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Critical Thinking in the Age of AI: Practical Tips for Academics

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“Science is a way of thinking much more than it is a body of knowledge.”

- Carl Sagan

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- Understand the core stages of critical thinking in research
- Spot the common ways AI can negatively affect critical thinking
- A framework for using AI to enhance the process from research to writing

What to Expect

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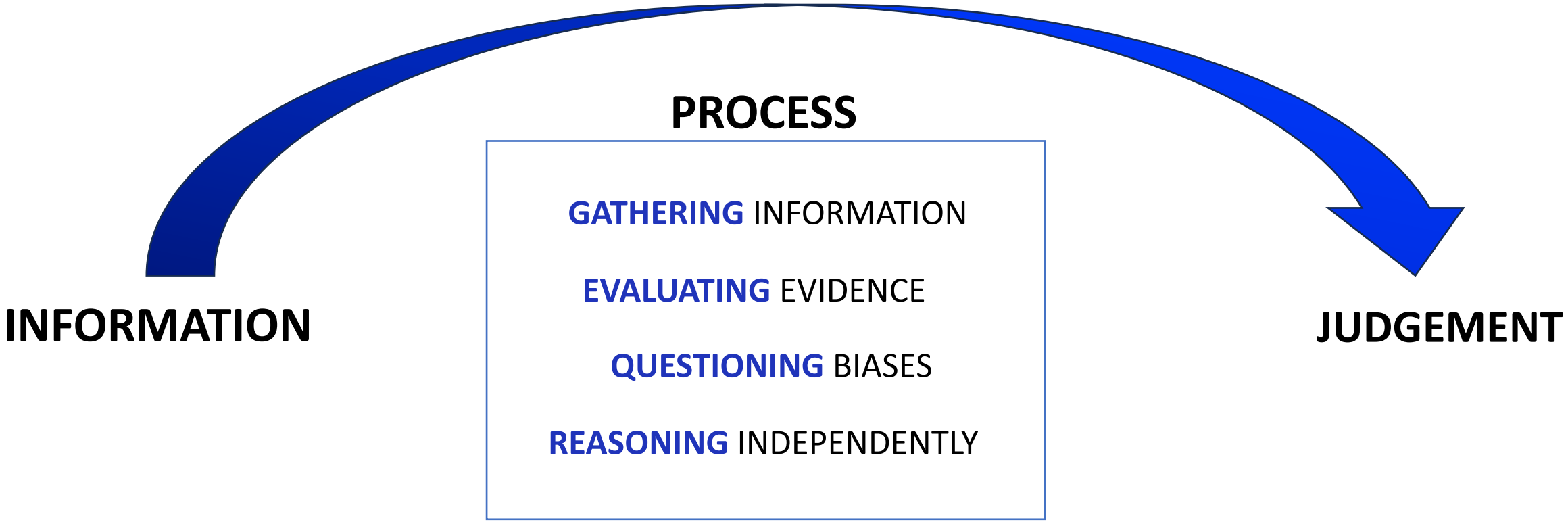

It's less about **WHAT** you think, and more about **HOW** you think

What is Critical Thinking?

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The GIST

...oding critical

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Yet Another Study Finds That AI Is Making Us Dumb

LLM users displayed the "weakest" brain connectivity in a new MIT study that hints AI use harms critical thinking.

Written by **Adam Rowe**

Published on **June 17, 2025**

...thinking, memory: study

The effect of AI on critical thinking

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Critical thinking process is **outsourced** to AI

GATHERING INFORMATION

EVALUATING EVIDENCE

QUESTIONING BIASES

REASONING INDEPENDENTLY

Critical thinking process is **assisted** by AI

Can AI negatively affect critical thinking?

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CRITICAL THINKING

Outsourced to AI **vs.** **Assisted** by AI

What does the process of critical thinking look like in both these scenarios?

