Logical and Epistemological Approaches to Educational Research: A Philosophical Inquiry

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Abstract- *Logic plays an important role in the understanding of the nature of knowledge and the very process of its acquisition. In other words, logic can be considered as a rational basis of 'science' in order to become a systematic and intellectual approach towards understanding the world around us. This has also been a fundamental task of 'philosophy' too, as 'Epistemology' is supposed to do what is expected from logic. This paper is an initial attempt to explore logical and epistemological approaches to educational research. It will welcome suggestions to proceed ahead towards philosophical research in education.*

Keywords: Epistemology, Philosophical Inquiry, Education.

"Once being philosopher does not debar him from being anything else, but one is philosopher only when one is philosophically concerned with a philosophical problem"

Daya Krishna (Nature of Philosophy)

Conceptual Background and Theoretical Crisis
In order to proceed in our inquiry of initiating discussion on logical and epistemological approaches to educational research we need to understand the basic concept of 'research' with special reference to educational research as, on one hand, it will help us to explore those very logical and epistemological approaches which are inevitably inherent in the process of research and on the other hand, the rational ground which justifies an intellectual act as 'research' itself. Furthermore, we do believe that Education is an independent discipline which, in spite of having being considered as originated from its foundations such as philosophy, sociology and psychology, has developed its own methods of inquiry. Exploring logical and epistemological approaches to educational research by educationists or tending towards reviewing predominating methods of research in education by philosophers has never been a foci concern in education or philosophy. The reason behind these least explored dimensions of both the discipline's may be traced either to unknown fear among educationists towards 'philosophy' as something 'untouchable' task which may lead them to incurable perturbation or to the philosophers' perception of considering education as an area of least importance wherein scope of 'doing philosophy' is inadequate.

Furthermore, we do find, especially in India, rare opportunity in academic forums, formal as well as informal, wherein educationists and philosophers pursue joint-intellectual exercise in order to establish theoretical and conceptual linkages between education and philosophy. Secondly, one can easily trace it from the trend of research in education that it has been closer to psychology and sociology in comparison to that of philosophy as far as research methods are concerned. Thirdly, my personal experience in NCERT, having completed fourteen years of teaching and research in the Department of Education, as a student of philosophy has graced me with various opportunities of encountering theoretical and conceptual perturbations as to what 'philosophical research' is and how to pursue it in 'education' by following established methods of research. If the research is excessively tilted towards the education, it may dissatisfy philosophers as something 'untrustworthy' and if it is a pure 'philosophical attempt' than educationists are accustomed to call it as mere theoretical speculation without any worth of applicability. Perhaps, this is one of the predominating fear of mine to touch logical and epistemological approaches to educational research but more importantly I do feel privileged to engage myself in aforesaid task because Dayaji's, as everyone used to address him, Jaipur experiment 1 inspires me to express my philosophical concerns towards a philosophical problem. It is indeed a subject of appreciation for those who have chosen the task of making deliberate attempt to awaken philosophers and educationists to come forward to initiate a much needed inter-disciplinary task.

It seems us more rational to begin with meaning and concept of educational research to explore its inherent logical and epistemological approaches.

A) Logical and Epistemological Approaches to Quantitative Research in Education
Meaning and Concept of Research:

The meaning of word research as it is generally understood in layman's language refers to search for a new thing or to see the phenomenon or thing in a new context which is often considered as already known. The Advanced Learner's Dictionary of current English lays down the meaning of research as "a careful investigation or inquiry specially to search for new facts in any branch of knowledge" (emphasis mine). The very definition tends to reveal one of the dimensions of research which not only makes it intellectual in nature but also designates it as purposeful investigation wherein three parts are involved i.e. the implicit question posed; the explicit answer proposed; and collection, analysis and interpretation of information leading from question to answer. These parts are concretized in some different way, especially in educational researches, in order to shape a research into more structured form. The general characteristics of educational research can be summarized as follows:

It was an experiment called as the Jaipur experiment in philosophical academic circles initiated by Professor Dayakrishna, at Department of Philosophy, University of Rajasthan, Jaipur. It was an innovative method of doing philosophy in a group consisting of teachers, students and research scholars on various issues of fundamental philosophical importance and was totally different in its approach which changed traditional approach of teaching philosophy

as an academic discipline at graduate and post graduate level. The revival of philosophy as a living, dynamic, applied and interdisciplinary branch of knowledge was done by Prof. Dayakrishna for about four decades.

