

Who can explain the process of scientific change better: Popper, Kuhn, Lakatos, or Feyerabend?

By Victor Christianto, email: victorchristianto@gmail.com

Abstract

As we know, for Popper scientific change can be explained rationally.

For Kuhn, scientific change is caused by psychology of discovery which sometimes it cannot be explained rationally.

For Lakatos, most scientific endeavors nowadays are governed by research programs, which cannot be falsified. See for example: <http://www.inf.fu-berlin.de/lehre/pmo/eng/Lakatos-Falsification.pdf>

And for Feyerabend, there is no specific method which can be used to explain scientific change. Anything is possible.

They are four leading philosophers who seem to me represent major ideas on modern scientific change. So, who can explain the process of scientific change better among them?

Answers

[1] [Carlos Eduardo Maldonado](#)

The very process of change in science among these philosophers is different. Kuhn seems to be the most radical in so far as he understands the change of science as a revolution - a concept and an idea that can by no means be found in Popper, f.i.

For the sake of the discussion I would like to add an additional perspective, namely: M. Serres understands the change in science in terms of *bifurcations*. It is necessary, it seems, to include this perspective in the array of conceptions about change in science.

[2] [Victor Christianto](#)

Thank you for your answer, Carlos. Considering your interest in SOC, i got an idea: could a scientific change be related to Self-Organized Criticality? I mean with SOC is: sometimes there is critical situation when some observations do not meet the established theories (anomalies), then some people propose new work on these problems, and finally the scientific community organize themselves to support the new theory.

If you know a reference for SOC model of scientific change, please let me know. Thanks

[3] [Carlos Eduardo Maldonado](#)

Dear Victor, I would (almost immediately) answer yes, if we take into account that on the basis of a SOC phenomenon there is a power law, and a power law consists exactly in the extremes of a Bell curve that "normal" science knows but is not interested to work in.

In other words, your question is exactly about the interpretation, understanding and mode of innovation. Well, as we know, innovation does not happen in the space of a Gaussian bell, but in the extremes. Hence...

[4] **José Antonio Acevedo-Díaz**

Dear Victor,

The selected authors have different views about science (nature of science, NOS), and scientific change. Arguably their paradigms are incommensurable (in Kuhn sense), or have problems of semantic incommensurability.

Diverse positions about NOS.

[5] **José Antonio Acevedo-Díaz**

I'm sorry, Victor. Following brief schemes in English language are available:

https://www.researchgate.net/publication/263084916_Four_views_on_scientific_method_-_Scheme?ev=prf_pub

https://www.researchgate.net/publication/263089915_Four_views_about_scientific_theories_-_Scheme?ev=prf_pub

https://www.researchgate.net/publication/263088446_Four_views_about_Science_-_Scheme?ev=prf_pub

https://www.researchgate.net/publication/263091326_Four_views_about_scientific_advancement_-_Scheme?ev=prf_pub

Maybe you may be interested in this thread RG:

https://www.researchgate.net/post/An_approach_to_the_definition_of_science_as_practice?tpcctx=profile_highlights

Kind regards.

[6] **Victor Christianto**

@Jose, thank you for your reference. Btw, i just found a reference on the scientific process: http://www.ssr.org/sites/ssr.org/files/uploads/attachments/node/16/rothchild_scimethod.pdf. But i think this paper does not deal with different ideas on scientific change. What do you think?
Thanks

Concluding remarks

It seems that all four leading philosophers of science: Popper, Kuhn, Lakatos, and Feyerabend has a specific place.

Version 1.0: 24 July 2014

VC, email: victorchristianto@gmail.com