

# Teacher's & Workshop Guide: Ring 8 - The AI Whisperer (Data & Bias)

## Polya Studio Discovery Series

### Introduction to the Workshop

Welcome to Ring 8, the final level of the Polya Studio. In previous rings, students learned to trust their own counting and logic. Ring 8 introduces the ultimate modern challenge: **Data Literacy**. This is the world of AI, Algorithms, and "Fake News."

Your role as the Guide is to trick them with a "Smart Machine." You will give them a computer (or a simulated AI report) that gives them a clear, easy answer. But the answer is wrong because the *data* is biased.

The goal of Ring 8 is for students to discover **Selection Bias** (The Blind Spot). They will learn that "Data" is not the same as "Truth." Data is just what we managed to collect. They will use the "Bias Triangle" to question the source.

### Part 1: The Station Setup

You must prepare a map that tells a misleading story. You will need a "City Report."

First, create a "**City Map**." Draw a town with two distinct neighborhoods:

1. "**Downtown**" (Wealthy, high-tech, lots of users).
2. "**The Outskirts**" (Rural, older, no internet).

Second, generate "**The Data Points**." Place 20 Red Pins (representing Pothole Reports) all over "Downtown." Place zero pins in "The Outskirts."

Third, provide "**The AI Report**." Print a sheet that says:

#### AI ANALYSIS:

- Downtown Risk: CRITICAL (20 reports)
- Outskirts Risk: ZERO (0 reports)
- **RECOMMENDATION:** Send all repair trucks to Downtown.

When the students arrive, the challenge is simple: "You are the Mayor. Here is the AI Data. Where do you send the trucks?"

### Part 2: The Workshop Dialogue

Stand back. Hand them the report. Watch them trust the "fancy computer" blindly.

**Teacher's Nudge (The Guide)**

**Student's Action (The Discovery)**

"You are the Mayor. The AI has analyzed the city's road conditions. You have budget to fix 5 roads. Where do you send the trucks?"

(Wait for the Friction Point. Let them commit to the decision.)

"But... the data said the risk was Zero! There were no red pins!"

"Did the AI lie? Or was the AI blind? Why were there no reports from the Outskirts?"

"Exactly. The silence was the problem. Draw the Problem." (Hand them the whiteboard.)

"Draw the Bias Triangle. Draw the Sample, the Blind Spot, and the Truth."

"This is called Bias. The data only shows you the people who are talking. It never shows you the people who are silent."

The team looks at the map. They see the sea of red pins in Downtown. They read the AI report. "The computer says Downtown is broken. We send the trucks there."

**The Friction Point.** You drop the "News Flash." You say: "Breaking News! A massive bridge has collapsed in The Outskirts! Cars are in the river! Why didn't you fix it?"

They are defensive. They blame the computer. "The AI lied to us!"

They pause. "Maybe people there don't have the reporting app?" "Maybe they don't have internet?" "Maybe nobody was listening?"

The team stops blaming the machine and starts analyzing the source.

**The Visualization.** They draw the map again. They shade the "Outskirts" area and label it "No Data." They realize the map wasn't empty; it was *missing*.

**The Resolution.** They tear up the AI Report. They decide to send a "Scout Car" to the Outskirts to look with their own eyes before sending the repair trucks.

### Part 3: The Visual Rule (The Bias Triangle)

Once they have realized that the map was incomplete, gather them around the whiteboard. Draw the Bias Triangle diagram. This is the tool they will use to question AI and News.

The top point of the triangle is **THE SAMPLE** (The Data).

- *Who are we hearing from? (The people with the app).*

The bottom left point of the triangle is **THE BLIND SPOT** (The Missing).

- *Who are we NOT hearing from? (The people without the app).*

The bottom right point of the triangle is **THE TRUTH** (The Reality).

- *The Reality is the sum of the Sample + The Blind Spot.*

**The Rule:** Garbage In, Garbage Out. If your data has a Blind Spot, your AI is hallucinating. Never trust a map until you know who drew it.

### Part 4: Teacher's Quiz (Pedagogy Check)

**Question 1** Why do we place zero pins in the Outskirts? A) Because the roads there are perfect. B) To simulate "Missing Data." It forces students to question whether "No Reports" means "No Problems" or just "No Sensors." *Correct Answer: B*

**Question 2** What is the "Friction Point" in this workshop? A) When the map rips. B) When the "News Flash" happens (the bridge collapse), proving that their data-driven decision was a disaster. *Correct Answer: B*

**Question 3** What does the phrase "Garbage In, Garbage Out" mean? A) You should recycle. B) If you feed an AI bad/incomplete data, it will give you a bad/wrong answer, no matter how smart the computer is. *Correct Answer: B*

#### **Part 5: Student's Quiz (Concept Check)**

**Question 1** An online poll asks: "Do you enjoy using the internet?" 99% of people say "Yes." Is this accurate? A) Yes, almost everyone loves the internet. B) No, it is biased. People who *don't* use the internet couldn't answer the online poll! (Blind Spot). *Correct Answer: B*

**Question 2** If an AI Camera is trained only on pictures of apples, what will it say if you show it a banana? A) "It's a banana." B) "It's a weird apple" (because it doesn't know anything else). *Correct Answer: B*

**Question 3** What is the Superpower of Ring 8? A) hacking computers. B) Being an "AI Whisperer"—knowing that computers have blind spots and checking them before trusting the answer. *Correct Answer: B*

#### **Closing Note**

Congratulations. You have completed the 8 Rings of the Polya Studio. Your students have moved from **counting** (Ring 1) to **questioning intelligence itself** (Ring 8). They are now ready to solve problems in the real world, armed not just with formulas, but with **Agency**.