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Philosophical Review on the Basic & Action Research Methods-A Critical Analysis

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ABSTRACT

Research means searching for knowledge by utilizing appropriate scientific and systematic approach. It presumes the status of human voyage for the discovery by exploring ones inquisitive urge to gain knowledge over the unidentified aspects connected to life. Research aim to acquire new knowledge or expansion of existing information through some value additions. Varied forms of research methods are adopted to find appropriate solutions for diversified problems of the society. The decision on the application of Basic and Applied research can be better done on the scrutiny of nature of prevailing problem and its solutions. Knowledge domain would get stagnated unless new practical discoveries are conducted with the help of applied research. Even though all basic research will not lead to create new knowledge, it certainly helps to identify new application for conducting applied research on the existing problems by providing required tools and raw materials for the study intern deliver utilitarian benefits to the society. This study puts light on the implications of basic as well as applied research methodologies by reviewing into its evolution, features, steps, merits and demerits. It also tries to distinguish between basic research and applied research focusing upon its utility aspects.

Keywords: Research, Knowledge, Basic Research, Applied Research, Problems, Utilitarian Benefits.

1. INTRODUCTION :

Research is the art of scientific enquiry or investigation in the field of study. It undertakes careful investigation or inquiry for searching new facts in any branch of knowledge. The human ability of instinct for inquisitiveness has become the driving force to gain information on unknown facts. When human beings confront with unknown elements, their internal urge for inquisitiveness probe them to attain more and more understanding on the unknown elements. This inquisitiveness is the stepping stone for seeking knowledge. The employment of inquisitiveness to obtain knowledge on the unknown issues and methods can also be considered as research. According to Clifford Woody, research includes the task of defining problems, framing presumptions, collecting and analyzing data, making logical references and reaching conclusions. Research also includes

original contribution to the existing domain of knowledge through value addition for further advancement. It is the path to find truth with scientific study, observation, comparison and experiment. In brief a research is the search for knowledge by utilizing objective and systematic methods for finding solutions to the problem under study. The systematic approach used to generalize the existing fact and forming a new theory will also becomes research [1]. Basic research is also known to be the pure research which is conducted to study specific phenomena, process or activity. It is generally theoretical or in the form of abstract dealing with principles or fundamentals. In most cases, basic research facilitates in expanding knowledge. Applied research carries study on specific problems to derive solutions for social benefit. The applied research aims at social welfare and basic research contributes to the field of knowledge,

thereby nurture each other. Basic research provides assists in providing required information which may further encourage undertaking applied studies. Hence, both basic and applied research plays equal role in the field of research. In many circumstances, it is required to increase our scientific knowledge as only with the enriched knowledge one can begin to think on application of knowledge for deriving benefits. The Universities receiving public grants shall balance between basic and applied researches with definite vision, intuition, assumptions, autonomy and decisions, contributing each other with coexistence. Creating awareness about the importance of basic research in applied discoveries will definitely reduce the misconception that basic research is a useless activity carried by the academia [2]. Basic research will not seek practical ends but build knowledge to provide answers to important practical problems but specific answers to each problem can be achieved only through the applied research. Even though, basic research does not focus on the practical application, the long term neglect on this set of research will certainly stagnate the process of industrial development [3].

2. APPLIED/ACTION RESEARCH :

Applied or Action research aims for practical outcome and depicts new form of understanding. It presumes that any action without reflection and understanding is blind and any theory without action becomes meaningless. Theory guides the masses to engage in human emancipation and community development activities by reflecting their role in contemplation with spiritual purpose of his life. Since action research aims at conducting enquiry to find specific outcomes based on everyday experience and improve the living knowledge. Good action research emerges over the time in an evolutionary pattern along with the development of skills of enquiry among the individuals and community at large. Action research leads to new practical knowledge and generates new ability to create knowledge. According to Leotard (1979) conducting action research is a live process rooted in the life

experiences which is not programmatic to be defined in nut shell presuming the status of art [4].

