

## **Relationship between Philosophy and Research: Ontology, Epistemology and Methodology**

**Dr K M Francis,**

Research supervisor, Department of economics, St Thomas College, Thrissur, Ethics committee chairman Jubilee mission Medical College, Thrissur.

Character development, skill development, and knowledge production are the three main goals of education. The two branches of knowledge are the growth of theory and technical know-how. The production of knowledge in these two disciplines leads to a country's socio-economic development. Research is the means through which a knowledge gap is filled, a problem is solved, and knowledge is produced.

The underlying essence of all human beings is to seek truth in order to unravel the enigma of each reality. What, why and how questions are inextricably linked to human existence. This is what distinguishes a man from an animal. Our forefathers correctly described man as a reasoning animal. Rational knowledge is the real knowledge. What is the rational process that leads to knowledge production?

Early in life, a person's worldview is formed (paradigm or Meta narrative in an embryonic form). When a man is confronted with reality, whether it be an item or an activity, he strives to incorporate his new knowledge into his own worldview. How does one respond if fresh knowledge acquired does not fit into his pre-existing worldview? The majority of people discard the new knowledge. Few people rearrange their own worldviews to account for new data. The living soul of logical process is this continual process. This process is at the heart of scientific development or knowledge production.

The European Union and the United States have the highest rates of knowledge production growth. Philosophy has made an incalculable contribution to the advancement of knowledge in the countries indicated above. In other words, philosophy has influenced practically every discipline of modern science, including statistics, mathematics, physics, psychology, and medicine. As a result, educators in Western countries incorporate various philosophical concepts in their school curricula. It is vital to have a fundamental understanding of philosophy in order to undertake effective research.

### **Relationship between philosophy and growth of knowledge**

The sequence through which philosophy influences research and production of knowledge can be understood by answering the following questions.

- A. What is philosophy?
- B. What is ontology or nature of reality?
- C. What is epistemology?

D. What is methodology? and

E. What is the basic structure of Research Thesis?

A) What is philosophy?

Etymologically philosophy means love for knowledge. But this meaning does not give any indication about the content of philosophy. Actually philosophy means study of nature of reality. Reality in general is classified into three categories.

i) Natural reality or everything that is in this universe except man and manmade things.

ii) Manmade realities and

iii) Man - man is the combination of both the given and the manmade.

B) What is the nature of reality or ontology?

The study of “being” is defined as ontology. This can be explained by looking at the world in front of us. Take, for example, a glass of water. What exactly is water? It’s a colourless, odourless liquid that we can drink to satisfy our thirst. This is the information we acquire from our senses, as well as how we feel, intuit, and experience it in our minds.

But, according to chemistry, water is H<sub>2</sub>O. Is it possible to perceive H<sub>2</sub>O using the light provided by the Sun and Moon? Plato classifies reality as having two parts: one that is intelligible and the other that is sensory. The sensible component can be learned by the five senses, but the intelligible part can only be learned through reason. This is known as platonic dichotomy (later known as Cartesian dichotomy), and rationalism is the approach of utilising reason to generate knowledge. According to rationalists, everything in the cosmos has a purpose. Is it a part of reality or a part of the human mind? Those who argue that reason is inside brain are classified as idealists and others who argue that reason is inside the reality are classified as materialists in the epistemological sense.

Rationalists, Plato and neo-Platonists, argue that nature of a reality can be identified by intelligence, by using deduction. Empiricists argue that nature of reality can be identified by observing, classifying and generalizing data observed through senses. Aristotle proposed empirical method for producing knowledge. This method is known as induction.

Traditionally five properties of true knowledge of nature of reality are identified by philosophers. Among the five first four are attributed to Parmenides who lived in 5<sup>th</sup> century BCE. They are:

a) True knowledge is eternal

b) True knowledge is universal

c) True knowledge is non contradictory or consistency principle

d) True knowledge correspond to reality

e) True knowledge is to be empirically validated (Francis Bacon, *Novum Organum*, CE 1561-1626).

What is eternal?

Consider the example of Circle. 360 degree is the basic reason (measurement or logos) of a Circle. What is the reason of Circle before 50,000 years ago? What would be the reason of Circle after 50,000 years? Can we say that circle had 359 degree and has now 360 degree and in future it will assume 361 degree? No, it is 360 degree today and 360 degree yesterday and 360 degree tomorrow. So 360 degree has no change in future or in past. So we call it “being”. Being means a state which is always present, or is that which has no future or past. Ontology searches that part in each reality that has only the “present”.

This “being” is also known as necessary condition. Being imposes restriction on the reality. If we assume that there is a “being” inside man, man has to restrict himself to the nature of being to become a man. Being denies absolute freedom and so postmodernists deny the existence of being in Man.

What is Universal?

In India it is 360 degree in a Circle, in Japan also 360 and America too 360 degree. For a Hindu, it is 360 for a Muslim 360 degree, for a Parsee it is 360 degree. Then, we say that part of reality is Universal.

What is the Principle of Non-contradiction?