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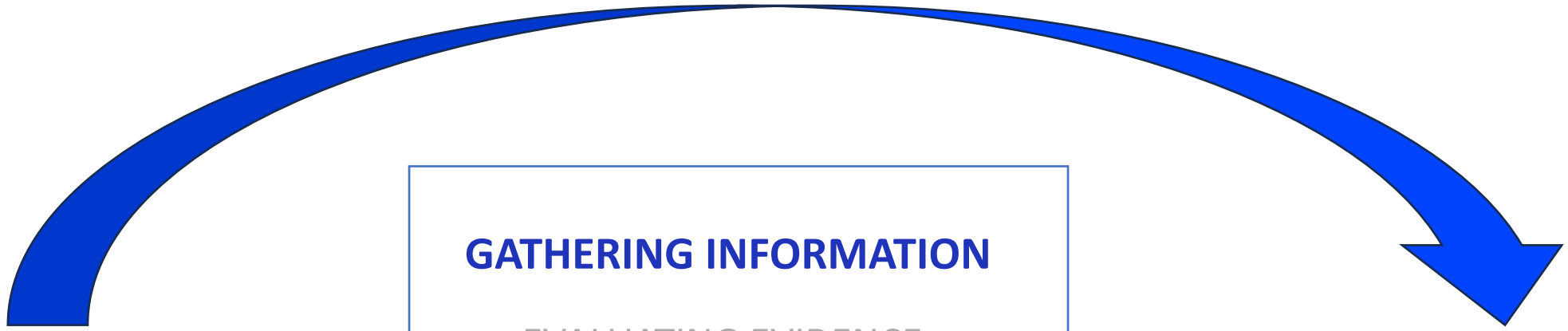

INFORMATION

GATHERING INFORMATION

EVALUATING EVIDENCE

QUESTIONING BIASES

REASONING INDEPENDENTLY

JUDGEMENT

Critical Thinking: Outsourced to AI vs. Assisted by AI

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Scenario: You're gathering information for an introduction section on the link between microplastics and health

OUTSOURCED

"Give me an introduction paragraph on microplastics and health."

Example

ASSISTED

"List key findings from recent studies on microplastics and human health. Include citations for all facts and claims."

Example

GATHERING INFORMATION

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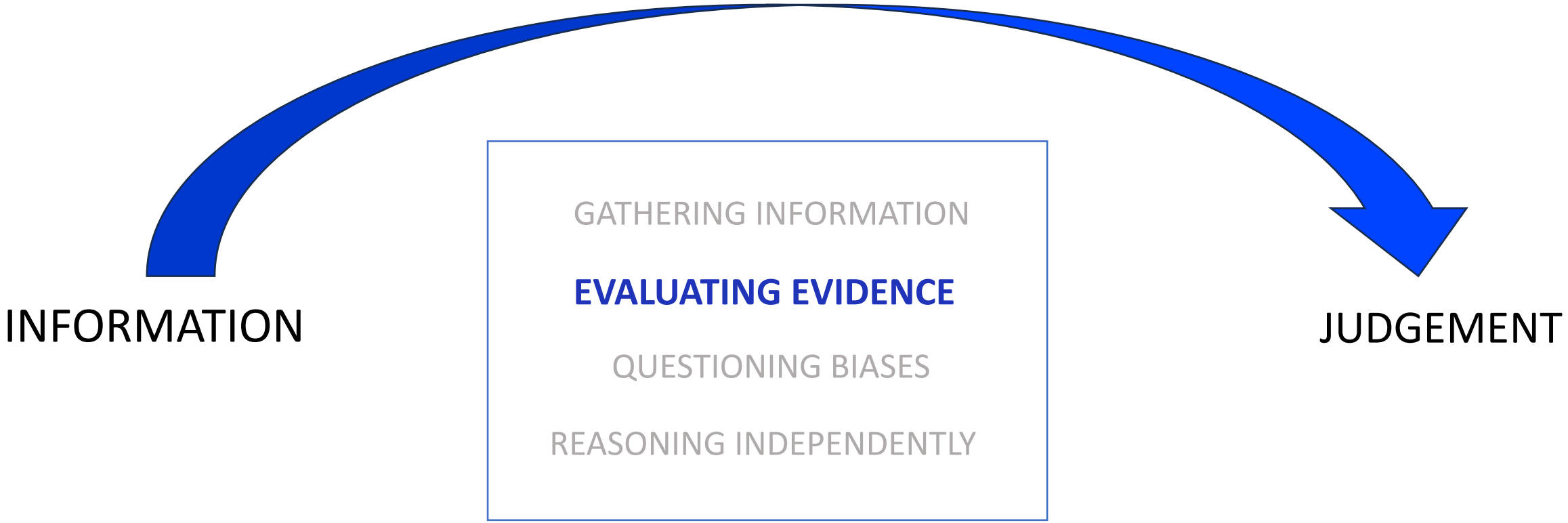

