AI PROMPTING & PEDAGOGY

Randi Williams, Ph.D.
(she/her)
Day of AI



DATA NUTRITION PROJECT

AI PEDAGOGY PROJECT
metaLAB (at) Harvard



Share in the chat. In a few words...

HOW WOULD YOUR SCHOOL/ DISTRICT HANDLE THIS SITUATION?

Don’t Build Fences,
Learn How to Swim



WHY LEARNING ABOUT AI MATTERS

Teacher Burnout

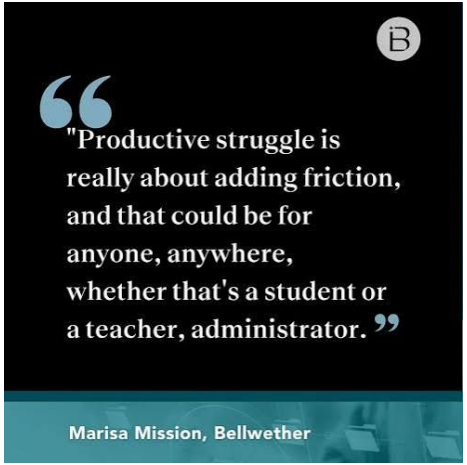
More than 40% of teachers report using AI detectors and 71% report that this has increased their administrative burden.

Source: Center for Democracy & Technology, Springer

Shadow Security Risks

58% of K-12 teachers have received no guidance on how to safely use AI for grading or feedback.

Source: Gallup/Walton Family Foundation



AI Policy & PD Reduces Burnout

Structured AI Literacy training directly reduces teacher administrative stress and burnout.

Source: Gallup/Walton Family Foundation

Good Pedagogy Increases Engagement

Teaching students how AI works actively increases overall engagement in learning.

Source: Bellwether

How LLMs Work 01.
Prompting Strategies 02.
Play Time 03.
Reflection 04.

Algorithms are like recipes.

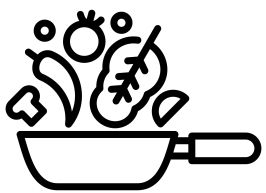


Ingredients
(Input)

Instructions
(Process)

Finished Dish
(Output)

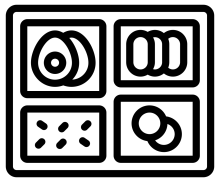
Algorithms are like recipes.



Ingredients
(Input)



Instructions
(Process)

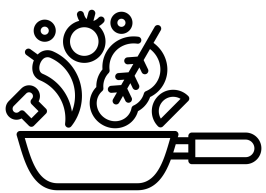


Finished Dish
(Output)



Large language models learn **datasets** that contain trillions of tokens scraped from Internet sources.

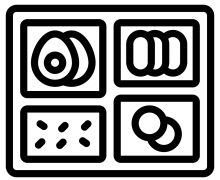
Algorithms are like recipes.



Ingredients
(Input)



Instructions
(Process)



Finished Dish
(Output)