Characteristics of Quantitative Research

I. Systematic approach: It is essential for any concern of educational research to be arranged in hierarchical order, especially logical sequencing of steps to be followed during pursuance of research. The process of research involves the following steps:

  I.   Identification and definition of the problem.
  II.   Survey and related literature/ relevant information.
  III. Formulation of hypotheses.
  IV.   Collection of data.
  V.   Analysis of data.
  VI.   Conclusion and generalization.

The above mentioned steps are essential in educational research, especially in quantitative research. Here we can take an example of quantitative research as to how important logical sequencing is done in educational research.

An Exemplary Exercise of Quantitative Research

"A comparative study of primary and secondary teachers belonging to different socio-economic status in relation to their creativity".

While Defining The Problem A Researcher.

- Should be sure that the topic chosen is neither too vague nor too broad in scope as the former will make it avyapta and the later will make it ativyapta in terms of philosophical language. There must be some logic behind the selection of research problem. An illogical or irrational statement cannot be a problem of research in education.
- Should make the problem clearer and more understandable. Here we can tell that in the above mentioned topic we are going to study the concept of creativity among primary and secondary teachers with reference to their socio-economic background. The researcher should have clarity of variables involved in research problem i.e. primary and secondary teachers. Furthermore, the concept of creativity should also be understandable in explainable terms with the support of empirical evidences. Here comes the importance of epistemology in educational research. The subject and object relationship, requires an adequate method of exploring 'object' in itself.
- Should carefully state the limits of the problem by excluding all such aspects and factors which will not be considered in the study. It should be mentioned that only language teachers who are teaching in govt. schools situated in rural areas of Jaipur district are included in research. Teachers of science, social science and commerce are excluded. The socio-economic status will be studied as a factor, not the teaching qualification or

professional training of teachers. The logical approach of delimiting problem will help researcher to concentrate on those significant factors which really affect the research problem.

- The terms used in the topic should be defined by specifying what they will mean in the investigation so that meaning should be within the accepted concept of the words and not beyond them. In connection with above problem delimitation of the population of primary and secondary teachers must be described as, primary and secondary teachers teaching in Govt. schools situated in rural area of Jaipur district. Again, for defining socio-economic status and creativity, a researcher has to develop comprehensive tools which can address most of the dimensions of socio-economic status and creativity. The terms cannot be defined arbitrarily by researcher because in order to ensure objectivity in the research one has to be very careful of this fact.

II. Objectivity: Objectivity is a must for a good educational research which makes a researcher aware of his personal views, opinion, belief and conventional thinking pattern that must not find any place to answer the research problem. Researcher's feeling about teaching community working in Govt. schools must not prejudice him to believe that language teachers are least creative than science teachers or private school teachers are more creative than Govt. school teachers. In other words, if a researcher is biased with some of pre-conceived notions without any rational ground than he cannot proceed to objective findings in research. This way, acquiring knowledge or gathering of data requires an epistemological approach that is consistent and appropriate to the purpose of research.

III. Reproducibility: a reproducible research procedure is one which an equally competent researcher could duplicate and obtain from it approximately the same results. It is only possible when the data are not subjective but objective in nature followed by empirically verifiable measurements and observations. If the procedures of research are vague and not stated clearly it will not ensure any consistency even with the same person himself. In light of the findings of aforesaid topic an equally competent researcher can study the creativity of science and social science teachers teaching in Govt. schools or private school teachers teaching in urban areas.

IV. Relevance: Nowadays, it is essential for an educational research to avoid the collection of unnecessary information which neither contributes significantly in collection of data nor does it help in researcher's criteria of action. Relevancy is a kind of necessary presupposition for acceptability and credibility of research. Irrelevant factors or information do not contribute to research.