Critical Thinking: Outsourced to AI vs. Assisted by AI

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Scenario: You're evaluating the impact of AI on peer review

OUTSOURCED

"Name a few studies that show AI improves peer review"

Example

ASSISTED

"Can you suggest studies on AI in peer review with links or DOIs to the research articles? Ensure that the linked studies actually exist and cover differing viewpoints."

Example

EVALUATING EVIDENCE

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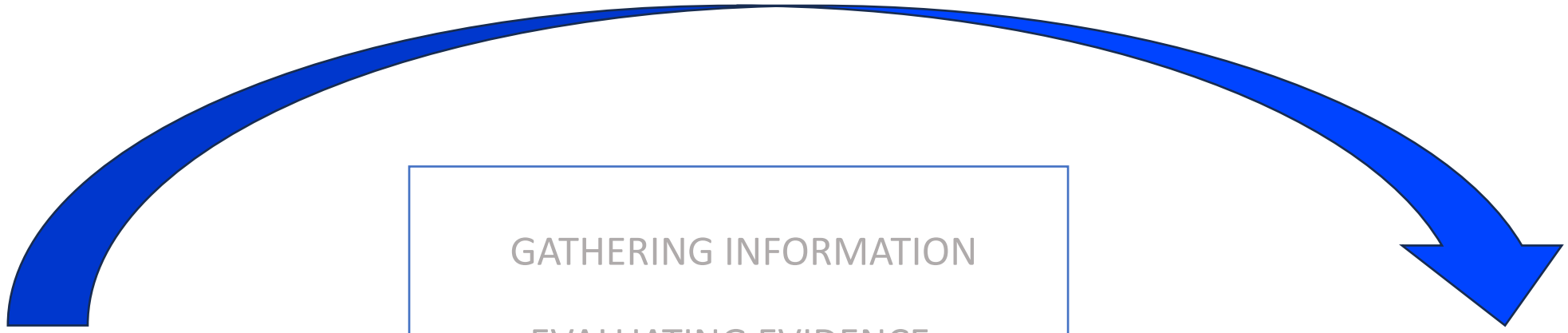

Critical Thinking: Outsourced to AI vs. Assisted by AI

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HUMAN BIAS

- Confirmation bias
- Prestige bias
- Group bias

AI BIAS

- Training data bias
- Overconfidence bias
- Alignment faking

QUESTIONING BIASES: Why this step really matters?

