

Study finds AI tool opens data visualization to more students

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A new [study](#) from the Tepper School of Business at Carnegie Mellon University published in the *Journal of Business and Technical Communication* shows that ChatGPT can help students create effective visualizations, but is not as helpful in providing data analysis.

Data literacy is a critical skill that technical and professional communication instruction emphasizes to create effective data visualizations. However, students with limited math and coding skills often struggle to analyze data and customize visualizations.

Emily DeJeu, assistant teaching professor of business management communication at the Tepper School, found promising ways to integrate generative AI, specifically ChatGPT Plus, to help students who are unfamiliar with computer programming tools build custom data visualizations.

"After I put in the data, I engaged iteratively with the tool, prompting it to suggest and then conduct analyses and create data visualizations," said DeJeu. "The tool's ability to suggest flexible analysis methods, like mapping trends over time and identifying data relationships, helps familiarize students with their data sets and exploratory analysis techniques."

The most significant finding is the dual capability of ChatGPT Plus to guide students through complex [data sets](#) and help them create visually engaging and informative graphics.

For her analysis, DeJeu chose a historical data set that identifies every athlete who has competed in the Olympic games from 1896 to 2016. It included more than 271,000 rows, with each row representing an individual athlete competing in an Olympic event during a specific

Olympic games, and 15 columns that summarize the athletes' sex, age, height, and weight as well as their team, events, and medals. She then loaded that data into ChatGPT Plus and asked the tool to help her find interesting trends to analyze.

However, DeJeu noted that while ChatGPT Plus can perform various statistical tests and suggest interpretations, students and educators should be vigilant. The tool's suggestions should be considered starting points for further investigation, as it may not always make the correct analytical choices or could potentially replicate systemic biases.

"This research underscores the crucial role that accessible technology can play in education," she said. "By integrating tools like ChatGPT Plus, we can democratize data literacy, allowing more students to engage with and analyze complex information without the barrier of technical skill. It's about making sophisticated data analysis and [visualization](#) more inclusive, which could profoundly impact how we teach and learn."

DeJeu said she supports a balanced approach where tools like ChatGPT are used to augment traditional learning methods rather than replace them. This ensures that students not only learn how to use the technology but also develop [critical thinking](#) and analytical skills necessary for professional success.

More information: Emily Barrow DeJeu, Using Generative AI to Facilitate Data Analysis and Visualization: A Case Study of Olympic Athletes, *Journal of Business and Technical Communication* (2024). [DOI: 10.1177/10506519241239923](https://doi.org/10.1177/10506519241239923)

Provided by Tepper School of Business, Carnegie Mellon University

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