

Session Guide

Hacking the Prompt: Using AI to Analyze and Visualize Data

Session Purpose: Discover how to converse with ai chatbots to elevate your own data skills.

Session Inspiration: Ferretti, S. (2023). Hacking by the prompt: Innovative ways to utilize ChatGPT for evaluators. *New Directions for Evaluation*, 2023, 73–84. <https://doi.org/10.1002/ev.20557>

Core Concepts

Traditional or Non-Generative AI	Generative AI
<ul style="list-style-type: none">• Performs a narrow range of tasks using predetermined algorithms, rules, and logic but does NOT generate new content.• Example applications that you may have used include spellcheck, autocomplete, and voice-controlled assistants like Siri or Alexa. Neural networks are used for facial recognition.	<ul style="list-style-type: none">• Generates new content in response to prompts.• Large Language Models (LLMs) are a type of generative ai, which are trained on vast amounts of data to be able to generate novel, conversational text on a wide range of topics. Examples include ChatGPT, Claude, and Perplexity.

Hallucinations. Generative ai chatbots do not always get the facts right and can confidently present responses that have no grounding in real data. These made-up responses are called hallucinations and are one of the major limitations of current ai models. This is one major reason not to ask the chatbot to do the analysis for you since you cannot be sure of the trustworthiness of the output.

Prompts are the commands you give to the ai chatbot to communicate what you would like it to do and **prompt engineering** is the process of writing prompts in a way that elicits the responses that are most relevant and useful to you.

Tip: For more information on various prompt engineering techniques and examples of prompts, please check out this website:
<https://www.promptingguide.ai/>



Let's have some fun!

Activity 1: Make a Pivot Table that Summarizes the Data

1. Craft a prompt on how to create a pivot table that tells you:
 - a. Dataset 1: What are the most common Object Types you will find at public libraries (hint: look at County Departments)? OR Who are the 5 most prolific public artists and what type of art (i.e., Object Types) do they create?
 - b. Dataset 2: What are the demographics (ages, languages, race/ethnicity) of the people who accessed community resources?
2. Follow the instructions exactly as written by the ai and see if the instructions get you to the final pivot table. If it doesn't work, either adjust your prompt or ask the ai clarifying questions.

Prompt tip: Remember to include the **task** you want the ai to do + **context** on the task + invitation for the ai to ask **clarifying questions** about the task before giving you a response. For example, "Please show me step by step how to summarize my data in Excel using a pivot table. I have data for each participant in an arts program including their age, race/ethnicity, and program outcomes. I would like to know the percentage of each race/ethnicity. Feel free to ask me any clarifying questions first."

Activity 2: Choose your Own Arts Data Adventure

1. Explore and Visualize your Own Data:
 - a. Think about 1-2 things you would like to know about your own data. Write down what questions you want to be able to answer using your data then craft your prompt based on what you want to know.
 - b. Follow the instructions in the prompts and see what you can learn from your data.
 - c. See below for prompt suggestions for data visualization.
2. Visualize the Practice Datasets
 - a. Using the summarized data from the previous activity or your own data, ask the ai for instructions on how to visualize the data in your software of choice (Google sheets, Excel, Power BI, Google Looker Studio, etc.). Ask what the best chart type is for the data that you want to visualize, how you can make the visualization easier to read, more beautiful, or compelling and see what suggestions it provides. You could also ask the ai to pretend to be data visualization expert, Stephanie Evergreen, and ask what type of chart she would recommend for the data that you have.
 - b. Follow the instructions and create 1-2 data visualizations to share out. Save them in whatever format you would like to so that others can see it and learn from it. We'll have a share out in the large group, so anyway that's accessible to you, would work for us.