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In Defence of Critical Rationalism

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Abstract. The early Greek philosophers invented the tradition of adopting critical attitude towards explanations that were robed in mythic garbs. They not only challenged the explanations of the ancients, they also criticized and falsified long standing traditions with empirical observations and tests. This attitude to knowledge is what Karl Popper described as critical rationalism. Critical rationalists believe that scientific theory or any other claim to knowledge can and should be rationally criticized and if they have empirical content can and should be subjected to tests which may falsify them. Claims to knowledge that are potentially falsifiable can be admitted to the body of empirical science while not foreclosing further falsification. But this kind of rationalism was faulted by some philosophers including Paul Feyerabend who argued that it may not be easy for science to grow by the rules of critical rationalism but that scientific knowledge will be better off with the method of 'anything goes'. The objective of this paper was to critically evaluate some of the criticisms against critical rationalism to ascertain their validity or otherwise. The analytic method was used. The paper is of the view that the rejection of critical rationalism and the recommendation of anarchism for the growth of science is misplaced because lawlessness breeds neither growth nor knowledge.

Keywords: Critical rationalism: Falsification: Anything-goes: Conjectures: Knowledge

1. Introduction

How should scientific knowledge grow? What method or methods should scientist use in their quest to advance the frontiers of human knowledge? Karl Popper proposed critical rationalism as a method by which scientists can practice their trade and at the same time create an avenue by which knowledge can advance. In his famous statement "the unexamined life is not worth living" - Socrates had pointed out the importance of critical thinking in human affairs (Plato,1997:109). By this statement Socrates meant, among other things, that a life devoid of self-examination and reflective thinking is hardly a worthy human life. He emphasized the need to examine issues and concepts through pernicious questioning in order to clarify the ideas we live by. But the unexamined life takes its thinking for granted: it ignores the need to question the standards by which it lives. It is an unconscious life which lives on the minimal level, that is, the level of thinking that never rises above practical concerns.

Socrates was greatly opposed for his critical method of trying to solve teething social, conceptual and ethical problems of his day. Like Socrates, Karl Popper's notion of critical rationalism was attacked and criticized by scholars of both the sciences and the humanities. Karl Popper's critical rationalism according to Ishaya (2019:47) is a method that "seeks to detect and eliminate errors in human reasoning". His notion of critical rationalism is also known as the theory of falsification. The theory is hinged on the principles of conjectures and refutations. By conjectures Popper (2002: xix) alludes to unjustified and unjustifiable anticipations, guesses, myths and tentative solutions to social or scientific problems. But the conjectures are however controlled by criticism or attempted refutations. These refutations include severe but critical tests that are performed on the conjectures. The reason for the severe critical test is because according to Popper, all knowledge is human and because it is human, they are mixed with human errors, prejudices, dreams and hopes. Therefore, the quest for objective truth which is the core interest of the sciences can only be achieved through critical appraisal and tests of past and present knowledge claims. For him, criticism consists largely in pointing out contradictions or discrepancies and that scientific progress consists largely in the elimination of contradictions wherever they may be found (34). Popper's theory of falsification challenges scientists and philosophers alike to take a second look at their knowledge claims, theories, traditions and beliefs. It helps to create the awareness of other positions and possibilities and makes the pursuit of truth objective.

2. Objections to Critical Rationalism

Nicholas Dykes (2003) in an article entitled *Debunking Popper: A Critique of Karl Popper's Critical Rationalism,* cataloged several criticisms against Popper's theory, alleging that when one examines critical rationalism; one soon notices that it is based on questionable premises; that its logic is seriously flawed. He went further to say that the theory is inconsistent with other elements of Popper's thought and that it leads to conflicts with his own publicly stated conviction.

Among the long list of inconsistencies in Popper's critical rationalism according to Dykes is Popper's concept of the growth of knowledge. He asserts that a further problem arises when one considers the concept of growth in Popper's claim that knowledge grows through conjectures and refutations. He made the point that a legitimate response to this assertion should be; *what exactly is it that grows?* The concept of growth according to him implies the existence of a thing, a body, an entity of some sort - that which grows. He argues further that it may well be true that conjectures and refutations play a role in the growth of knowledge but they could hardly do this without some knowledge to work on. For him, the growth of knowledge via conjecture and refutation pre-supposes pre-existing knowledge not pre-existing conjectures: that the growth of knowledge implies knowledge is, according to Dykes (2003), an illustration of Popper's dependence on something he attempted to deny. He contends that critical rationalism is supposed to replace our common-sense idea of inductively-acquired knowledge with a more accurate one of a continuous process of conjecture and refutation. But that, that process would be meaningless without something for the process to process and that, that something is knowledge not conjecture.

