

# Helpful or Harmful? – High School Students’ Generative AI Use for Learning

Newnew Deng (11)\* & Jiuru Liu (10)\* - West Lafayette Jr/Sr Highschool, West Lafayette, IN \*Authors alphabetically ordered

## Problem

- According to CollegeBoard, High school students’ GenAI use for schoolwork increased from 79% to 84%
- Most high schools lack clear GenAI policies, and educators are still determining how to regulate its use



**Research Gap: Prevalent studies on university students’ influencing factors and usage of GenAI, surveys on high school students are not prevalent.**

## Goal

Find out High School Student’s GenAI Use on how high school students use GenAI; how it associates with their goal orientations; and to see if it positively/negatively impact their learning

## Results

- Students mainly use GenAI to help with challenging learning problems, checking the correctness of the homework assignments, and content explanation.
- Students with learning goal orientations were less likely to over-rely on AI or have a negative impact on learning.
- GenAI over-reliance is significantly correlated with students’ GPA in a negative way.



|                                     | 1      | 2      | 3      | 4      | 5      | 6     | 7      |
|-------------------------------------|--------|--------|--------|--------|--------|-------|--------|
| 1 GenAI Over-reliance               |        |        |        |        |        |       |        |
| 2 GPA                               | -.291* |        |        |        |        |       |        |
| 3 Total GenAI Usage                 | .521** | -0.053 |        |        |        |       |        |
| 4 Learning Goal Orientation         | -.305* | 0.215  | 0.038  |        |        |       |        |
| 5 Performance Approach Orientation  | -0.095 | 0.177  | -0.039 | -0.233 |        |       |        |
| 6 Performance Avoidance Orientation | 0.047  | -0.053 | 0.022  | -0.104 | .546** |       |        |
| 7 Positive Impact on Learning       | -0.094 | -0.049 | 0.007  | 0.172  | 0.175  | 0.088 |        |
| 8 Negative Impact on Learning       | .372** | -0.13  | 0.266  | -0.266 | -0.034 | 0.045 | -.302* |

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).

## Methodology

- Created and Distributed Survey
  - Ensure that each Participant signs a Parental and Student Consent form
- Create Items between correlated variables
- Measured Internal Consistencies in each item to ensure validity



**Table 1. Goal Orientation**

| Statement  | Alpha | M (SD)      |
|--|-------|-------------|
| <b>Learning Goal Orientation</b>   | .77   | 3.54 (0.63) |
| I like schoolwork the most when I learn from it.   |       |             |
| I do my schoolwork because I like to learn new things.                                     |       |             |
| An important reason I do my school work is that I enjoy learning.                          |       |             |
| My goal in school is to learn as much as possible.   |       |             |
| <b>Performance Approach Goal Orientation</b>   | .86   | 3.30 (0.96) |
| Doing better than other students in school is important to me.                             |       |             |
| I would feel successful in school if I did better than most of the other students.         |       |             |
| I enjoy schoolwork the most when I do better than my classmates                            |       |             |
| My goal in school is to perform better than other students.                                |       |             |
| <b>Performance Avoidance Goal Orientation</b>  | .83   | 2.90 (0.98) |
| It's very important to me that I don't look less knowledgeable than my peers in my classes |       |             |
| I do my schoolwork to avoid doing worse than other students                                |       |             |
| The reason I do my work is so others won't think I lack ability                            |       |             |
| One of my main goals is to avoid looking like I can't do my work.                          |       |             |

**Example of Items created with Internal Consistencies**

## Conclusion

- Students use GenAI in daily tasks, schoolwork (such as assignments, quizzes, and tests)
- Students with learning/mastery goal orientations were less likely to over-rely on AI or have a negative impact on learning.
- Negative learning impact was strongly correlated with GenAI over-reliance.



## Future Improvements

These findings emphasize the importance of

- Promoting mastery-focused learning goals in school environment
- Teaching responsible GenAI use
- Guiding students to use GenAI as a tool to support learning while maintaining independent, critical thinking, and cognitive development.