V. Control: There are various variables in educational research which are truly within the control of researcher or can be dealt with the nature of researcher's investigation. If there are some variables which are beyond researcher's control they must be properly recorded. The very epistemological approach of research will suggest as to what to do with controlled and uncontrolled variables.

The aforesaid discussion may help us to arrive at considerable definition of 'research', at least for exploring logical and epistemological approaches inherent therein. The search for knowledge, in any field or discipline, through objective and systematic methods of finding is called research. This implies that research is a systematic, objective, reproducible and deliberate attempt which is made to answer meaningful questions pertaining to a field of study or about phenomenon or events in a given situation. The word research identifies a process which helps in seeking answers to certain questions through planned and systematic collection, analysis and interpretation of data. Logic and epistemology, both are inseparable and inherent characteristics of research be it educational or philosophical.

B) Logical and Epistemological Approaches to Qualitative Research in Education

Here we will focus on philosophical research which is generally conducted in education under the fundamental research. The purpose of this research in education is to contribute new knowledge in the form of new theory, facts and truth. For conducting fundamental research, it is important to select procedures, tools and techniques which are compatible with the nature of research. Therefore, the steps to be adopted in qualitative research of philosophical nature may differ from those of quantitative research, hence a researcher has to frame entire process of research in such a way that from the very beginning of research i.e. conceptual framework of problem, to the concluding part i.e. theory building, it is sequentially arranged.

I. What is Philosophical research?

Philosophy, for educationists, has been one of the integrated forms of fundamental knowledge inherent in almost all the disciplines of inquiry concerning human efforts towards raising basic questions related with that very discipline. It again helps in critically reviewing the process of questioning, knowing something 'as it is' or 'objectively' and finally makes one reflective and self-critical. Philosophy, as traditionally has been understood, is an encounter with the three fundamental questions of 'what is real', 'what is knowledge' and 'what one ought to do in order to live a good life'. These three questions are deeply related with traditional branches of philosophy i.e. metaphysics, epistemology and axiology. The philosophical inquiry and related questions have been mostly understood as a process of responding to either some of the metaphysical or epistemological queries or focusing on axiological concerns inherent in any of the discipline of knowledge. Beyond this very traditional one, the philosophers also intended towards defining philosophy as a continuous, critical and self-reflective process of thinking. One may consider philosophy as 'second order' discipline, which, on the one hand, tends towards questioning basic assumptions of any of the discipline and establishes conceptual relation between the disciplines on the other hand. What is history, what makes a writing historiography and what makes an event historical - are some philosophical questions grounded into rational study of history on the one hand and inherent in philosophy of history as 'second order', on the

other. How fruitful is the study of history of education of a particular nation in order to frame a prospective policy of education, is one of the concerns of philosophical research in education.

II. Characteristics of Philosophical Researches

- When one 'philosophically thinks' as to what philosophical research is, it leads him/her towards 'an intellectual inquiry' in the form of raising fundamental questions inherent in any discipline of knowledge like science, education, mathematics, law, history, economics etc. The fundamental questions of philosophy of education will be- what education is, how aims and objectives of education are determined by ontological and epistemological contentions, is education necessarily a social endeavour, what makes a man educated etc.

- Secondly, in order to call an activity as philosophical research it is essential that the problem (research question) must be conceived by researcher himself/herself; there must be a constant encounter with a problem of philosophical nature by the researcher. Any problem of philosophical nature must be realized by researcher as his/her own problem. If we consider education as a man making process, then research questions pertaining to this direction should be conceived by researcher itself.

- Thirdly, in order to do philosophical research, it is not necessary that a researcher should always come out with a piece of knowledge that has not been revealed earlier or the questions that have not been thought previously. The essential aspect is that it must reflect upon critically on some of the concepts or questions e.g. what is education, what is learning, what is knowledge, when is a piece of knowledge considered as 'objective' and 'subjective' etc. If a researcher is tending towards studying Gandhian philosophy of education, then it is not necessary for him to reveal those very things that have not yet been revealed earlier. But, he must critically reflect upon as to 'what' and 'why' Gandhi advocated in his scheme of education and responded to it accordingly.

