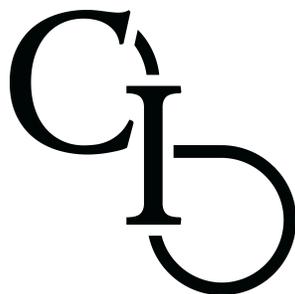


People, Reason, & Reality
Part I: Reason · Module 2

The Real Role of Evidence

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The Real Role of Evidence

Evidence-based anything is an illusion. There is no evidence-based science, evidence-based policy, evidence-based argument (see this very paragraph). In reality, a mind first guesses—*conjectures*—an idea. This could be a scientific idea, a moral idea, an economic idea, a political idea, an idea about beauty—anything. One then criticizes it: is it internally consistent? Does it cohere with our other ideas about how the world works? Is it arbitrary? Is it consistent with our observations?

Evidence is not the source of our ideas. Rather, it serves as a *criticism* of our ideas—*after* we've already guessed them!

As the 20th century philosopher Karl Popper discovered, the process by which our knowledge grows corresponds to the following schema:

Problem → guessed ideas that seem to solve the problem → criticisms of all proposals → tentative acceptance of whichever proposal survives the criticisms → new (and better) problem

The fact that ideas precede evidence explains why different people look at the same evidence and come away with different conclusions. The commonsensical and pervasive view that 'all rational people will come to the same conclusion if only they followed the evidence' is false, since evidence is not the source of our ideas in the first place. The Sun's rays don't carry with them theories of stars and light and space, and data from medical trials don't contain explanations for why the drug does or does not perform its intended function.

If studies show that vegetarians have better health markers than non-vegetarians, is it rational to conclude that vegetarianism is healthier than non-vegetarianism? Data alone cannot tell us. We first need a good *explanation* that tells us why vegetarianism is healthier than other diets (more on explanations and the difference between good and bad ones in a future module). We'd then compare that theory to theories underlying other diets and compare all of them in light of our criticisms.

Only after our theoretical criticisms would it make sense to turn to data to choose between whichever candidate theories are still standing. But even then, it is comically

easy to draw the wrong conclusions. For example, maybe vegetarians are, in fact, healthier than non-vegetarians, but only because vegetarians are wealthier than non-vegetarians and so can afford healthier lifestyles across the board.

Even apparent inconsistency with evidence is not unto itself reason to drop an idea. All of our ideas are fallible, including our interpretation of ‘what we’re looking at’. In other words, evidence, observations, and data may not even be what we initially think they are.

Consider a Flat-Earther who insists that there is a vast wall of ice at the end of the world. Should you ever traverse Antarctica with this person, the two of you may, in fact, encounter one of the continent’s many ice shelves. Assume that one of these ice shelves happens to extend farther than the eye can see. Is this evidence inconsistent with the Round Earth hypothesis? Does it really corroborate the Flat Earth theory? Despite the Flat-Earther’s excited cheers that your eyes can’t lie, they can. Or, to be precise, your mind is fallible and thus capable of misinterpreting sensory data. You are not, in fact, staring at a wall at the end of the world but rather one of many ice shelves resting upon an approximately spherical surface.

So, deploying evidence is but one mode of criticism among many. There are even problems for which appealing to evidence is perverse. Consider: what evidence would persuade you that minorities should not have full political rights? That slavery is a moral abomination? That the merits of an idea are independent of their source?

In other words, evidence is not some lodestone to which we can mechanically appeal to answer all of our questions. When and how to integrate evidence into the problem-solving process is a creative enterprise.

Even in science, it is not the case that theory must bend the knee to data. First of all, our data may be wrong—measurement is, like anything else, a fallible activity. Secondly, our *interpretation* of the data could be wrong such that, upon reinterpretation, the theory that we’d thought the data had rendered problematic is, in fact, unproblematic. Third, the theory might not be wrong in broad strokes; it might require refinement to be consistent with the data.

There is no such thing as an evidence-based argument for a policy, despite the widespread notion that governments should implement policies for which there is good evidence. Arguments for policies are (or should be) explanations of why they should be implemented. For example, someone who wants to raise the minimum wage may offer

an ‘evidence-based’ argument of the form, “In Chicago, poverty rates declined following a 50% increase in the minimum wage. Therefore, governments everywhere should raise the minimum wage by 50%.” Someone may respond with a counterexample: “In Seattle, poverty rates increased following a 50% decrease in the minimum wage. Therefore, governments everywhere should raise the minimum wage by 50%.” They can go back and forth like this for eternity, each offering data points that seem to support their preferred policy. Many debates between pundits and politicians *do* go like that, with the perceived winner being whoever can remember the most studies, democratic experiments, and data points.

But absent an explanation, we have no idea what the relationship between the minimum wage and poverty is, and no amount of studies can give us one. Even if every purported study of the effect of minimum wage on poverty showed an inverse relationship between them, we’d *still* be mistaken to conclude that raising the minimum wage causes a reduction in poverty. Statisticians never tire of saying that ‘correlation is not causation’, and they are quite right. But this statistical lesson is merely a special case of ‘evidence is not explanation’.

In the next module, we’ll learn about what an explanation is, the difference between a good explanation and a bad explanation, modes of explanation, and why explanations are more fundamental than evidence, facts, and data.



Thanks to Conjecture Institute Cofounder David Kedmey and especially to Dennis Hackethal for valuable feedback. Dennis’ blog can be found [here](#).