Technically it means  $A = A$ ,  $B = B$ ,  $A \neq B$ . All scientific dissertations should follow this basic principle. Mango equals Mango, Jackfruit equals Jackfruit and never Mango equals Jackfruit. This principle is “either or”. A reality is either Mango or Jackfruit and never “Mango-Jackfruit”. (Hegel questioned the universal validity of this proposition. He proposed that in certain situations contradictory natures are fused into single reality. This paper is not discussing the Hegelian fusion of contradictories)

The relevance of non-contradiction in writing a scientific work can be explained through an example. For example, evaluate the following story. A parent with his two children was walking through a paddy field to next village. It was a rainy day. The path through which they were walking was slippery. Suddenly the third child slipped and fell down in to the paddy field and his dress became shabby.

If we scrutinize this story, we find that the story began with father and two children. But later the story talks about a third child. This fallacy is contradiction. Let’s realize that every narration is a contribution to discourse, if it maintains consistency from the beginning till the end. This is the basic feature of a true scientific knowledge. If we

study a mathematical solution for a problem the main procedure maintains non-contradiction from the first statement to the last.

What is Principle of Correspondence?

Assume that a man in Europe came to know about 'jackfruit'. How does he know what really a Jack fruit is? Those who are in Europe might not have seen a jackfruit. Then they search internet or botany books in library. When will his knowledge be a true knowledge? His knowledge will be true only when he compare the knowledge obtained from secondary sources with that of the reality of the original jack fruit. The correspondence between knowledge of an object and the nature of that object is known as principle of correspondence.

Empirical validation of a proposition

Knowledge will be perfect knowledge only if it is empirically validated. Assume that a person's blood pressure is declining. Theory suggests that there is a 'cause-effect' relationship between the amount of sodium in blood and blood pressure. How do we know that this relationship is true? Check whether sodium level in blood. If it is lower than the bench mark level identified by medical science, provide the patient with saline water. If it improves the blood pressure our theory is validated. This method of validation is possible in material sciences. This method became universal only after 17 century CE.

C) Epistemology

We talked about the characteristics of true knowledge and how they connect to ontology. This discussion has now moved into the realm of meaningful knowledge growth. Epistemology is the study of the pathways of knowledge growth. A technique is developed based on epistemology. The technique for getting actual knowledge is methodology.

In general, knowledge develops in a specific order. The different steps in the sequential progress of cosmos, each and every thing in cosmos, and all the organisms in the world are variables (elements), relationships, structures, systems, organisms, and cosmos.

Basically every organism composed of different elements. Different elements join together as by a rule and form a relationship, and this relationship is functional if it is cause effect, different relationships join together by a rule and form a structure and different structures join together by a rule and form systems and different systems join together by a rule and form organism and different systems join together by a rule and form cosmos.( Every organism is made up of several elements. Different elements come together as a rule to form a relationship, which is functional if it is cause and effect; different relationships come together as a rule to form a structure; different structures come together as a rule to form systems; different systems come together as a rule to form organisms; and different systems come together as a rule to form cosmos.)

A close scrutiny of the growth of knowledge also will reveal that knowledge too grows in the same sequence as that of natural organisms. Social scientists discovered that the sequence in the formation of living organisms and knowledge growth is replicated in man-made organizations. All manmade realities are the attempts of human beings to make a replica of the natural.

First step in the growth of knowledge is naming the realities. Here begins the application of principle of correspondence. In common parlance we call it as studying the meaning of the word. These names are simple categories. In technical language these names are variables related to an area of study.

Second step is the identification of correlation between certain variables. Certain variables move together either in same direction or in opposite direction.

The third step is identifying a cause effect relationship between different variables, and this relationship is function.

Fourth step is the identification of relation between functions and this relationship is structures

Fifth step is identification of relationship between structures and this relationship is system.

Sixth step is identification of relationship between systems and this leads to the meaning of the organism.

Seventh step is the identification of the relationship between different organisms and is termed as knowledge about cosmos.

The knowledge (growth process) grows through the above sequence by

- a) using reason (rationalism or deduction or a priori)
- b) collecting data through senses and generalizing (empiricism or induction or a posteriori)
- c) the combination of both, a priori and a posteriori (Immanuel Kant).

All mathematical theories are 'a priori'. It begins with certain axioms and consistently advances arguments and reaches at conclusions. There is no need of sensuous experience prior to the analysis (derivation of Gaussian normal curve).

Empiricists totally rejected the applicability of a priori theories in the growth of knowledge. They argue that all knowledge begins and progresses through sense experience.

Immanuel Kant identified that sense perceptions become experience only by using a priori categories. For example kilogram is a man made concept and weight is a reality.

We can perceive experience and communicate weight only by using measurement of weight which is an a priori concept.

