Science vs Pseudo-Science

There's an important difference between the hard sciences and the pseudo-sciences called *falsifiability*.

The pseudo-sciences have a lack of operationalization problem. Operationalizing is turning general questions about a subject into measurable/testable propositions—it means having a way to objectively falsify work.

The term *pseudo-science* was coined by a 20th century Austrian philosopher, Karl Popper.

Popper studied people like Einstein and Freud and realized there's a difference in attitude. The *Einsteins* looked for evidence that would disprove their theories, but the Freuds only looked for evidence that supported their theories.

A scientist's best hypotheses and theories are always tentative because it just takes one person with an unthought-of experiment or a new piece of evidence to falsify a claim. A pseudo-scientist's theories are true as soon as *enough* people are convinced.

In other words, Einstein's Theory of Relativity is disproved as soon as one person presents some evidence from an experiment no one's tested before. How do you disprove Freud's theory of personality: the Id, Ego, and Superego? This is the operationalization problem.

Operationalizing lets scientists weed themselves out from the posers. Claims that can survive persistent attempts to disprove them automatically garner credibility. Popper (a pseudo-scientist himself) distinguished pseudo-science from science to find better logical justifications for knowledge claims—not to dismiss the pseudo-sciences.

Falsifiability is important. For good work earn its credibility, we need ways to objectively weed out bad work.