



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Assessing ChatGPT effectiveness as a study tool for improving test results over classical learning strategy

Finalist's Name: Anna C Antohe

School and City: Challenge School, Aurora

Sponsor's Name: Daniel Antohe

Category: Behavioral & Social Sciences

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

Artificial Intelligence (AI) is rapidly shaping how students learn, offering new possibilities for personalized and interactive study. This project investigates whether a generative AI tool—ChatGPT—can help middle school students achieve higher test scores compared to using curated Wikipedia summaries. Fifteen 7th- and 8th-grade students participated, each studying two biology topics: Blood and the Immune System. For one topic, each student used ChatGPT to learn through a conversational interface; for the other, they studied using a three-page printed summary adapted from Wikipedia. Study time was kept equal for both methods to ensure fairness.

After reviewing the material, participants took a 10-question multiple-choice test (composed of easy, medium, and hard questions) for each topic. Results showed an average score of 7.6 (out of 10) when students used ChatGPT, compared to 6.07 when they used Wikipedia summaries, yielding an overall difference of approximately 1.5 points. Nine students scored higher with ChatGPT, four showed the same performance under both methods, and two demonstrated a slight advantage using Wikipedia summaries.

These findings suggest that the interactive, real-time feedback provided by ChatGPT can potentially enhance students' understanding and retention of new information. However, limitations—such as a small sample size, limited subject matter, and the novelty factor of AI—must be considered. Future research could explore a broader range of topics, longer follow-up periods to measure retention, and additional participants to verify these results. Despite these constraints, this study highlights how AI-driven tools can offer engaging, individualized learning experiences, which may lead to better outcomes in traditional testing environments.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**