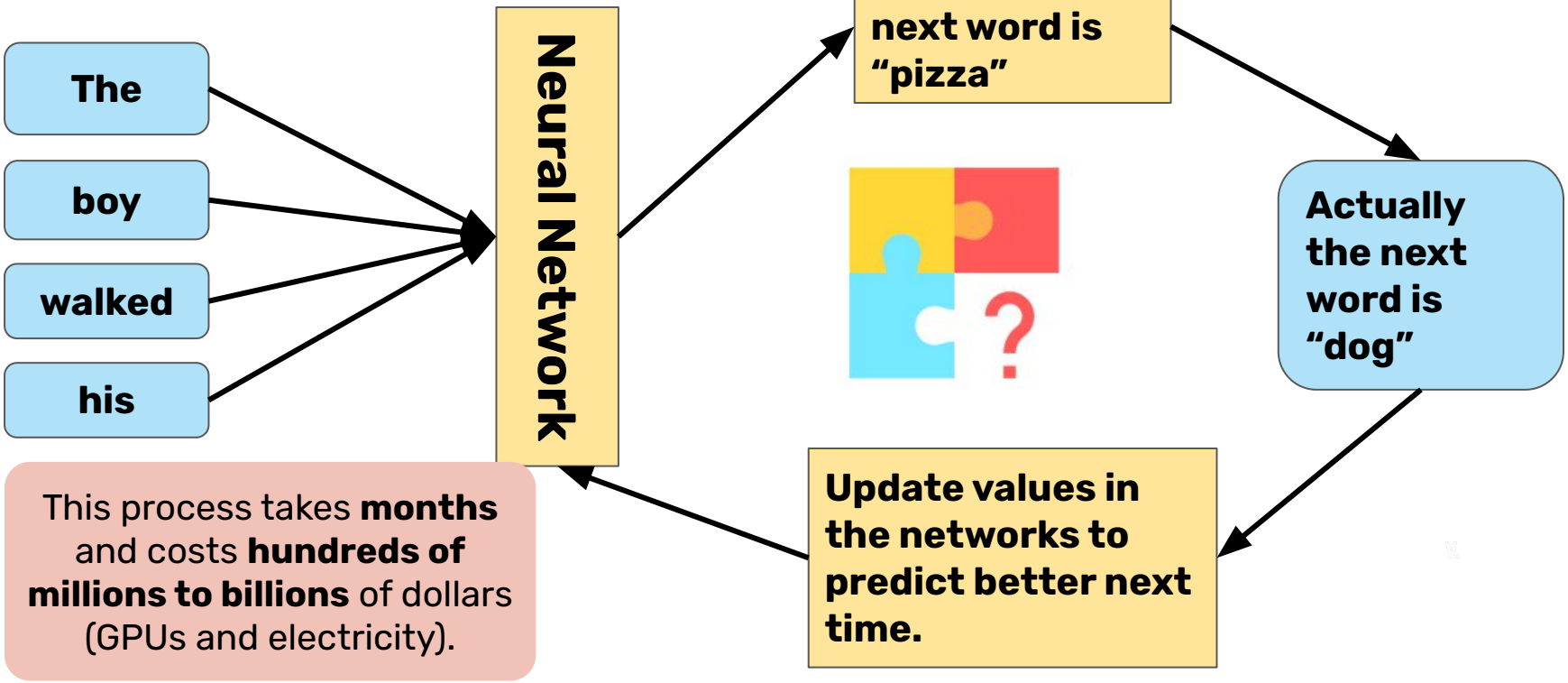
Large language models learn **datasets** that contain trillions of tokens scraped from Internet sources.

The model learns to predict **the most likely next word:**

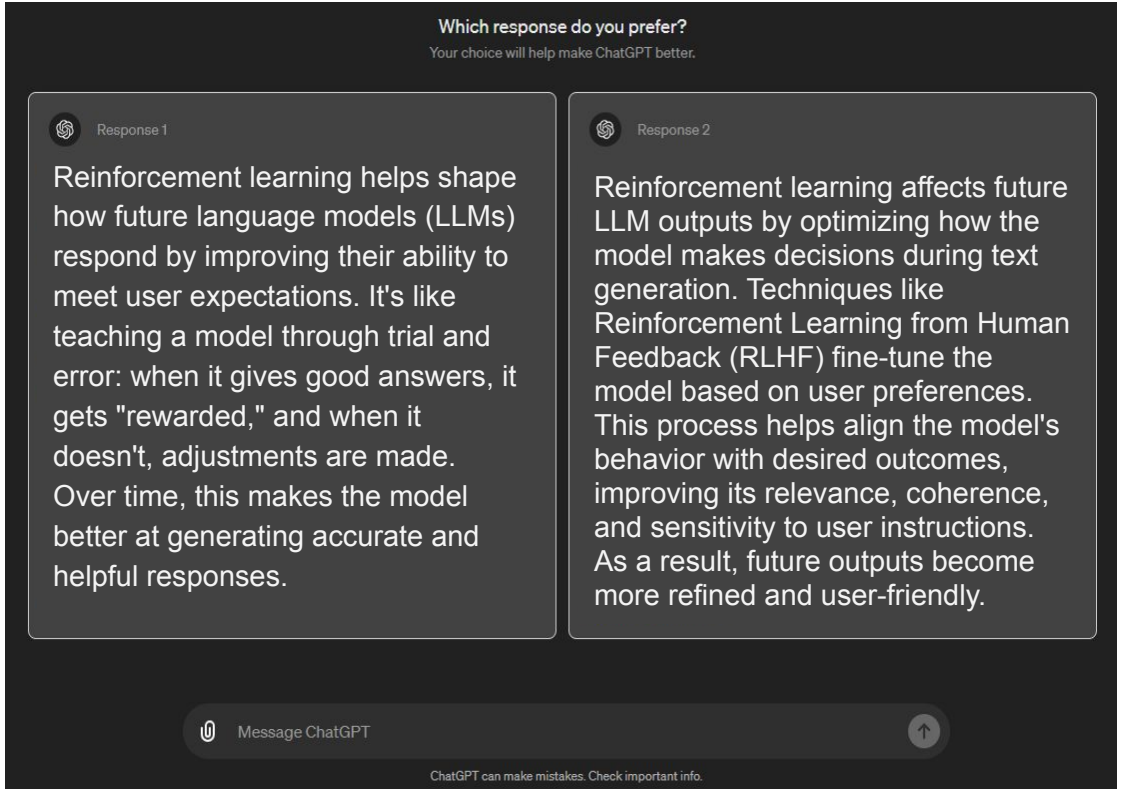
1. Learning language
2. Learning to have conversations
3. Learning from feedback



