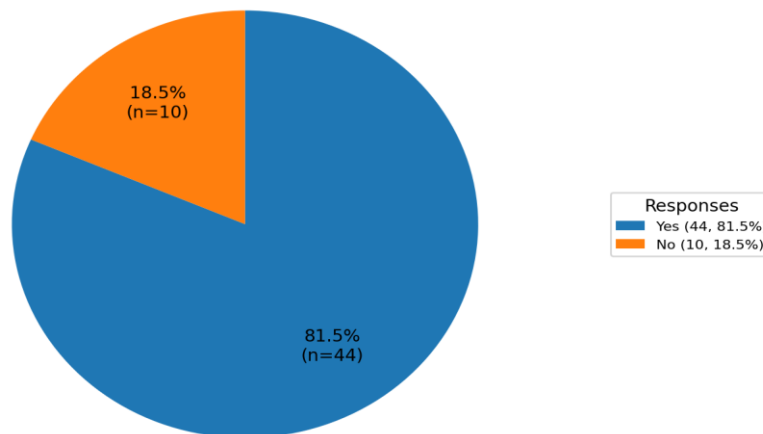


Figure 2. Respondents' reported prior use of AI tutoring for academic learning.

Most frequently selected tool	n	%
Microsoft Copilot	24	44.4%
Other AI tools	12	22.2%
Google Gemini	11	20.4%
ChatGPT	7	13.0%

Microsoft Copilot was the most commonly selected tool (24; 44.4%), followed by other AI tools (12; 22.2%), Google Gemini (11; 20.4%) and ChatGPT (7; 13.0%). The question appears to allow one response per respondent; these figures describe the selections in the supplied export.

7.3 Frequency of AI use

Frequency	n	%
Several times a week	25	46.3%
Once a week	13	24.1%
Occasionally	9	16.7%
Daily	5	9.3%
Never	2	3.7%

The most common response was several times a week (25; 46.3%). Thirteen respondents (24.1%) selected once a week, nine (16.7%) selected occasionally, five (9.3%) selected daily and two (3.7%) selected never. Because the export contained a malformed label for the daily option, the original Google Form should be checked to confirm this recoding.



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Frequency of AI use for studying

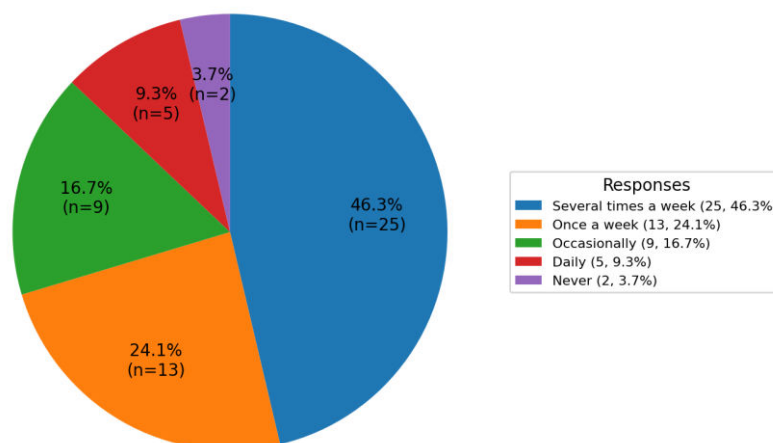


Figure 3. Reported frequency of AI use for studying.

7.4 Perceived learning support

Statement	Valid n	Mean (1–5)	Median
Understanding difficult topics	54	2.41	2
Interactive and interesting learning	53	2.85	3
Motivation to spend more time learning	54	2.69	3
Independent revision and practice	54	2.98	3
Identifying topics not understood	53	2.96	3

The mean ratings ranged from 2.41 to 2.98 out of 5. Independent revision and practice had the highest mean (2.98), followed by interactive learning (2.85), identifying learning gaps (2.77), motivation (2.69) and understanding difficult topics (2.41). These values do not show a uniformly positive response pattern. Missing ratings were excluded from each item's mean.