(i) The diverse origin of Action Research: It is difficult to identify its coherent history. Many writers trace back the origin through the social experiments of Kurt Lewin in 1940s. The Socio-technical experiments began at the Tavistock Institute for application of practices of social democracy and organizational change [5]. Others viewed the origin along with the contemporary critiques of positivist science movement seeking new epistemologies of practice. Pynch and Castello similarly argues about the scope of indigenous traditions of grass roots postmodernism [6]. Traces of action research are found in the Marxist dictum with an ideology of changing the world rather understanding it. Through the theories of Gramsci and others and the educational work of Paulo Freire on the participatory research practices of those working for liberation of the oppressed and underprivileged in the world [7]. There were truly living movements in the world like Freire met the pioneering work of Marja Liisa Swantz & her colleagues in Tanzania, the movement for popular education expressed at the Highlander Centre and the Society for Participatory Research in Asia [8]. More recently developmental institutions, governments, NGOs and international bodies such as the World Bank started emphasizing Participative research in the form of Participative Rural Appraisal started to raise questions on people's participation in institutionalized power [9]. Some approaches to action research have remained absolutely secular as many enquires are about spiritual practices. The disciplines of mind expressed in the spiritual teachings of Buddha, Gurdjief and Tai Chi along with insight meditation have made important contribution in light of inquiry based on spirituality. Heron argues that these teachings and practices are often rooted within the authoritarian political structures where they seek liberation [10]. Action research is explored in theoretical ideologies such as pragmatic philosophies and critical thinking [11], Practice of Democracy [12], liberalism, humanistic and

transpersonal psychology, constructionist theories, system approach including more recent complexity theory [13]. Non adoption of single theoretical ideology it can be witnessed as the expression of postmodern sentiment or depletion of practical philosophy of renaissance proposed by Toulmin. The diversified source for action research is rooted in the problems of social development and organizational change within the practices of enquiry into everyday life engaging whole society with intensive practical concern. For instance preservation of local fisheries will increase the utility of the local resources. From a disciplinary perspective action research can be found in community development, business management, education, health, psychology and social sciences.

(ii) Features of Action Research: The suitability of action research for any study is determined on the following elements.

- a) To improve the specific practice.
- b) It aims to analyze specific situations and relevant contexts.
- c) It is based on action, evaluation and critical analysis of any practice.
- d) It is conducted based on the collected data
- e) It suggests improvement in relevant practice.
- f) It is carried in collaboration with number of individuals with a common goal.

(iii) Steps of Action Research: There are different steps involved in carrying out the action research such as

1. Baseline survey of the pre-action situation.
2. Feasibility study of the action programme.
3. Concurrent Evaluation of the programme.
4. Making necessary modifications and changes in the programme
5. Inculcating changes in the implementation based on the research findings.
6. Final evaluation of time bound programmes.

(iv) Merits of Participatory Action Research: The following are the advantages for the participants

1. Research participants can enrich their knowledge and ideas
2. It facilitates valid analysis over social reality.

3. It promotes achieving most relevant solutions.
4. Both researcher & participants benefits from the research process.
5. The researchers attain greater sensitivity and self-awareness on the problem.
6. The participants of the study gain trust and self-confidence to find resources which could improve their living condition.
7. Positive network is developed between the research team, participants and people of the community.
8. Consideration for Humanistic approach is oriented by the involvement of general public to solve social problems.

(v) Demerits of Participatory Action

Research: The action research are not free from demerits, the key problems of this method is listed below.

1. This type of research is considered to be time consuming as it requires the participation of the people in the research activities.
2. Peoples Participation is presumed to be difficult and managing them puts additional burden on the research team.
3. In case of any back outs from the research team in the course of research process, the new team selected to continue the task shall have to repeat the entire task from the beginning.
4. Scope for using power for the personal gains of the research team.
5. Politicians involving in the research process may relay on the traditional techniques rather adopting the advanced techniques.
6. Most chances of abuse of discretion by the research team due to over confidence of the research participants
7. Lack in check and balance in the activities of the research team is highly possible.
8. The experience, educational qualifications, socioeconomic status, knowledge, abilities and skills of the participants will influence over the outcome derived out of the study.

3. FUNDAMENTAL/ BASIC/ PURE RESEARCH :

In the first instance, the word 'basic research'

appears to be confusing because of unclear definitions and usage of resembling words like 'Pure Science', 'Fundamental Research', 'Curiosity driven Research' and 'Blue Skies Research'.

(i) Origin and Evolution of Basic Research:

The consideration on the pursuit of knowledge 'for its own sake' traces back to the Ancient Greeks, who believe on such pursuit on matters connected to social status. The scientific revolution motivated Greeks to retain the superiority of 'pure' knowledge. In this light, Universities established in Europe and United States incorporated the idea of pure knowledge which intern safeguarded the current notion of basic research [14]. The influence of the Second World War and Cold War has established the institutional base and ideological commitments connected to the basic research. During Second World War, the collective combination of military forces and academics lead for the flow of public funding for science. The funding was extremely generous because of government interventions, autonomous pursuit for basic research and influence of sponsors [15]. The US Presidential Science Advisor, Vannevar Bush (1945) encouraged the idea of generously funded self governed scientific establishments. He emphasized on the inevitable benefits of basic research tried to legitimate the 'linear model' where inputs of basic research would eventually feed into technological innovations. He argues that any attempt made to constraint the creativity of basic research will definitely result in self defeating and the science will become most fertile without the direct control by the government [16]. During the period of Cold War, economists sought justification to seek public fund for basic research when private sector started reducing investment in such research activities on the reason of market failures. The attempt to measure the investment on basic research during 1960s directed the government to consider basic research as an integral part within the Central category of the Science Policy. In 1960s, The US National Science Foundation initiated in classification of research which become the important source for the Organization for Economic Cooperation &