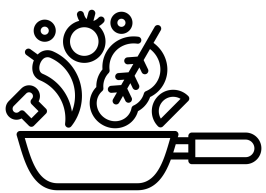
LEARNING LANGUAGE



FEEDBACK & FINE-TUNING



Algorithms are like recipes.



Ingredients
(Input)

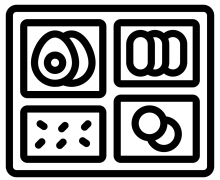
Large language models learn **datasets** that contain trillions of tokens scraped from Internet sources.



Instructions
(Process)

The model learns to predict the **most likely next word**:

1. Learning language
2. Learning how to have conversations
3. Learning from feedback



Finished Dish
(Output)

The finished dish **generates new content** that is as similar as possible its training data.

GENERATED OUTPUTS

Chatbots predict one word at a time based on **patterns in data.** It's like a word puzzle game, using **probability**.

Sometimes **it makes mistakes** if the data is incomplete, inaccurate, or biased.

"The girl walked her..."

➡️ AI guesses: "dog"

➡️ Next guess: "to"

➡️ Next guess: "the"

➡️ Next guess: "park"

➡️ Next guess: "."

Algorithms are like recipes.



Ingredients
(Input)

Instructions
(Process)

Finished Dish
(Output)

Large language models learn **datasets** that contain trillions of tokens scraped from Internet sources.

The model learns to predict the **most likely next word**:

1. Learning language
2. Learning how to have conversations
3. Learning from feedback

The finished dish **generates new content** that is as similar as possible its training data.

PREDICT THE NEXT WORD

The ___

The girl walked her ___

Which sentence is more straightforward for you to complete, and why?

The key here is that **context** provides **clarity**.

WHICH PROMPT IS BETTER?

Explain how Generative AI works.

You are an expert AI teacher. I am a teacher with intermediate AI knowledge, a background in education and some exposure to EdTech tools.

Provide me with an introductory explanation of generative AI in blog format. Start by explaining what AI is and how it works, especially in relation to differentiated instruction. I prefer to learn from first principles.

This prompt gives a lot more context!



WRITING STRONGER PROMPTS

Prompt 1: Simple

“Draw a picture of a classroom.”

Very open to interpretation.



WRITING STRONGER PROMPTS

Prompt 1: Simple

“Give me a lesson plan to teach educators about AI.”

Very open to interpretation.

Prompt 2: Explicit & Structured

Role:

Context:

Format:

WRITING STRONGER PROMPTS

ITERATIVE PROMPTING

Prompt as a Conversation

Instead of stuffing all details into a single ”one-shot” prompt, build your output step-by-step through back-and-forth dialogue.

Guide the output using follow-ups:

- Provide real-time feedback and corrections
- Add specific constraints and rules
- Share concrete examples & desired formats

META PROMPTING

Prompting to Prompt

Ask an to draft, refine, or architect the ideal prompt for you.

How it works:

- Ask the AI what context it needs from you (ask it to interview you)
- Have the AI generate a high-performing system prompt
- Refine the prompt to suit your needs

Hand-out: Strategies for Writing Stronger Prompts

ACTIVITY: LIVE META-PROMPTING DEMO

Build a Classroom Jeopardy Game

Goal: Transform lecture notes into an interactive game activity using meta-prompting.

- **Choose your LLM** (ChatGPT, Claude, Gemini, etc.)
- **Ask the AI to design prompt to create a Jeopardy game**

  >> Jeopardy meta prompt
- **Refine** using additional details and constraints.
- **Test with your own content & share** your results in the chat!

  >> Completed Jeopardy game!

DISCUSSION PROMPTS

- What other ideas do you have for using LLMs to strengthen what you're doing in the classroom?
- What are some problems with LLMs that even a great prompt can't fix?
- Fill in the blank: When using generative AI be cautious with ___

THE GOLDEN RULE OF AI:

Don’t be lazy.

AI Prompting & Pedagogy
September 17, 2026 | https://tinyurl.com/publicai-pandp
LinkedIn: Randi Williams, Ph.D. IG: @randilovesrobots

DATA NUTRITION PROJECT

AI PEDAGOGY PROJECT
metaLAB (at) Harvard