7.5 Independent practice after AI assistance

Response	n	%
Disagree	22	40.7%
Neutral	21	38.9%
Strongly disagree	8	14.8%
Agree	3	5.6%

For the statement about trying similar questions independently after receiving AI help, 22 respondents (40.7%) selected disagree, 21 (38.9%) selected neutral, eight (14.8%) selected strongly disagree and three (5.6%) selected agree. No respondent selected strongly agree in the supplied data. This pattern suggests that independent follow-up practice was not consistently reported by this sample; the result should be interpreted in light of the response options provided.



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7.6 Verification of AI-generated answers

Verification frequency	n	%
Sometimes	32	59.3%
Often	13	24.1%
Always	4	7.4%
Rarely	4	7.4%
Never	1	1.9%

The most common answer was sometimes (32; 59.3%). Thirteen respondents (24.1%) selected often, four (7.4%) always, four (7.4%) rarely and one (1.9%) never. Thus, regular verification was not universal in this sample.

How often respondents verify AI answers

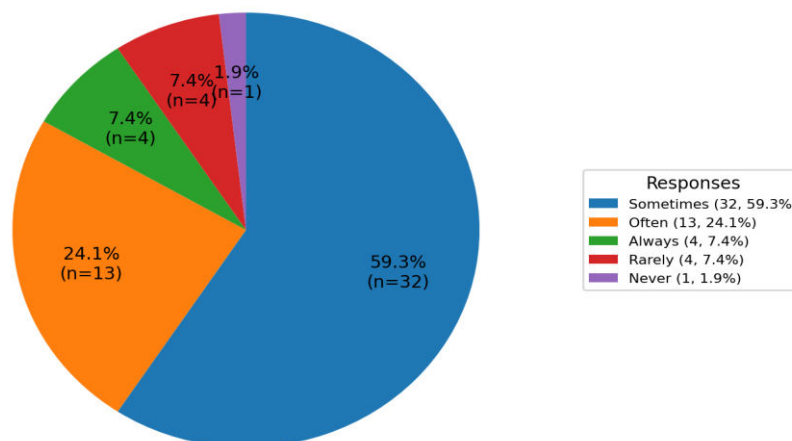


Figure 4. Frequency of checking AI-generated answers against other sources.

7.7 Perceived risk of over-dependence

Response	n	%
Yes	26	48.1%
No	18	33.3%
Maybe	10	18.5%

Twenty-six respondents (48.1%) answered yes when asked whether excessive dependence on AI could reduce independent thinking and problem-solving; 18 (33.3%) answered no and 10 (18.5%) selected maybe.



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Perceived risk of over-dependence on AI

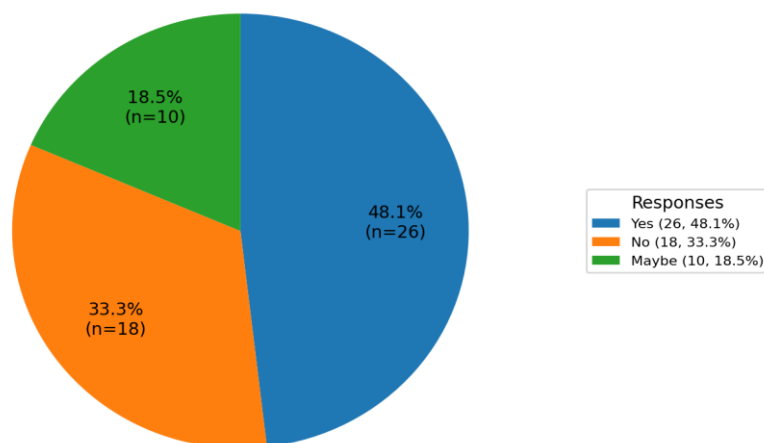


Figure 5. Respondents' views on whether excessive AI dependence may reduce independent thinking.

7.8 Overall perceived impact

Overall impact	n	%
Somewhat positive	19	35.2%
No significant impact	17	31.5%
Somewhat negative	9	16.7%
Very positive	7	13.0%
Very negative	2	3.7%

The most frequent overall assessment was somewhat positive (19; 35.2%). Seventeen respondents (31.5%) reported no significant impact, nine (16.7%) somewhat negative, seven (13.0%) very positive and two (3.7%) very negative. Combining the two positive categories gives 26 respondents (48.1%); the two negative categories total 11 (20.4%), while 17 (31.5%) reported no significant impact. This is a descriptive grouping of the selected categories, not evidence that AI caused a change in engagement or study habits.