One of the most prominent critics of critical rationalism is Paul Feyerabend. Although he seems to agree with Popper on how the growth of knowledge can be achieved through many channels including myths. In his book – Against method (1993) he writes:

People all over the world have developed ways of surviving in partly … agreeable surroundings. The stories they told and the activities they engaged in enriched their lives, protected them and gave them meaning. Today, old traditions are being revived and people try again to adapt their lives to the ideas of their ancestors (4).

Feyerabend, believes, just like Popper that a free society cannot be based on any particular creed (1993:226). While Popper thinks that critical rationalism and falsification of the known can afford man or society a pedestal upon which to attain probable knowledge; Feyerabend disagrees. After a careful analysis of critical rationalism, Feyerabend raised two questions against the theory. He asks; (1. is it desirable to live in accordance with the rules of critical rationalism? And (2. is it possible to have both a science as we know it and these rules?

For the answers to his questions, he averred that we would be proceeding in the worst possible fashion if we adopt critical rationalism as a method. According to him, the idea of the Popperian school was obtained by generalizing solutions for methodological and epistemological problems. For him, critical rationalism arose from the attempt to understand the Einsteinian revolution and then extended to politics and the conduct of one's private life. Such a procedure according to him may only satisfy a school philosopher who looks at life through the spectacles of his own technical problems. He believes that science as it is known today will create a monster if any particular method is adopted by the sciences. He therefore proposed a reform of the sciences that makes them anarchic and more subjective. Asserting that it is not possible to have both a science as we know it and the rules of critical rationalism (1993:153).

Feyerabend believes that there are limits in our knowledge and claims. He opines that progress in science is achieved often when practitioners violate the rules or standard forms. For him, history is always richer than any reconstructed methodology. This history is chaotic and multifaceted in nature. He makes the point that:

The idea of a fixed method or a fixed theory of rationality rests on too naïve a view of man and his social surroundings. *To those who look at the rich material provided by history, and who are not intent on impoverishing it in order to please their lower instincts, their craving for intellectual security in the form of clarity, precision, 'objectivity', 'truth'; it will become clear that there is only one principle that can be defended under all circumstances and in all stages of human development. It is the principle of anything goes* (1993:18).

In his tribute to Imre Lakatos, Feyerabend (1975:1-2) declared that Popper's notion of critical rationalism arose from the trivial observation that while a singular statement entails the negation of a universal statement, it never entails any universal statements. But one soon realized that the suggested rules were either useless or devastating. For him, the material of the scientist is

much too incoherent and unwieldy to survive an in and out Popperian attack.

Thomas Kuhn (1970) also argued against Popper's critical rationalism. He made the point that scientists work in a series of paradigms and that falsificationist methodologies would make science impossible. For him, no theory ever solves all puzzles with which it is confronted at a given time; nor is the solutions already achieved offer perfect solutions. On the contrary it is just the incompleteness and imperfection of existing data theory-fit, that, at any given time, define many of the puzzles that characterize normal science. According to him, if any and every failure to fit were ground for theory rejection, all theories ought to be rejected at all times. On the other hand, if only severe failure to fit justifies theory rejection, then the Popperians will require some criterion of improbability or of degree of falsification. In developing one, they will almost certainly encounter the same network of difficulties that has haunted the advocates of the various probabilistic verification theories" (147).

Following Kuhn's criticism, Imre Lakatos, a former student of Popper tried reconciling Kuhn and Popper's differences by arguing that science progresses by the falsification of research programs rather than the more specific statements of critical rationalism. He sees theories according to Zucker (1996:167) as entities existing over time; they get changed as new information is gathered. Theories are readjusted to fit the facts as the facts are obtained. What this means to Lakatos is that theories are not rejected when a tested prediction fails as held by Popper, instead, the theory is fixed in order to account for the failure. This is what he referred to as 'Sophisticated falsificationism' which he developed into the methodology of scientific research programme. In other words, Lakatos' Methodology of Scientific Research Programme (MSRP) was actually a subtle rejection of popper's critical rationalism.

Towing the tone of Lakatos, Steve Fuller (2003:6) contrasted Popper's theory of falsification against Kuhn's scientific revolutions and concluded that with the defeat of Popper and his followers, the normative structure of science drastically changed. He opines that whereas actual scientific communities existed for Popper only as more or less corrupt versions of the scientific ideal, for Kuhn the scientific ideal is whatever has historically emerged as the dominant scientific communities. For him, in the wake of Kuhn's victory, science has come to be justified more by its paradigmatic pedigree than by its progressive aspirations.

