

# Alternative Views About Initiation Of Research Inquiry

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## INTRODUCTION

For centuries the body of scientific knowledge consisted of proven propositions. It was the age-old belief that knowledge could be proved. However, a change has undergone in this concept of knowledge. Scientific research can pave way to knowledge.

Salter (1967) is of the opinion that research has to be seen as a process of inquiry. Lakatos (1970) puts forth the view of Popper (1959) who regards the crux of scientific research as to ruthlessly eliminating errors and specifying precisely the conditions under which one is willing to give up one's position. It is the idea of Kuhn (1962) that normal science begins from criticism to commitment. According to Popper science is "revolution in permanence and criticism the heart of scientific enterprise" whereas according to Kuhn "revolution is exceptional and, indeed, extra-scientific, and criticisms, in normal times, anathema" (quoted in Lakatos 1970).

Popper (1959) believes that scientific change is rational and comes under the purview of the logic of discovery, on the other hand, for Kuhn, scientific change is mystical. Popper's important argument is that a proposition cannot refute the theory unless it is supported by a well-corroborated falsifying hypothesis. For Kuhn, the normal science means the research, which is firmly based on paradigm. He discards the thought that the theories can be tested. In his view, it is not the theory which is tested, but it is the skill of the researcher which is tested i.e. the skill to adjust the anomalies to fit the existing paradigm.

## SCIENTIFIC VIEW

The dynamic view as against the static view regards science as interconnected series of concepts and conceptual schemes that have developed as a result of experimentation and observation and are fruitful of further experimentation. It appears along the pace of scientific development that the theories constantly undergo tests at the hands of critics and the failure of verifiability leads to new theories superseding the old ones.

Thus, throughout the history of development of the scientific knowledge, there has never been any consensus regarding the

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methodology of scientific research. The disagreement in opinions seems to be implicit in the conflicting outlooks on science and knowledge, for instance, static versus dynamic views, rationalist versus empiricist, justificationist versus falsificationist and so on.

### JUSTIFICATIONISM

The justificationists view scientific knowledge as consisting of proven knowledge, proven either by the power of the intellectuals or by the evidence of sense (Lakatos 1970). Classical intellectualists or nationalists, with the help of extra logical proofs by revelation, intellectual intuition and experience, justified scientific proposition. Their truthvalue was established by experience and they constituted the empirical basic of science.

### PROBABILISM

While justificationism was advocating the identification of proven knowledge, skepticism did not believe that such proven knowledge would have ever existed. A group of Cambridge philosophers tried to judge the scientific theories in terms of degrees of probability and urged for asserting only highly probable theories in terms of degrees of probability and urged for asserting only highly probable theories. With this a new school of thought, namely, *probabilism* or *neo-justificationism* was born. They argued that all scientific theories had a probability of being correct. They were concerned about different degrees of probability relative to the available evidence.

Later Popper (1959) argued that all theories were not only unprovable but also equally improbable. As scientific theories have a zero probability of being right. Thus, it seemed that there was no knowledge whatsoever. Because, as skeptics put it, the knowledge, since it was never proven, was mere *animal belief*. It was at this juncture that falsificationism brought about a new arbiter for judging the theories.

### DOGMATIC FALSIFICATIONISM

It is a weaker form of justificationism because it accepts the scientific theory as equally conjectural. For the dogmatic falsificationists empirical counter-evidence can be the one and only one criticism to evaluate a theory. Although the theory is fallible, there is a firm and infallible empirical basis that can be used to falsify the theories. For them, the unfalsifiable propositions, as Popper also puts it, "lose their scientific status and degenerate into something like metaphysical doctrines" (Lakatos 1970). They believe in the dynamics of science in which a prevailing theory is discarded as soon as the subsequent experiments falsify it. In other words, scientific honesty to them consists of giving up a theory if the results are disproved.

