

# Generative AI Tools in Higher Education: A Case Study of Student Usage at a Small Liberal Arts College

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# Overview

- Mapping the Use of Generative AI Tools in the Context of a Small College (Fewer than 1,000 Students) in the U.S.
- Interesting results and conclusions.



**Figure:** "Pandora" by John William Waterhouse

# Research Questions

- ① What proportion of students use Generative AI tools?
- ② How frequently do students use GAI tools?
- ③ For which purposes do students use these tools?
- ④ Which tools are the most popular?

# Survey Design

- Anonymous, seven-item survey combining closed-ended, multiple-choice, and Likert-scale questions.
- Native language, familiarity with Generative AI, and AI usage (Yes/No).
- Students' academic disciplines, preferred Generative AI tools, and purposes of use (Select all that apply).
- Frequency of GAI usage measured via Likert scale: Rarely to Daily.



Figure: "Composition with Red, Blue and Yellow" by Piet Mondrian

# Data Analysis

- Non-parametric statistics applied due to nominal and ordinal data.
  - Mann-Whitney U test: Compared AI usage frequency between international and domestic students.
  - Chi-Square test: Examined associations between disciplines, AI usage, and purposes.
- Excluded incomplete responses ( $n = 23$ ) to ensure robust analysis; imputation was avoided.



Figure: "Dynamism of a Car" by Luigi Russolo

# Results: What proportion of students use Generative AI tools?

- 93.2% of students reported using AI in their academic activities.
- Only 6.8% indicated no use of AI tools.
- Widespread adoption of Generative AI among students.

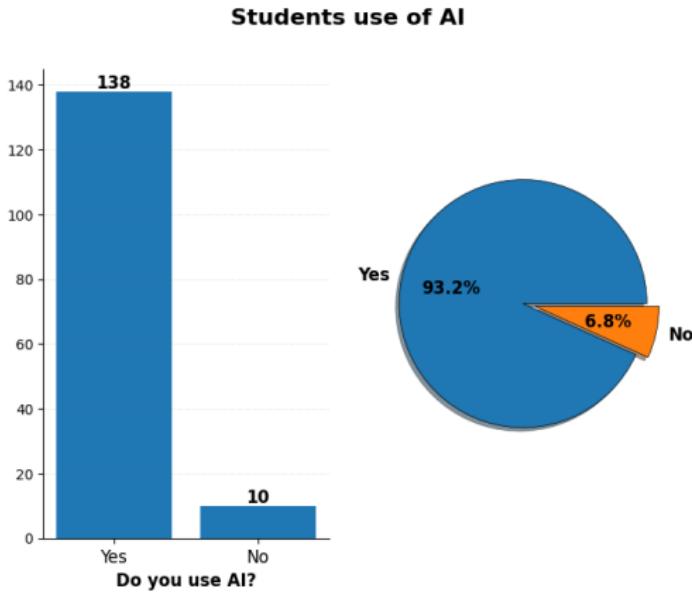
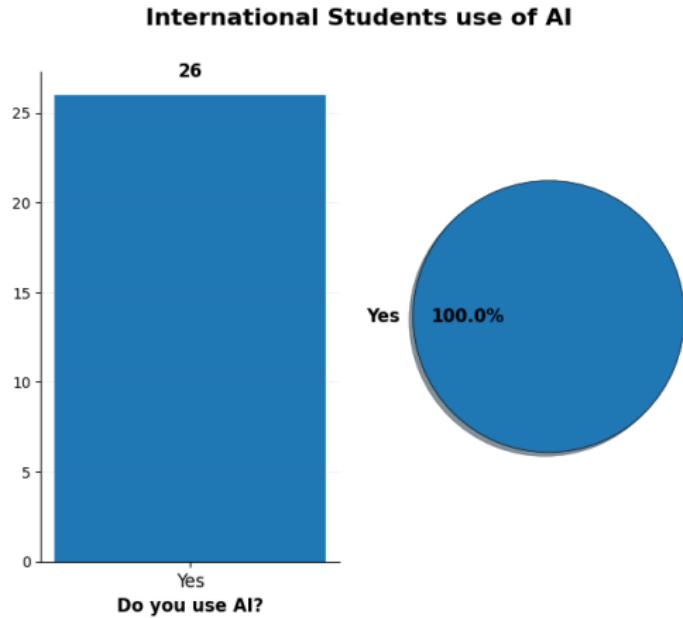