Defence of Critical Rationalism

Without prejudice to Nicholas Dykes arguments against critical rationalism/falsification, the paper disagrees with his propositions and inferences. Popper did not say that knowledge is conjectured from a vacuum. He has always maintained that the guesses, and tentative solutions to man's problems, that is, the conjectures, emanates from our background knowledge of which myths and traditions play significant roles. Thomas Kuhn (1970:4) also alluded to this position albeit differently, when he averred that "arbitrary elements of personal and historical accidents are always a formative ingredient of the beliefs espoused by a given scientific community at a given time." For Popper (2002:325), "in the search for a counter example, we have to use our background knowledge". And that is why he insists that knowledge is impossible without tradition and that it is only a rational examination of the traditions and myths that make them up that can lead to some sort of knowledge. The myths could be theories or hypothesis conjectured by scientists or sociologists. But he makes the point that one should not just accept any hypothesis or theory without a critical examination and with a conscious effort to refute it. This refutation is done via series of tests. Where it passes the tests, it is taken as a probable solution but definitely not as the absolute solution. Wade Hands (1993:63) puts it succinctly when he averred that "the acceptance of the results of the tests is provisional forever; the method does not necessarily result in true theories, only ones that have faced a tough empirical opponent and won". This is because there must always remain the possibility that a piece of evidence will one day be found to prove it wrong. Practically, scientists learn from the failures of theories; for it is exactly at those points where existing theories are shown to be inadequate that the need to find a more comprehensive theory is born leading as it were to the growth of knowledge. This is Popper's argument and therefore dismisses Dykes contention that conjectures and refutations imply the growth of knowledge as knowledge.

A cursory perusal of Feyerabend and Fuller's arguments against Popper's critical rationalism may cast some doubt over the sustainability or otherwise of the theory especially when viewed from the fact that among the critics of the theory, including Imre Lakatos and Thomas Kuhn were philosophers who also developed theories to put the methodology of the sciences in proper perspectives. These philosophers reject Popper's theory based on the believe that, there does not exist a single method that applies to all science and could account for its progress.

Popper had however, anticipated these criticisms when he made the point that his theory was open to criticism. And this paper indeed disagrees with Feyerabend's anarchistic methodology. The paper believes that science in whatever appellation cannot make any meaningful progress under a lawless system as advocated by Feyerabend. The anarchistic theory is here rejected on the basis that instead of guaranteeing the progress of knowledge, it will diminish same by the individuality and chaos inherent in the principle of 'anything goes'.

For Fuller, it shall be argued that Popper's theory does not only guarantee the growth of knowledge but also takes care of the paradigmatic aspect by the insistence that every theory, myth or tradition undergoes a severe test to ascertain its empirical or epistemological viability. Therefore, the allusion to the victory of Kuhn over Popper flies in the face of reason.

Struan Jacobs (2009) on his part took a different perspective in looking at Popper's rational theory. While most critics focused on Popper's notion of critical rationalism/falsificationism, conjectures and refutations etc. as the means through which Scientific and social knowledge grows; Jacobs surmised that the criticism may have come as a result of the misunderstanding arising from Popper's choice of words in the title of his theory. According to him "Popper's choice of title is not properly reflective of his principal aim…" For example, in his rational theory of tradition his purpose is seen as twofold: (1) to explain tradition by way of a theory that is rational and (2) to produce a theory that shows tradition to be rational. Jacobs's observation was equally noticed by Dykes (2003) when he showed that Popper's critical rationalism has several appellations. These appellations include conjectures, refutations, and falsification.

These observations are true; to avoid confusion of terms or make comprehension tasking, the paper suggest that philosophers should adhere strictly to a given concept with a particular definition. But despite the criticisms and observations, it is the opinion of this paper that Popper's critical rationalism is a practical guide to knowledge of whatever kind. It offers guidance in acquiring new information, in assessing the validity of information offered by others and in taking action to solve problems using the information at hand.

3. Conclusion / Recommendation

Critical rationalism is a method of insisting that Scientific growth requires the freedom to subject all ideas to rigorous criticism because false ones may be flourishing. Thus, unlike some theories or "philosophies", critical rationalism does not offer a solution to everything; it is not an infallible guide to all the problems of life. In fact, it shows that there can be no such thing or as Popper (1972:360) puts it "no particular theory may ever be regarded as absolutely certain". Critical rationalism encourages one to work within the limits of one's knowledge, the knowledge that one can never have the whole truth. Therefore, the critic of a social or scientific theory is one amongst many ways by which scientific or any form of knowledge grows.

The point is that one should not just accept a theory or hypothesis without a critical examination and with a deliberate effort to counter or refute it. This refutation is not a flagrant and malicious rejection of the theory or hypothesis; rather, it is done via a controlled series of tests to ascertain the veracity or otherwise of the theory. This process of ascertaining the veracity of a given knowledge claim is the major contribution of critical rationalism to knowledge growth in all areas of intellectual pursuit. This paper therefore recommends that every intellectual pursuit should adopt critical rationalism as a method through which theories, hypothesis or laws are put to rational and critical tests.

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