- Fourthly, the research pertaining to philosophical nature may also lead to finding out consistency between two or more concepts e.g. if someone wants to study correlation between two basic concepts of 'education' and 'discipline' by considering education as the manifestation of divine perfection already in man, then the concept of discipline for him/her must not be understood 'as something external imposition on learners' rather it should be something 'internally inspired by learners'. Same is the case with 'education and persuasion of freedom' and 'education and persuasion of democratic values'.

- Philosophical research is also seen in historical researches, especially when new question is raised on those very ancient or old age thoughts and ideas presented by eminent schools of thought or thinkers which had made a landmark contribution in a particular era. One can do philosophical research on Vedic concept of education, Platonic notion of

education, Kantian educational views and Bertrand Russell's critical remarks on education under this category. Mere repeating age old ideas or beliefs is not the purpose of philosophical research nor does it advocate accepting the 'truth' as given. The nature of philosophical research is dynamic and self-critical, thus, it must develop an ability in researcher to relook the past. Furthermore, when emerging theories, ideas and concepts are implemented into real practice they need to be critically reviewed or relooked, for this very purpose one needs to think 'philosophically' in the name of philosophical research. For example, constructivism, a theory of knowing and learning, is nowadays being discussed among intellectuals across the globe and also seen as an alternative of behaviorism. If constructivist theory of knowing and learning is studied as a qualitative research, then such research must initiate a dialogue between constructivism and its counter position.

III. An Exemplary Exercise of Philosophical Research

Here we can discuss how philosophical research, with reference to qualitative research in education, may be done and what are the major steps involved therein. Let us select a topic of philosophical nature and develop it into a format to proceed towards pursuing philosophical research. This topic is based on concerns of educational philosophy and will be treated as proposed area of qualitative research. It is an exemplar for reference only and can be reorganized or modified in order to proceed towards qualitative research, especially in the philosophy of education.

III. I. Plato's Theory of Education: A Philosophical Inquiry

Steps of philosophical research and logico-epistemological approaches involved therein:

A) Theoretical Framework

This part consists of theoretical background of Plato's theory of education. Plato was a famous philosopher of his age; hence, it is necessary to study his philosophical perspective before looking critically into his theory of education. Again, a researcher must keep it in his mind that for Plato, education was not something isolated from philosophy nor was it independent of social concerns of the then society. The theoretical background should provide an introduction to the historical perspective in which Plato could think of proposing his own theory of education.

B) Rationale of the Study and Meaning Making

The history of Western philosophy has been significantly influenced by the ancient Greek philosophy. The philosophies of Socrates, Plato and Aristotle have laid the foundation of Western intellectual tradition. A considerable impact of these philosophers can also be seen in almost all the branches of knowledge i.e. science, literature, arts, law, political science, sociology etc. In order to explore early roots of Western education and its philosophical foundations, it is necessary to study those early writings of Greek thinkers which shaped, at least initially, the early notions of 'truth', 'knowledge', 'reality', 'virtue' and 'good' in the history of western

philosophy. These notions, in our view, not only seem as necessary prerequisites to define the ontological status of 'man' but also to propose any convincing, consistent and sustainable theory of education. The very process of meaning making can be ensured in the research, if the research is commenced with such basic presuppositions.

Plato has been one of the founders of Western schools of thoughts and his works help us to understand as to how a concept like 'education' has been conceived and emerged out in the tradition of Greeks. For him, the first characteristic of philosophical wisdom is that it can face the test of critical discussion. Secondly, philosophy, according to Plato, makes use of a peculiar method of doing 'dialectic', which proceeds one towards criticizing received opinions. Thirdly, philosophy is the highest form of inquiry, just because it alone involves no presuppositions. In platonic view philosophy is higher than science as the later only tells us 'how', whereas the former tells us 'why' things happen as they do. Rationality, wisdom, critical approach, higher order thinking, questioning are the fundamentals of philosophy according to Plato. If one studies these notions of past in the light of contemporary notion of education, it may help us understand the purpose and practice of education in more convincing way. This may be termed as rational way of doing philosophical research on the Platonic theory of education.