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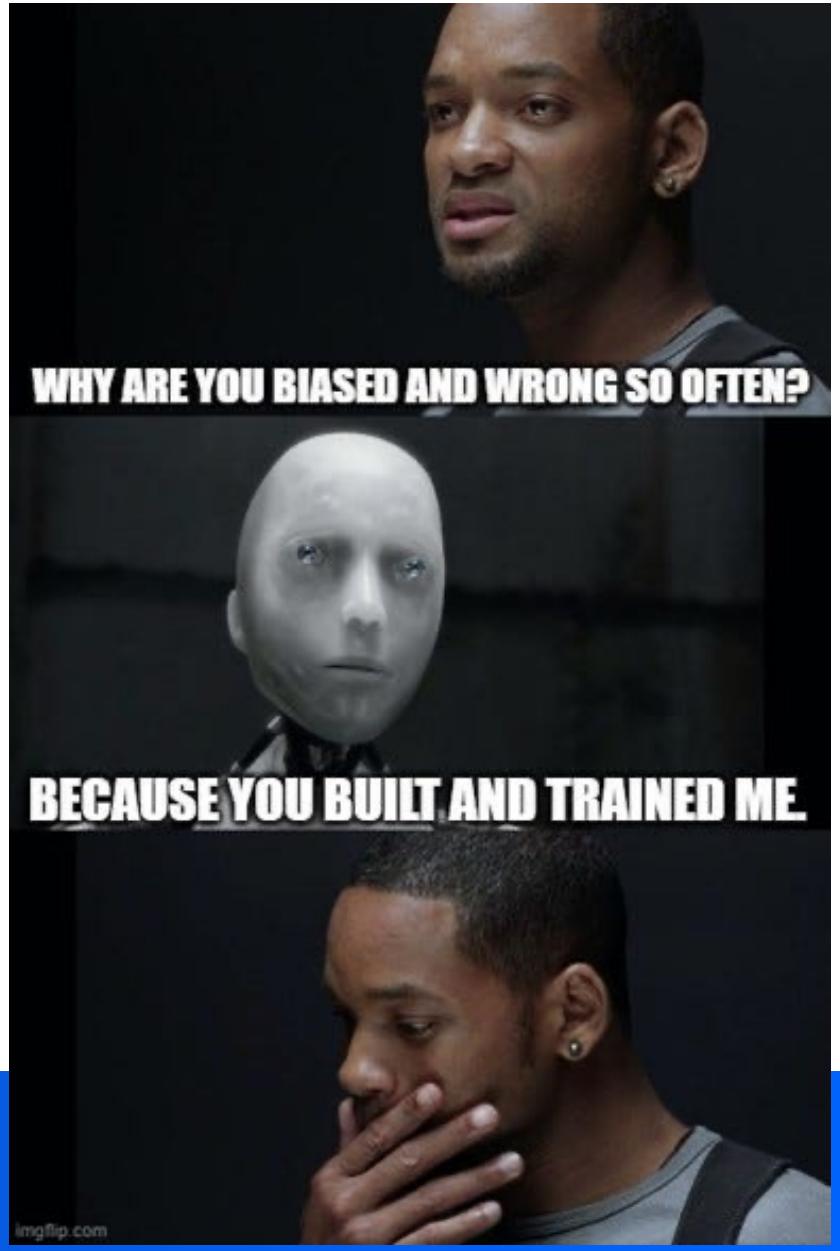
WHY ARE YOU BIASED AND WRONG SO OFTEN?
BECAUSE YOU BUILT AND TRAINED ME.
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Scenario: You're determining which is a better publication model: OA vs. subscription-based

OUTSOURCED

"Summarize why open access publishing is better than subscription models."

Example

ASSISTED

"What are the benefits and drawbacks of open access vs. subscription-based publishing?"

