Analysis of the impact of artificial intelligence on students' academic performance.

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Introduction:

In this rapidly evolving era of technology, the influence of artificial intelligence (AI) on various aspects of our lives is undeniable. As students navigate the educational landscape, it is essential to understand how AI integration may shape and influence academic outcomes.

Research question:

How does the integration of artificial intelligence in educational settings impact students' academic performance?

Hypothesis:

I hypothesize that students who are exposed to AI-driven educational tools will demonstrate improved learning outcomes compared to those in traditional settings. However, the impact of artificial intelligence on students' academic performance is complex and there are various aspects of students' learning outcomes. The findings will reveal a spectrum of experiences, both positive and negative, with no predetermined directionality.

Population of interest:

Undergraduate or graduate students enrolled in educational institutions across academic levels, who have experienced or are currently experiencing the integration of artificial intelligence in their learning environments.

Sampling method:

The sample method i used here is the stratified Random Sampling in which the population is divided into subgroups or strata based on relevant characteristics, such as academic level (undergraduate, graduate), discipline, or type of educational institution.
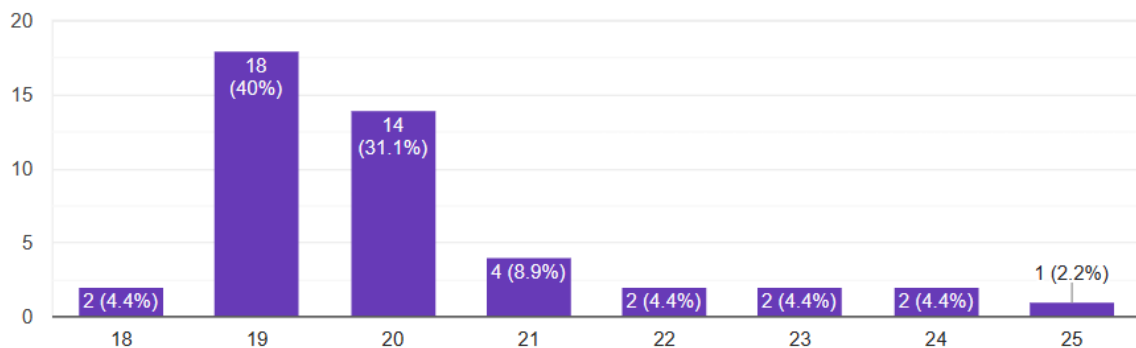
Bias Identification:

When analyzing subgroups (e.g., different academic levels, disciplines), there may be a risk of overemphasizing certain groups if they are not adequately represented in the sample.

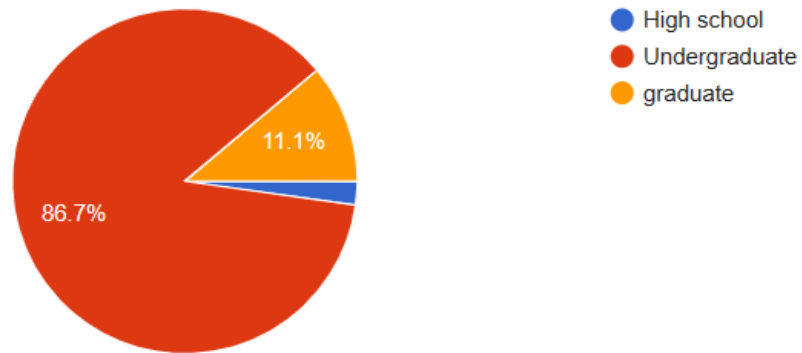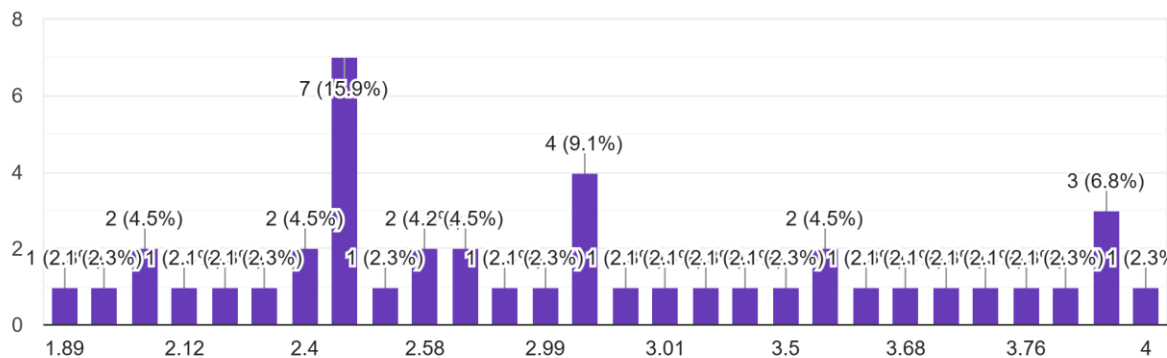## Survey Questions:

what is your age?

45 responses

Copy

What is your current educational level?

45 responses

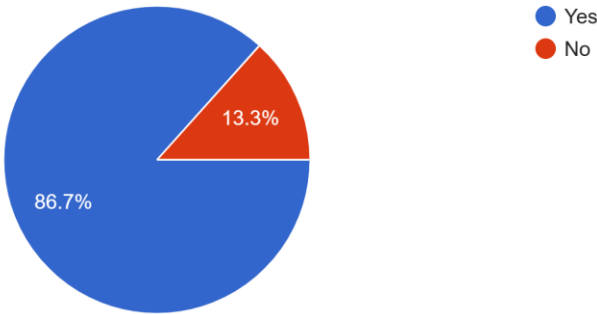Legend:
- High school
- Undergraduate
- graduate

86.7%

11.1%

What is your current GPA
44 responses

## Have you ever used artificial intelligence tools to aid in your academic studies?
45 responses

- Yes
- No

86.7%
13.3%

How frequently do you use traditional study methods (e.g., textbooks, class notes)?
45 responses


- Always
- Often
- Sometimes
- Rarely
- Never

17.8%
17.8%
31.1%
26.7%
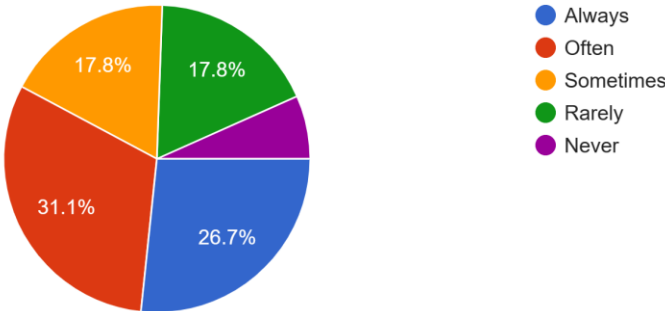
How frequently do you use digital resources (e.g., online lectures, e-books) for your studies?
45 responses

- Always
- Often
- Sometimes
- rarely
- never

33.3%
11.1%
51.1%
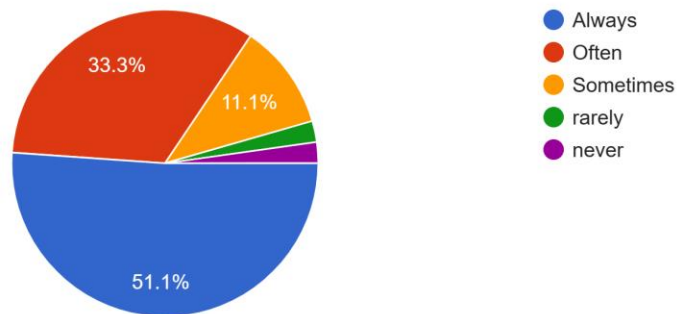
To what extent do you believe that using AI tools positively influences your academic performance?
45 responses

- strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

28.9%
40%
28.9%
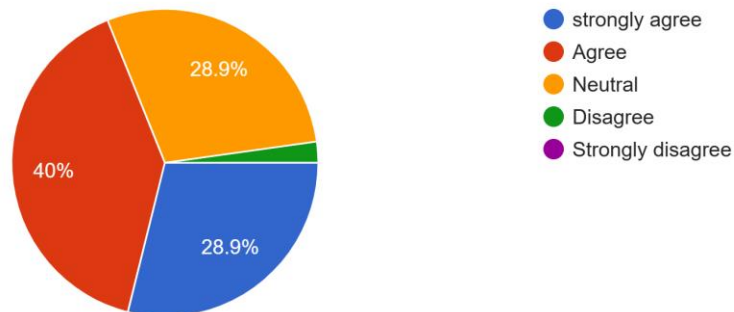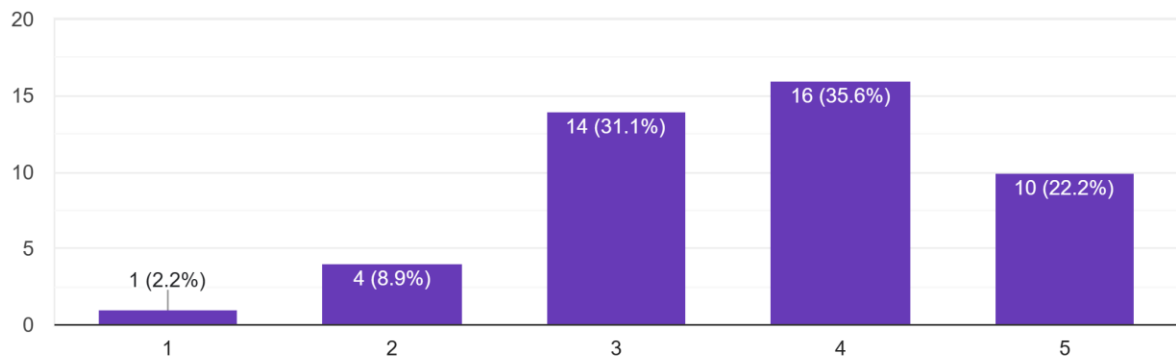
In this question, 1 represents very negatively and 5 represents very positively:

On a scale of 1 to 5 how did the use of AI affect your academic performance
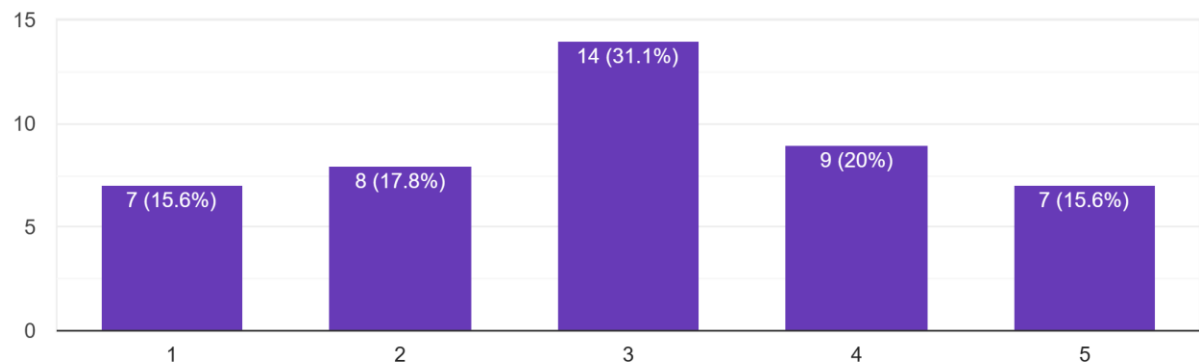
45 responses