Perceived overall impact of AI tutoring

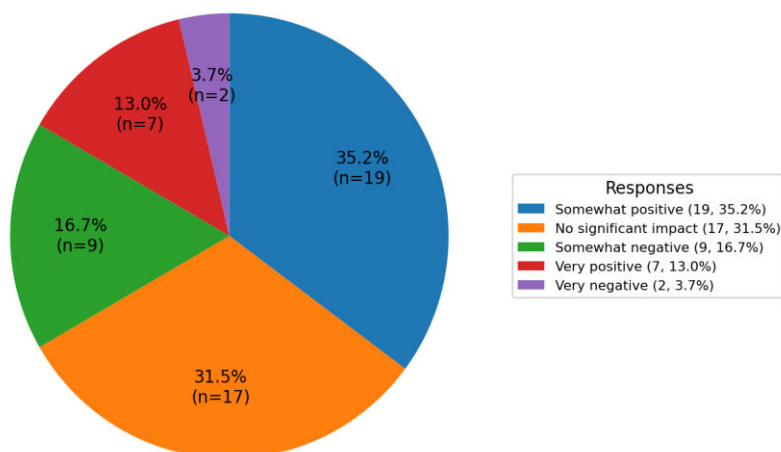


Figure 6. Overall perceived impact of AI tutoring on engagement and self-study habits.



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VIII. DISCUSSION

The survey presents a mixed picture. Almost half of the respondents selected an overall positive category, but nearly one-third reported no significant impact and about one-fifth selected a negative category. The average ratings for the specific learning statements were below the midpoint of 3 on understanding difficult topics and motivation, close to the midpoint for interactive learning and learning-gap identification, and approximately at the midpoint for independent revision and practice. This suggests that respondents did not experience all aspects of AI tutoring in the same way.

A notable finding concerns independent practice. Most respondents did not agree that they routinely tried similar questions independently after receiving AI assistance, and the most common verification response was sometimes. These responses do not prove that AI reduces independent thinking, but they point to practical areas where study guidance may be useful: attempt first, request hints rather than complete answers, verify important claims and solve a similar question without assistance.

The results align with published reviews that describe both possible engagement benefits and concerns about over-reliance [1–3]. However, this dataset cannot determine whether AI use improved or weakened learning because it relies on self-report, has no comparison group and captures responses at one point in time.

IX. IMPLICATIONS AND RECOMMENDATIONS

- Students should attempt a question independently before asking an AI tool for help.
- AI should be used for hints, alternative explanations, quizzes and revision—not as an automatic replacement for solving tasks.
- Students should check important AI-generated information against textbooks, class notes, teachers or reliable sources.
- Teachers can encourage students to explain answers in their own words and demonstrate how they solved a problem without AI.
- Future studies should use clearer response options, verify form logic, recruit a broader sample and compare self-reports with observable learning outcomes.

X. LIMITATIONS

The study has several limitations. The sample is small and the sampling method and respondent population are not documented in the supplied file. Responses are self-reported and may reflect individual interpretation of the questions. The cross-sectional design cannot establish cause and effect. The survey's Likert labels and response scales should be checked before final publication, especially for the five 1–5 items and the independent-practice item. The spreadsheet also contains at least one malformed frequency label and apparent inconsistencies between answers; the raw export should be reconciled with the original form before submitting the paper to a journal.

XI. CONCLUSION

In this dataset of 54 responses, respondents' views of AI tutoring were mixed rather than uniformly positive. The most frequent overall answer was somewhat positive, but a substantial group reported no significant impact. Ratings for understanding and motivation were relatively low, and respondents did not consistently report solving similar questions independently or always checking AI-generated answers. Nearly half believed excessive dependence could reduce independent thinking. These findings support a balanced view: AI tutoring may provide convenient help, but its value depends on whether students use it to practise, verify information and build their own understanding. Because the study is descriptive and based on a limited sample, the results should not be generalized to all students or interpreted as causal effects.

XII. ACKNOWLEDGMENT

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