Example #1

Example #2

QUESTIONING BIASES

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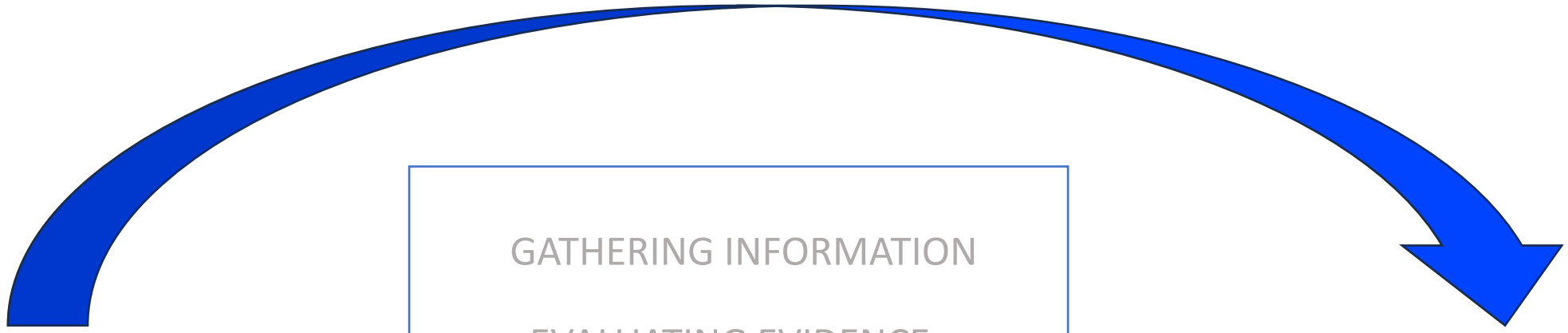

Critical Thinking: Outsourced to AI vs. Assisted by AI

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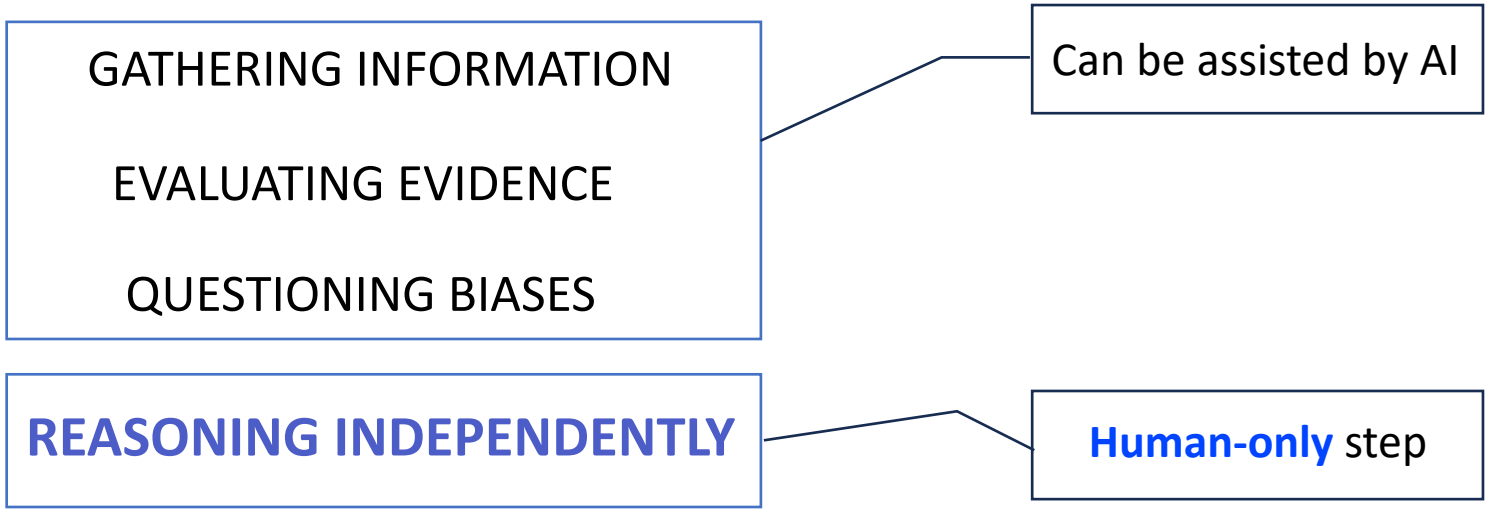