Observe a map or globe. Lines on the map are longitudes and latitudes. These lines are drawn by dividing a circle. Are these lines actually present in/on earth? Do the directions west, east, south and north exist? All these categories are manmade. Globe or map is the fusion of longitudes and latitudes and the copy of earth collected empirically. Navigation is done by identifying the different locations viewed through the longitudinal and latitudinal structure. This is theoretical structure and is essential in every research work. Longitudes and latitudes are 'a priori' and the copy of earth is 'a posteriori'

#### D) Methodology

##### a) Identification of research problem

Research begins with identifying an area in the subject and a problem in that specific area. There are many existing explanations for solving that particular problem. These explanations are known as existing theory or existing hypothesis. Existing hypothesis is null hypothesis. Researcher wants to nullify the existing hypothesis. After studying theories related to that particular problem the researcher identifies that the existing explanation about the problem in the area of research is incomplete or lack something. This is knowledge gap or research gap.

1) The identified incompleteness in the already existing discourse is the research problem.

Sometimes this may be the universal applicability of existing explanation. For example, certain drugs are useful in certain areas of the world, but it may not be the case in other areas.

2) The anomalies in existing theory constitute the real research problem. So a deep knowledge in the theories explaining the reasons for the problem under study is the second step in research methodology. The crucial stage in understanding theories connected to the topic is to identify different variables and the functional relationships between them. The existent theory is the identification of the logic of independent (cause) and dependent (effect) variables, or the cause-and-effect relationship. The null hypothesis is the current explanation for the nature of the relationship between these variables. The alternate hypothesis is to propose the investigator's theory. This is recorded in the research thesis as review of literature.

3) Null hypothesis is the existing argument and alternate hypothesis is the argument of the researcher. If null is rejected the argument of the researcher is accepted.

4) Identification of the tool for measuring the variable or the reasons establishing the argument.

5) Collecting data from an unbiased sample and checking correspondence between the theory (a priori) and data collected (a posteriori)

## E) Writing the Thesis

Title of the thesis represents the ultimate aim of the study. On the basis of the title the investigator articulates the hypothesis. The objectives are the different steps to prove the hypothesis and the last objective should be in concordance with title and hypothesis. Following are the minimum requirements in a thesis. 1) Introduction, 2) Review of literature, theoretical framework, method of data collection, tools of analysis, hypothesis and statement of objectives 3) Analysis of 1st objective 4) Analysis of 2nd objective 5) Analysis of 3rd or final objective 5) conclusions are the basic chapters in a thesis. The number of objectives depends on the nature of the problem. In some theoretical works single objective is required.

## Conclusion

Every man is philosophically oriented. This means that he is a self-conscious being as he not only seeks after knowledge but also insists upon becoming conscious of what knowledge he has acquired. Man doesn't live by bread alone but by every word that proceeds from the mouth a Mystery. From a down-syndrome child to an 'Einstein', everyone is pulled by the force of Mystery. Man cannot sit at rest until he has resolved the mystery that he has confronted in and around him. Such a restlessness arises from the existential reality that his self-knowledge totally depends upon resolving any such mystery. Knowledge of the cosmos (phenomena in himself and around him) is himself. It is this inseparable identification that compels him to seek after resolving mysteries (sex to quantum physics). Since man is inherently a social being, he will always see the other as himself. (Whether the other is his friend or enemy – both are self-projections). As a social being, at least for his self-protection and survival in the society, he is compelled to apply his knowledge to the socio-economic progress of the society. The more 'rational' is this application, the more creative and permanent will be the effect of the application of his knowledge in the socio-economic advancement of the society. 'Rational' is a crucial term in our acquisition and application of knowledge. Reason, from a practical point of view, is nothing but a 'comparison' of the new 'reading' (information) with the already existing knowledge a man has. Whether he tries to dismiss a new information outrightly (fanatics claim to be always successful in this activity) or embraces it wholeheartedly, the new information is sure to influence his existing knowledge in one way or the other – sooner or later. When a 'thesis' (knowledge already existing in him) confronts an 'antithesis' (any new reading/information), knowledge is sure to undergo the process of 'synthesis' in one form or other. When a person becomes self-aware of this inherently embedded nature and process of knowledge acquisition (dialectics), we call him 'intellectual'; and if he associates his knowledge process with an educational system, we call him an 'academic' or a 'researcher'.

Steps in 'research': -

1. Identification of Research Problem

2. When researcher relates the Research Problem with the existing knowledge/theory, the researcher finds that the latter is inadequate or "null". In this sense we call the existing knowledge/theory a "Null Hypothesis"

3. He is next supposed to state and record systematically what he has found out with regard to his identification of the Research Problem in relation to the existing knowledge. Such a presentation is called Review of Literature

4. Such a systematic examination of the existing discourse in relation to the research problem he has identified, will prod and spur him to think of new ways of solving his research problem. Thus, alternative theories/methodologies are identified and presented.

5. In such a process, it is also possible that an entirely new theory/methodology/tool but which is also rationally convincing (a priori), is proposed

6. This will lead to the analysis of the data in the light of the theory formulated or invented for the purpose of resolving the research problem. Such an analysis will evidently follow the dialectics of 'a priori' (deduction) / 'a posteriori' (induction) methods which will, in the end, resolve the research problem stated at the initial stage of the research, in a convincing and rational manner. Such a presentation constitutes the main chapters of the thesis.

This discourse explains the contours of research work. Actual investigation moves through the directions given by the research supervisor.