Figure: AI Usage Proportion

# Results: International Students

- 100% of surveyed international students reported using AI.
- Despite a smaller sample size, it represented a significant portion of the international student population.



**Figure:** AI Usage Proportion (International Students)

# Results: How frequently do students use GAI tools?

- 76.1% of students use AI less than weekly.
- 41.3% reported weekly usage; only 8.7% use AI daily.
- Mann-Whitney U test: No significant difference in AI usage frequency between international and domestic students ( $p > .05$ ).
- Both groups use AI tools at comparable rates.

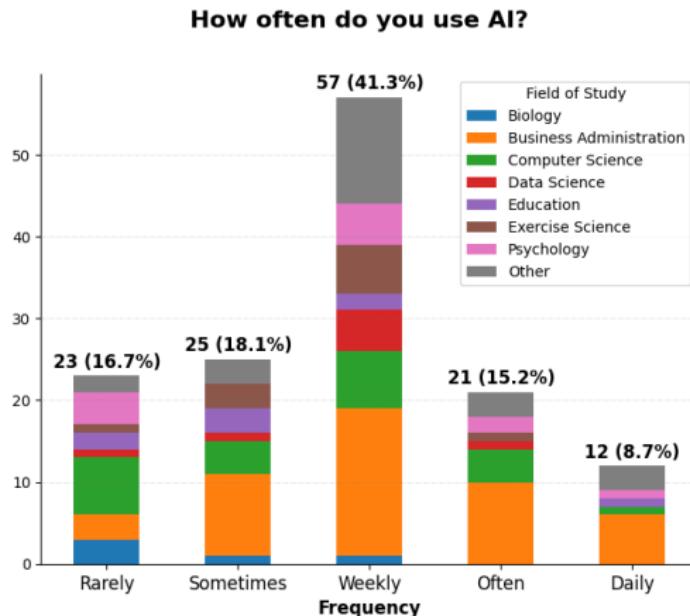


Figure: AI Usage Frequency by Field of Study

# Results: For which purposes do students use GAI tools?

- **Generating ideas and brainstorming:** Most common purpose (68.4%).
- **Proofreading and grammar checking:** Reported by 55.1% of respondents.
- **Learning new topics:** 39.7% of students use AI for this purpose.

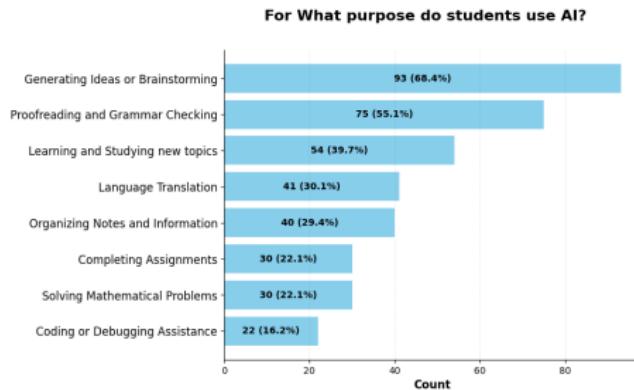


Figure: Most common purposes when using GAI tools.

# Results: International Students Comparison

- **Overall usage:** No significant differences in AI purposes between groups ( $p > .05$ ).
- **Language translation:** Higher usage among international students.
- **Proofreading and grammar checking:** More frequent among domestic students, contrary to expectations.