REASONING INDEPENDENTLY

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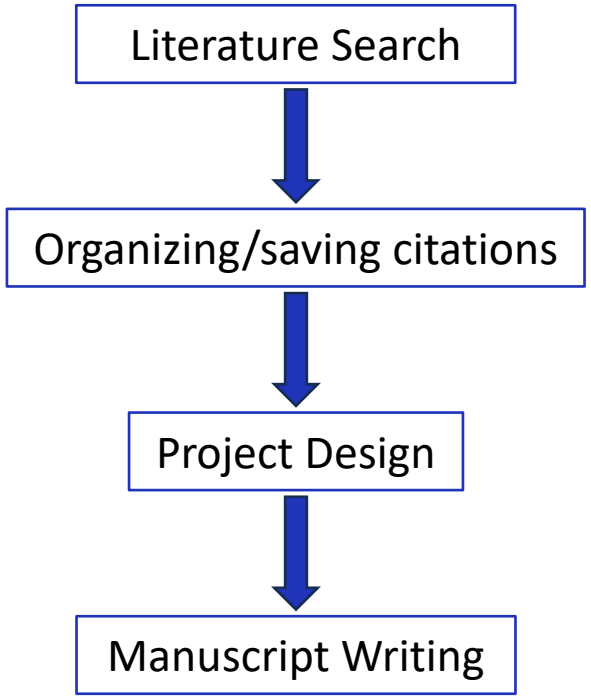

From Research to Writing

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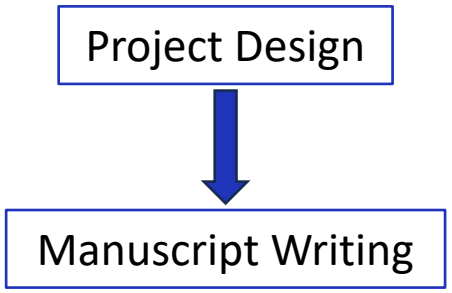
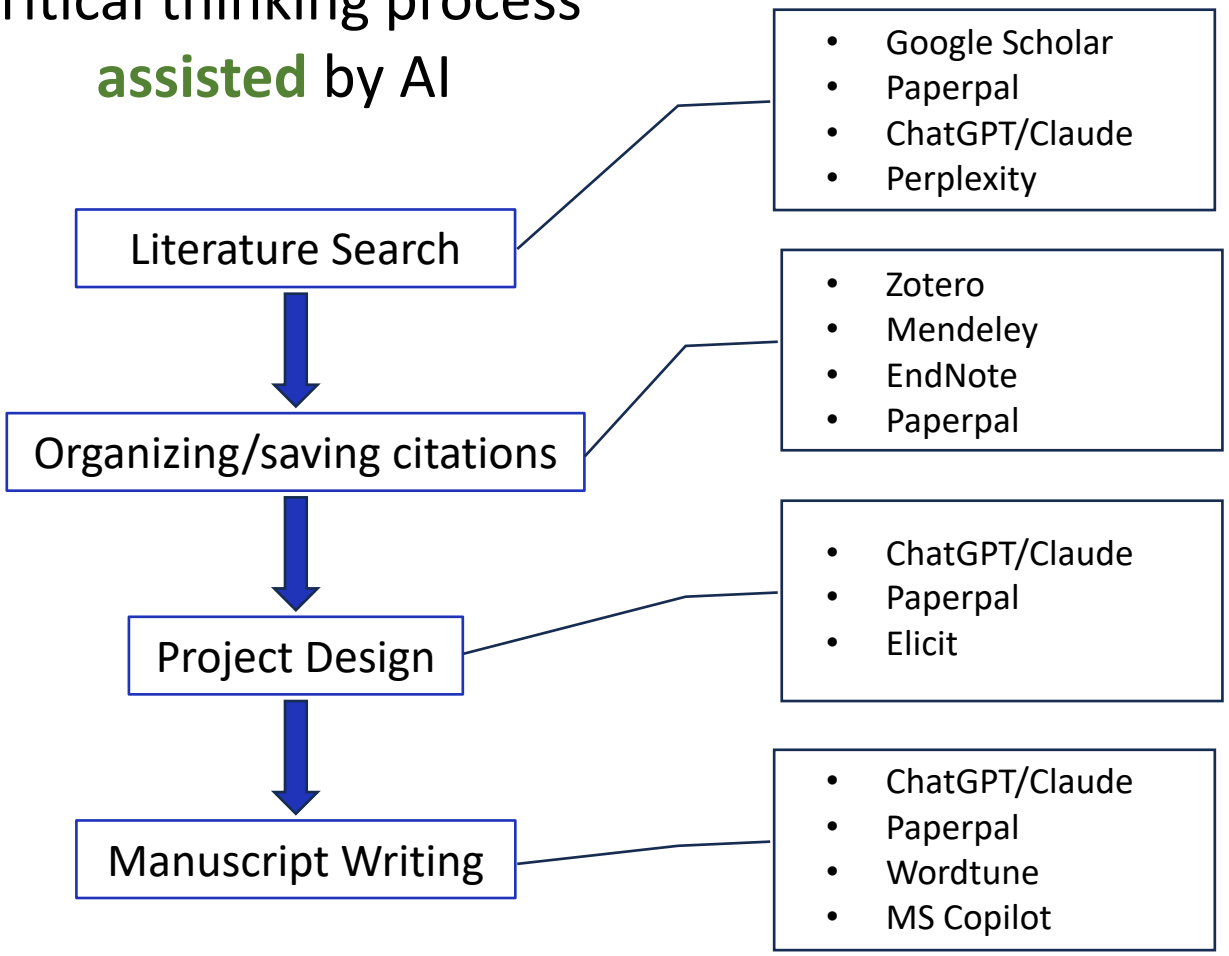
Critical thinking process **outsourced** to AI