## METHODOLOGICAL FALSIFICATIONISM

The methodological falsificationists separate rejection from disprove. For them, a theory is scientific provided it has its empirical basis. Methodological falsificationism recognises that there is no such thing as *fact* in terms of the proven theory. But it suggests that the theory, although it is fallible, should be accepted as *unproblematic background knowledge*. By tentatively accepting the theories as *observational* inquiries can be conducted. The methodological falsificationists, thus, "Use our most successful theories as extensions of our senses and widen the range of theories" (Lakatos 1970). They do this by repeating the experiments again and again and fortifying the potential falsifier by a well corroborated falsifying hypothesis.

For Popper (1959), scientific objectivity means the freedom and responsibility of the researcher to pose refutable hypothesis, to test these hypotheses, and to state the results in an unambiguous fashion accessible to any interested person (Castle 1968). Popper (1959), therefore, accepts those corroborated hypotheses as the 'empirical basis' to work as the arbiter to judge whether a theory is true or false. The methodological falsificationists believe that science avoids the chaos of large number of unfalsifiable theories. Popper (1959) says that methodological falsificationsim indicates an urgent need of replacing a falsified hypothesis by a better one.

## ALTERNATIVE VIEW ABOUT INITIATION OF RESEARCH INQUIRY

The most difficult portion of any inquiry is its initiation (Northrop 1953). It is the genius in initiating the investigation, which leads to fruitful findings. An unthoughtful beginning of inquiry without any appreciation of the importancy or relevance of question concerned would lead to disillusionment. While it is extremely important for a researcher to take a right decision at initial stage as to what methods should be applied for the initiation of the inquiry. It governs the whole course of the subsequent investigation. The expert on philosophy of science and scientific research, on the other hand, do not seem to have a unanimous voice as regards this critical issue.

The scientific research method starts with the definition of problem. To propose or explain the solution is the next step in scientific research. Definition of the theories to the solution of the problem is followed by the formulation of hypothesis. It is, on the other hand, followed by the testing of hypothesis. In this process the researcher may discover some relationships which he/she might not have anticipated beforehand. Thus, he/she may reformulate his/her hypotheses and retest them.

Heldreth and Castle (1966) suggest that the scientific method should be dynamic one. So the process of testing hypotheses should be better regarded as reformulating or redefining those hypotheses. Thus, research is

recursive. We go from problem to solution and from solution to problem (Hildreth and Castle 1966).

Conant (1951) rejects the static view of the scientific method and argues that the general goal of science is to find the principle of the fully explained events. Nevertheless, he says that one can never fully explain such events. The real measure of scientific research is the ability to promote other research. As Hildreth and Castle put (1966), the fundamental questions of research are to find as to where the scientist begins this research and what is the start of his inquiry. It is the common belief of the authorities that one should clear his mind of traditional beliefs, or conventional wisdom (Hildreth and Castle 1966). In other words, one should doubt the traditional beliefs. However, all traditional beliefs cannot be effectively doubted.

Northrop (1953) is of the opinion that inquiry starts only when something is unsatisfactory, when traditional beliefs are inadequate, when the facts to resolve one's uncertainties are not known, and when the relevant hypotheses are not imagined. Hildreth and Castle (1966) agree with Northrop but they are not happy with his satisfactory situation. They suggest that one needs to start by defining the problem, which should be taken from the population at large. They say that the ability to perceive and state a significant problem is not a common talent. It needs more than logic. They go on to say that it needs insight, genius, common sense, which cannot be encompassed in formal procedures.

Unlike the classical intellectuals who believe in deductive logic, the empiricists thought that in order to prove scientific theories, they need logic of classical intellectuals, that is, inductive logic. Northrop (1953) presents the view of four classical experts such as Francis Bacon, Rene' Descartes, Morris Cohen, and John Dewey in this regard.

For Francis Bacon, the process starts purely inductively putting all preconceived ideas or idols, aside. In his famous *Aphorism*, Bacon asserts "Man being the servant and interpreter of Nature, can do and understand so much and so much only as he has observed in fact or in thought of the course of Nature" (quoted in Northrop 1953). Bacon's perception, at the outset, is to get rid of oneself of the traditional beliefs or idols. The best way to doing it is to put all the hypotheses aside and inductively collect empirical facts. Bacon's method is, thus, based on inductive empiricism.