In this question, 1 represents very low and 5 represents very high:

On a scale of 1 to 5 how much do you rely on AI

45 responses

Numbers of samples collected:

45

Survey link:

Analysis:

|	what is your age?	What is your current GPA	On a scale of 1 to 5 how did the use of AI affect your academic performance	On a scale of 1 to 5 how much do you rely on AI
count	45.000000	44.000000	45.000000	45.000000
mean	20.111111	2.933636	3.666667	3.022222
std	1.598611	0.628872	1.000000	1.287861
min	18.000000	1.890000	1.000000	1.000000
25%	19.000000	2.500000	3.000000	2.000000
50%	20.000000	2.895000	4.000000	3.000000
75%	20.000000	3.600000	4.000000	4.000000
max	25.000000	4.000000	5.000000	5.000000

The data shows an age range from 18 to 25, with the majority falling between 19 and 20.
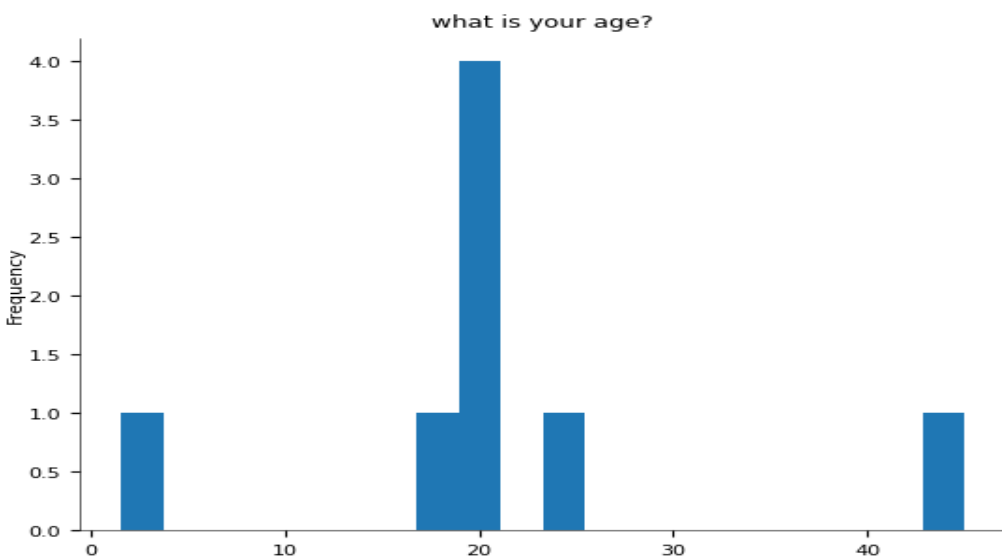
The GPA data shows about 2.93, with a standard deviation of 0.63.