"Give me an introduction paragraph on microplastics and health."

Example

Critical thinking process **assisted** by AI



From Research to Writing

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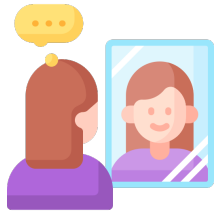
LEARN

Keep developing your own knowledge

EVALUATE

Be skeptical, verify claims, cross-reference



REFLECT

Examine results and your own reasoning

A Framework for CRITICAL THINKING with AI

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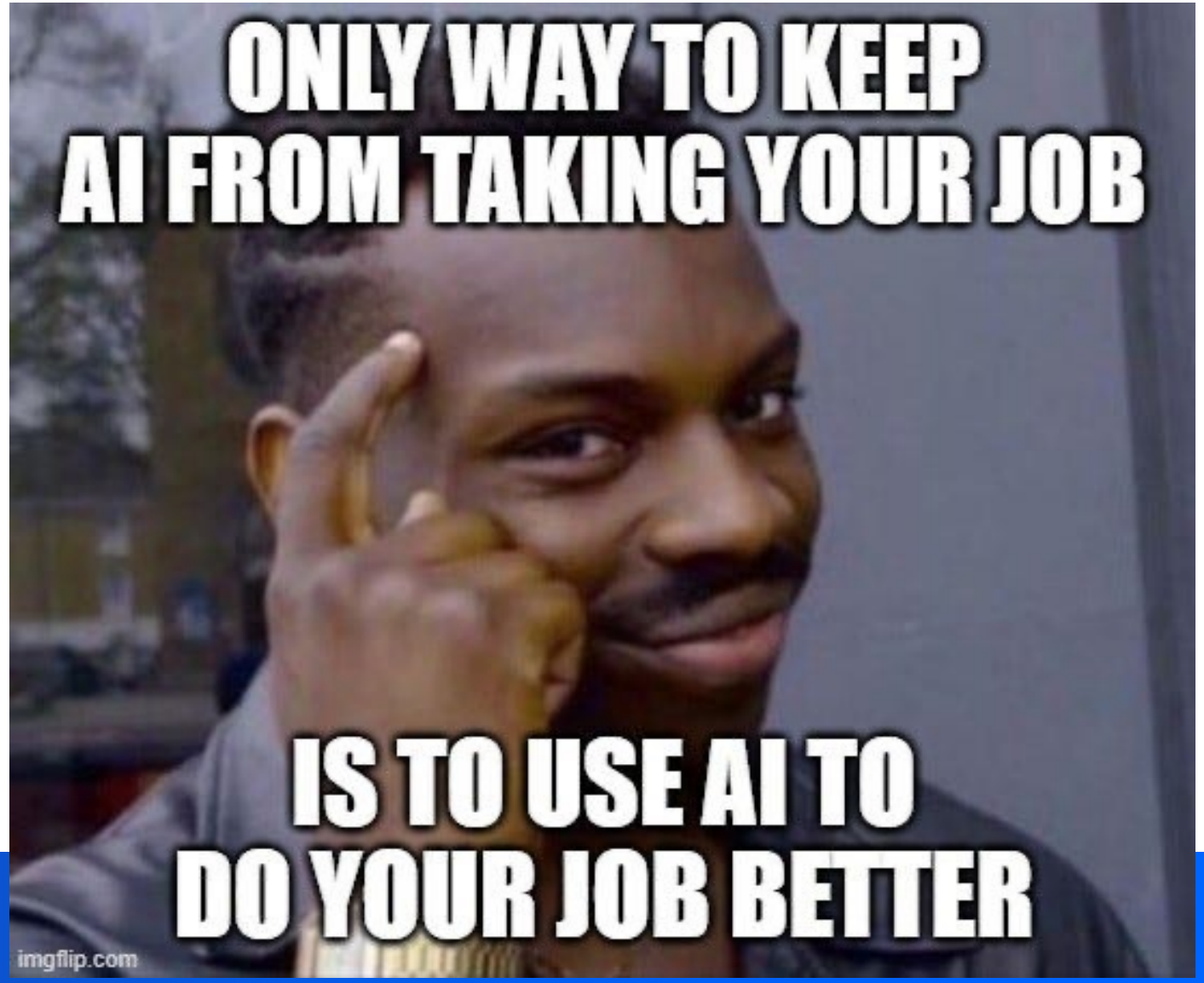
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AI FROM TAKING YOUR JOB
IS TO USE AI TO
DO YOUR JOB BETTER