As opposed to the empirical extremist philosophy of Bacon, Descartes holds a deductive rationalistic view. However, Descartes, like Bacon, starts from the same point where one has to clear one's mind from any conventional wisdom or precipitation and prejudice. But the method presented for doing it is different. While Bacon wants an empirical approach, Descartes, on the other hand, wants to avoid such traditional notions by an intellectual method of doubting. He liked the certainty of mathematical results and gave four rules of methods for starting inquiry

and conducting research. They are: (i) to avoid prejudicing i.e., one should doubt everything, (ii) to sub-divide problems into small problems, (iii) to think methodologically and, (iv) to omit nothing, nothing beyond that which should prevent itself so clearly and so distinctly to mind that one might have no occasion to doubt it (quoted in Northrop 1993). So his suggestion is that one should intellectually doubt everything and from the inductible minimum one should deduce the knowledge.

In the thesis of Morris Cohen and his pupil Ernest Nagel, skepticism regarding the traditional beliefs is found. It is their belief that truth is not to be found by studying the facts and that inquiry cannot proceed ahead unless some problem is encountered and the solution to the problem is tentatively formulated with the help of previous knowledge. Such formulation takes the form of hypotheses, which guide the subsequent acts of finding facts (Northrop 1953). They put emphasis on the immediate formulation of working hypothesis. That, is beginning from skepticism, an inquiry should proceed with hypotheses.

Dewey is of the opinion that research is the transformation of intermediate situation into determinate one. "...to see that a situation requires inquiry is the initial step in inquiry" (quoted in Hildreth and Castle 1966). According to Dewey, the condition antecedent to inquiry is the immediate situation, which becomes a problem subjected to inquiry. Like Cohen and Nagel, Dewey puts stress on the formulation of hypothesis. But he deviates from them in stating that the initial point of the conduct of research is the problematic situation.

According to Hildreth and Castle (1966), Northrop (1953) identifies three major types of problems: (a) question of logical consistency, (b) question about the empirical contents of theories or issues of fact, and (c) the problem of value. Regarding the first problem, the method of formal logic is enough to grapple with such problems. But concerning the empirical content of theories, the logical conclusion alone is not sufficient. Empirical evidences must also be gathered to back up the logic. Questions involving value content normally arise in the normative research in which the researcher is faced with the 'what ought to be' type of questions. A positive issue, on the other hand, has to deal with what it is type of questions.

But normative research is bound to make some value judgements treating the scientific objectivity of the research. As a matter of fact, research process is never devoid of value judgement (Castle 1968). The significance difference between the problems of fact and problems of value is that the analysis of problem and situation, which constitutes the major task of the first stage of any inquiry, is much lengthier process and requires additional scientific method in case of the problem of value than in case of problem of fact (Northrop 1953).

## CONCLUSION

Although the philosophy of research has as many dimensions as there are authorities, all of them seem to agree that the stimulus for further research comes from the doubt about the prevailing theories or conventional wisdom. To put it in more pragmatic terms other than conflicting philosophical jargons, the process of scientific inquiry can be organised in the following stages: (1) the discovery and the analysis of the problem, (2) reduction of the problematic situation into a factual statement, (3) inductive observation of these facts, (4) proposing the hypotheses as explained by the facts, (5) making logical consequences from each hypothesis, thereby, permitting to put an experimental test, (6) verification of the initial problem with the tested hypotheses, and (7) generalisation of the solution. Of all these stages, the initial stage, i.e. the recognition and analysis of the problem is the most crucial ones, since research does not initiate unless there is a problem or the traditional beliefs are in question.

It is the analysis of the problem that guides one to inductively observe the relevant hypothesis. In short, it is the problem that signals the whole process of research that follows.

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