What is your current GPA
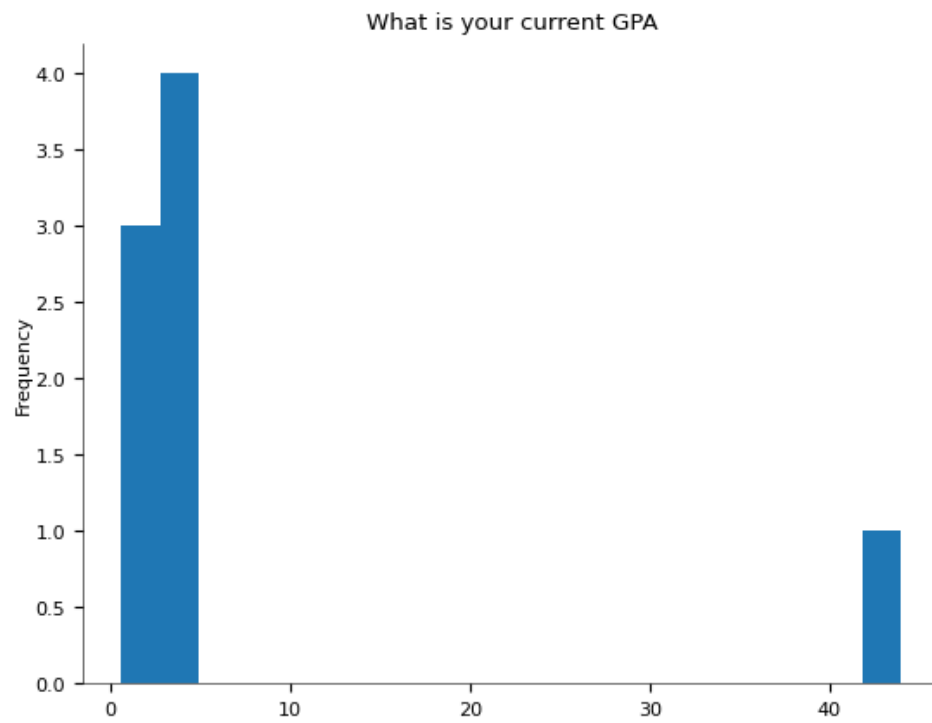
Participants rated the impact of AI on their academic performance on a scale of 1 to 5, with a mean approximately 3.6

On a scale of 1 to 5 how did the use of AI affect your academic performance
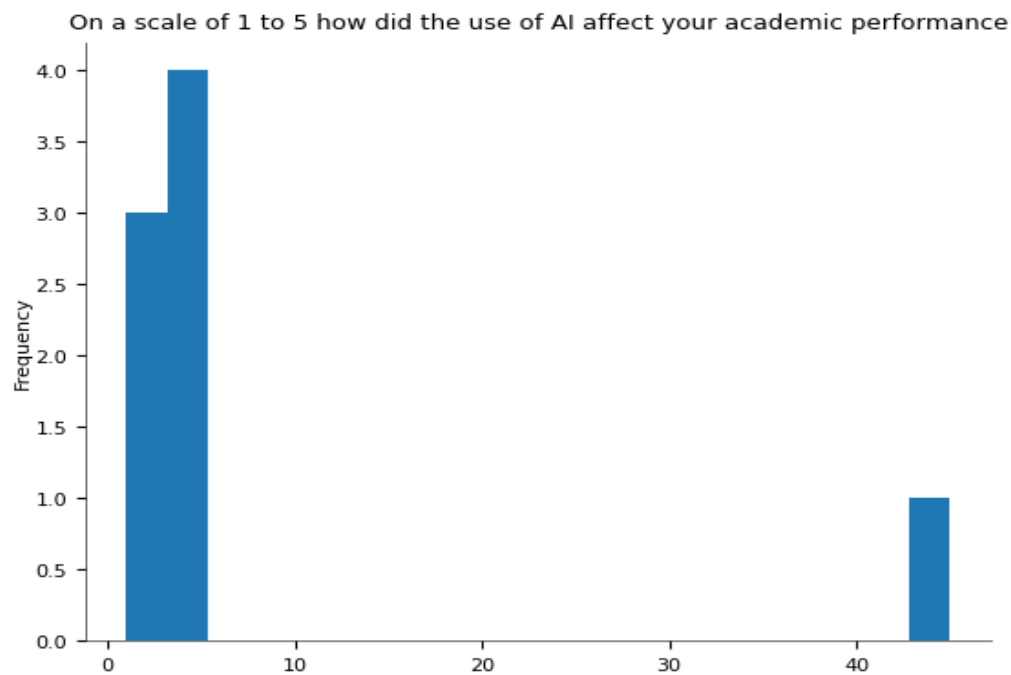
Participants rated their reliance on AI on a scale of 1 to 5, with a mean of approximately 3.02