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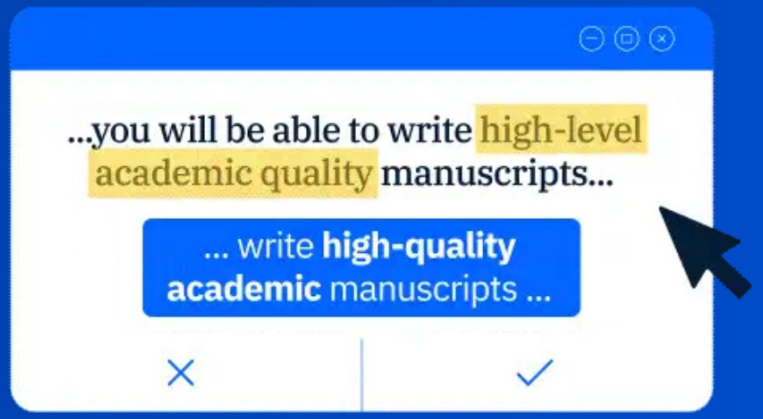

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Inspiration

- ✓Brainstorm ideas
- ✓Look-up Research
- ✓Chat with PDF
- ✓Generate outlines

Writing

- ✓Rewrite (Paraphrase, Make Academic, Trim,…)
- ✓AI Writing
- ✓20+ Writing templates (Abstract, Title,...)
- ✓Translate
- ✓Citation generator

Polishing

- ✓Editing: Language + Consistency
- ✓Plagiarism check
- ✓AI Review

Pre + Post Submission

- ✓Journal submission checks
- ✓Journal correspondence + cover letter
- ✓Plain Language Summary

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