C) Research Question

A researcher needs to think of certain questions of philosophical nature in this regard. The questions should cover Plato's original contention on education as well as the then scenario of Greek education. The following questions may be proposed for the aforesaid topic:

I. What are the differences, in terms of objectives to be achieved through education, between Plato's scheme of education and education being imparted in the so called present democratic and liberal societies?

II. Is Plato's theory of education tilting towards indoctrination? If it is, then what made him propose such a theory?

III. What are the strong aspects of Platonic theory of education and which are the weakest ones?

IV. What ontological and epistemological contentions had Plato thought of and why did he do so?

V. Had Plato been born in present democratic society, what theory of education he would have proposed?

VI. Is education, necessarily, a means of fulfilling social objectives?

D) Review of Related Literature

Under this section of proposed research, a researcher must go through the original piece of works available across the world. Since, authentic English translation of Plato's writing is available; it is a must to consult that series along with the research papers/articles published in national and international journals. There are some steps, in general, to be followed by researcher while reviewing the literature:

- Encyclopedia of international standard should be consulted, especially when it is very much needed in order to understand as to how a concept has been emerged, for example, the concept, meaning and nature of 'education', its etymology and development in eastern and western intellectual traditions. In this regard a careful perusal of encyclopedia will be very helpful.
- Original writings, if available, must be explored in order to understand the authentic and original views of any thinker whom a researcher is studying.
- Contemporary thinkers and their writings should also be studied as it helps researcher to compare the research problem with that of counter positions, if any available.
- International and national Journals need to be studied in order to update oneself as regards what has already been done and what is being written about the research problem being studied.
- Reviewing available literature is one of the important steps in qualitative research without which 'quality' in real sense of spirit cannot be ensured. Therefore, reviewing does not merely refer to selecting those literatures which consistently support the conceptual stand of researcher but to explicating those ones which make him/her aware of the counter positions too.

E) Writing Philosophical Research

The very nature of philosophy itself is the determinant factor of writing philosophical research. A researcher needs to be very critical and self-reflective while writing philosophically. In my view, neither repeating age old beliefs nor the compiling of already written works represents the philosophical writing in real sense. There are some essential steps of writing qualitative research, especially of philosophical treatment of any problem of conceptual nature. We can summarize them as follows:

- The main purpose of philosophical writing is to represent the conceptual problem in the appropriate manner, especially the way it has been conceived of by researcher.
- Concepts or ideas should be treated in such a way that they address the questions raised therein or questions linked with the research problem.
- There should not be any conceptual gap left, while writing, between or within the paragraph as it breaks the continuity of a reader.
- Unnecessary repetition of words already used as well as questions raised earlier is one of the signs of unorganized writing; hence, it should not be done while writing a piece of philosophical research.
- Well organized and systematic presentation of research problem, along with the questions, is an essential characteristic of writing qualitative research.
- Writing qualitative research should neither be a collection of titles merely reporting the facts already known to readers nor should it be an effort of value-judgment.
- Writing should reflect the entire process by which a researcher has encountered the problem as well as the questions he/she is presently responding.

- Last, but not the least, philosophical writing should not be done with any pre-conceived notion or any prejudice mind-set.

Logical and Epistemological Approaches to Educational Research

As far as logical approach is concerned; it is an essential element of educational research whether it is a quantitative or a qualitative attempt. Without sequential arrangement of research steps, neither the consistency is ensured across the research work nor the findings of it may be considered logically. In the entire process of quantitative research from statement of problem to conclusion one has to take care of logical sequencing and the same is the case with qualitative one. Epistemological approaches will definitely vary from qualitative to quantitative methods of research in education. The availability of data, interaction with interviewee, preparation of tools, application of statistical methods etc. require a different epistemology whereas understanding a thinker, who is not available to researcher for direct interaction, in real sense along with his theoretical background needs a different epistemology. Data can be quantified and measured with the help of research tools and techniques but conceptual and theoretical dimensions such as Gandhi's 'all round development', Vivekananda's 'manifestation of perfection' and Aurobindo's 'divinity' are not quantifiable and hence cannot be measured.

Conclusion

It may be a concern of philosophers and educationists both to look into logical and epistemological approaches already in practice and proposed one to be adopted.

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