On a scale of 1 to 5 how much do you rely on AI
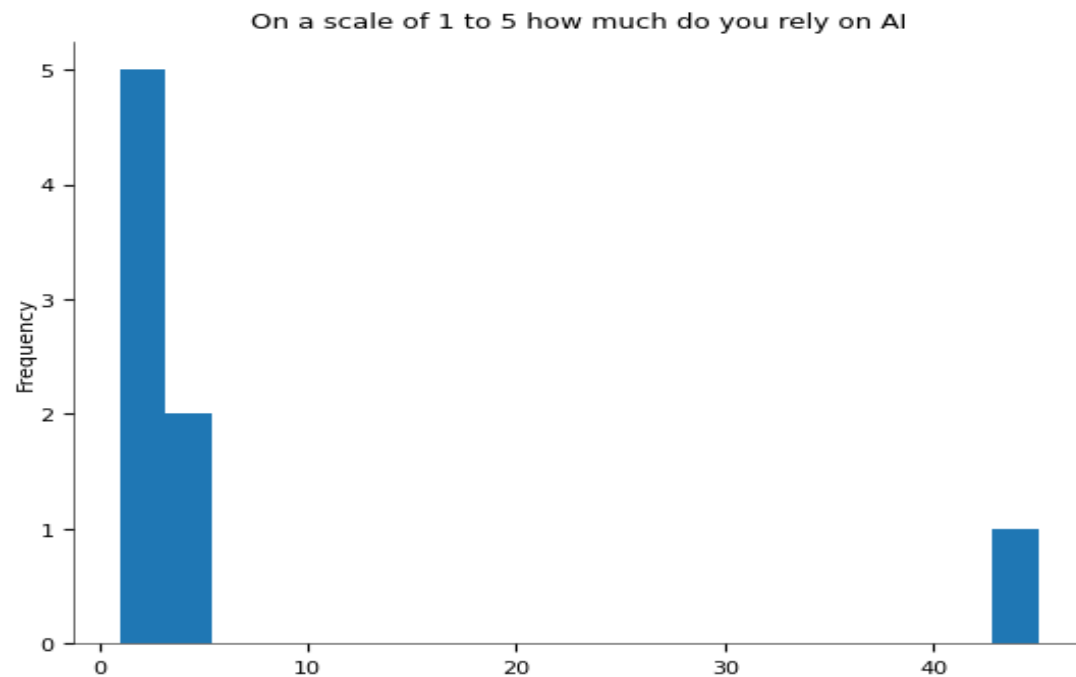
There appears to be no clear pattern between age and GPA. The data points are scattered without a discernible upward or downward trend (no correlation). This suggests that there is no apparent linear relationship between a student's age and their GPA.
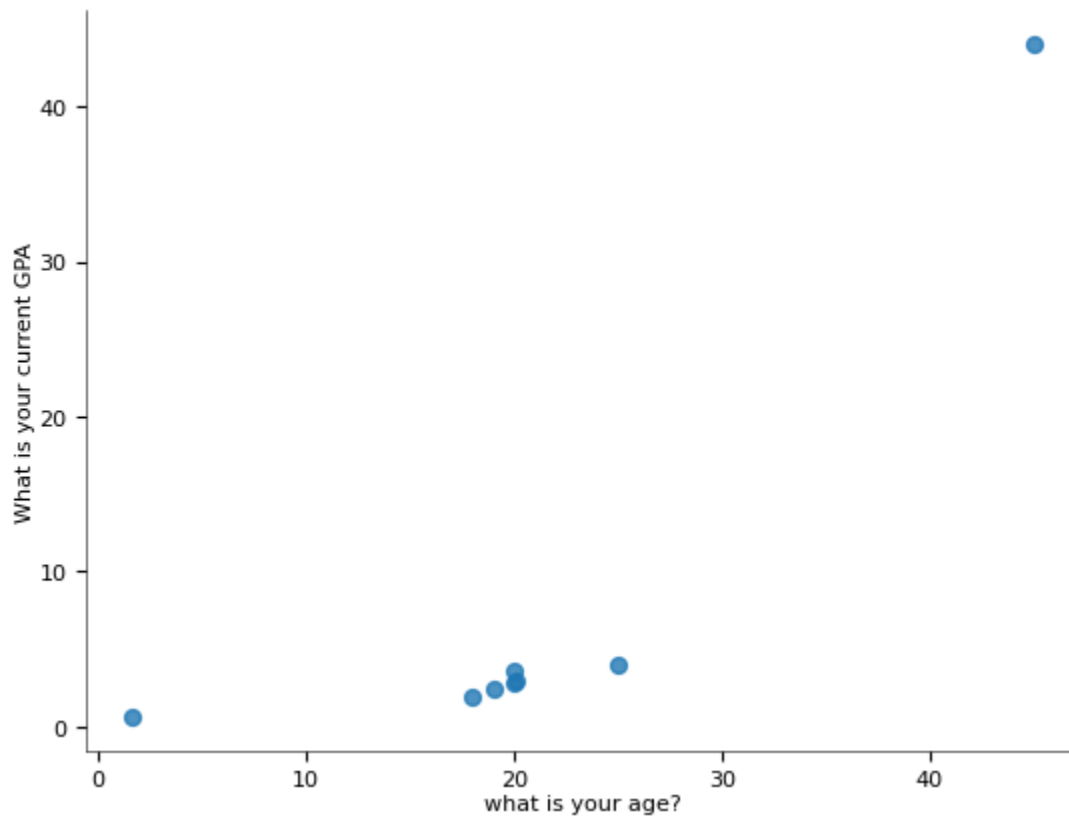