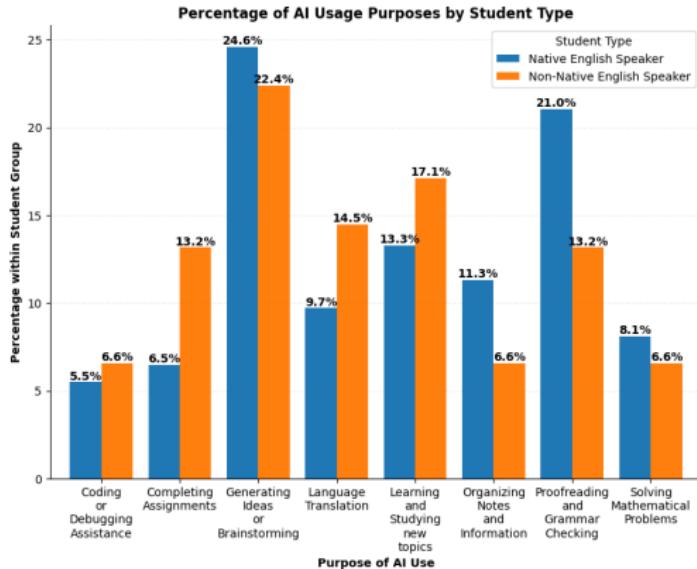


Figure: Purpose of GAI Usage Comparison

# Results: Which tools are the most popular?

- **ChatGPT**: The most popular tool, used by 77.9% of students.
- **Grammarly**: Second most popular, used by 60.3%.
- Usage trends reflect primary purposes like proofreading and grammar checking.

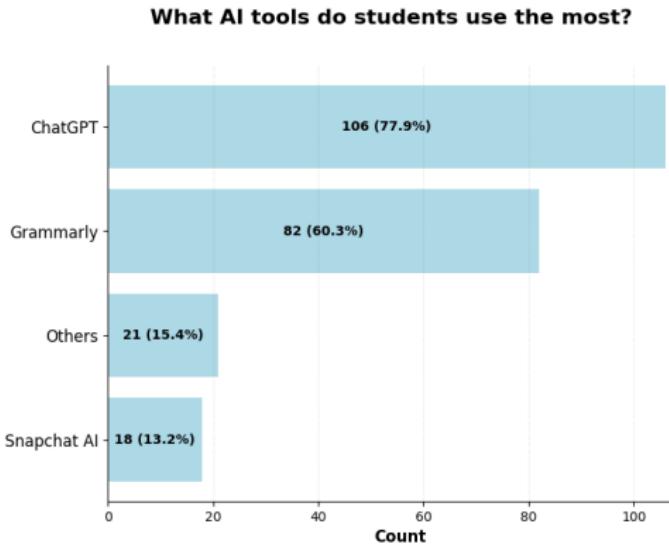


Figure: Most Used AI Tools Among Students

# Conclusions

- **Widespread Adoption:** 93.2% of students use Generative AI, with the majority using it weekly or less frequently.
- **Key Purposes and Tools:** Most students use AI for idea generation (68.4%) and proofreading (55.1%). ChatGPT (77.9%) and Grammarly (60.3%) are the dominant tools.
- No significant differences in purpose usage between domestic and international students.



Figure: "The Son Of a Man" by René Magritte

# Limitations and Future Research

- **Small Sample Size**
  - Limited generalizability.
  - Underrepresented disciplines.
- **Rapid Evolution of AI Tools:**

The fast-paced development of Generative AI may render findings outdated.
- **Future Directions**
  - Expand research to multiple institutions.
  - Examine broader impacts on learning and ethics.



**Figure:** "Landscape with the Fall of Icarus" by Pieter Bruegel the Elder

# Acknowledgments

We gratefully acknowledge financial support from Lyon College.

"e il naufragar m'è dolce in questo mare" (Original Version)

"and drowning is to me sweet in that sea." (English Translation)