There is a positive linear correlation because the scattering of the dots is moving upward.
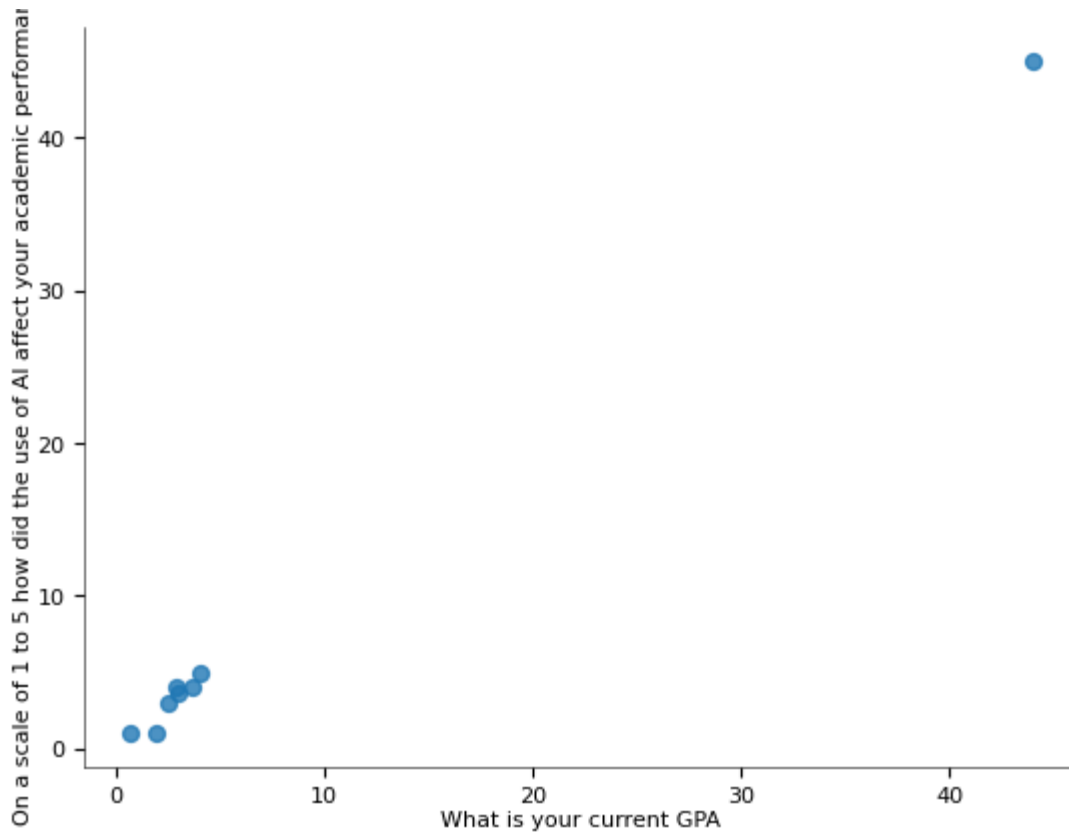
There is again a positive linear relationship between age and the level of reliance on AI.
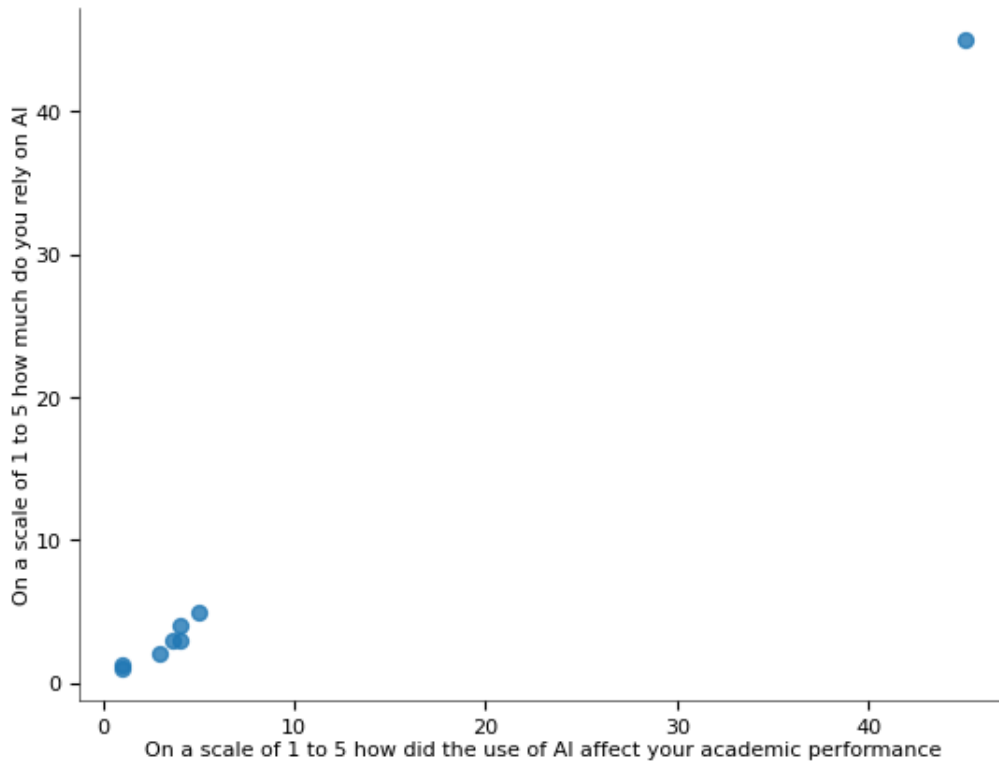
Conclusion:

Individual experiences significantly shape how students perceive the impact of AI on their academic journey. Most of the students have had experience with AI and agreed that it helped positively influence their academic performances. Yet the amount of people who rely on AI are almost the same as the people who don't.

Potential issues:

The sample size of 45 participants might be small, and the sample's diversity in demographics, academic disciplines, and educational

institutions could influence the generalizability of the findings. Larger and more diverse samples would enhance the study's representativeness.