Development (OECD) to formulate its own definition on basic research and codify under Frascati Manual in 1963 leading for the sustainability of the basic research concepts over the subsequent decades [17]. The moment, it became measurable, different dimensions were identified and international comparisons was carried on the basic research methodologies. By the end of 1960s, the potentials of science was challenged on the ground that scientific and technological developments are affecting the environment and society at large [18]. There was a reduction of government expenditure on science all over the world between late 1960s to the beginning of 1970s. With the end of Cold War, during 1980s countries started changing its government attitude towards funding basic research by way of focusing on promotion of technology and economic competitiveness instead of providing military incentives for research. Simultaneously, the academic studies on innovations started to question the simple linear model of relationship existing between science and technology. This trend continues even today, in spite of emergence of new issues in the modern world. Now, basic research is used for production of goods and development of technology in concurrence with the society [19]. During 1990s, most countries could not maintain the funding for science in pace with the growing cost of research resulting in the steady state of research exploration. Study on the research funding pattern for basic research since 1950s projected a shift in the idea of supporting scientists rather than considering autonomous truth seekers for the social and economic benefit of the country. There has been a parallel decline in the autonomy of the scientific investigator due to his increased accountability with respect to the evil consequences of such enquiry on the environment and society at large.

(ii) Features of Basic Research: The following are the key features related to basic research which predominantly considered under pure research works.

- This set of studies increase knowledge upon the fundamental principles involved with the study.

- The result shall contribute to the domain of knowledge.
- These studies are purely considered to be theoretical in nature.
- It creates a new source of scientific idea or new application on the worldly affairs.
- These studies will lay foundation for further scientific enquires.
- These set of research is presumed to be academic by nature hence mainly carried out through the research departments of Universities.
- In spite of using exploratory, descriptive and explanatory methodologies most studies prefer explanatory as the more appropriate one.
- It tries to analyze or describe constructive theories based on the procedural or result based aspects.
- This method of study build concrete scientific knowledge base or gives elaborative understanding over certain phenomena
- It will not provide solutions to the existing problem but encourage applied research to identify appropriate solutions through definite exploratory study.
- In most of the cases, outcome of these studies will not have much potential in terms of deriving direct economic returns.
- It can generate new ideas, principles and theories which intern can be used to enrich knowledge on a particular concept.
- The results cannot have any immediate practical utility in many cases.
- It provides elaborative explanations on any particular thing or phenomena.
- These set of studies are not intending to create or invest something new but to review the existing facts or add anything to the existing domain.

4. APPLIED RESEARCH VS. FUNDAMENTAL RESEARCH :

The applied and fundamental research is different from each other in terms of its usage and utility. The applied research aims to find appropriate solutions on specific problems enabling for a new change. Hence forth, the outcome of applied research has immediate practical implication in the society. Whereas, fundamental or pure studies aims to explore certain issues and elements to find out the newer dimensions connected to the issue under study. Usually, basic or pure research do not have direct practical implications as it is driven through curiosity and desire for expanding knowledge in the specific research area. These research mainly aim to answer the question related to why, what or how and tend to contribute the pool of knowledge to the research area. It is equally relevant to know that, fundamental studies do not pursue immediate commercial objective but these studies may create a way for innovations and finding solutions for practical problems. The differences existing between these two types of studies can be summarized in the following heads.

(a) Differences in Purpose: Purpose of applied studies is to find solutions for the specific problem while, the purpose of fundamental studies is derive new knowledge or expansion of the existing knowledge through value addition without seeking practical implementation of the result.

(b) Differences in Context: The objectives for the applied study will be set as per the requirements of clients and sponsors for the research with an aim of finding a solution to the identified problem. Fundamental studies intern are self initiated to expand the level of knowledge in the field of study.

(c) Differences in Methods: Research validity is the prime concern which required to be addressed in all types of studies. Applied studies are usually concerned with external validity and ethical concerns whereas fundamental research focus more on the internal validity in conducting the best review of available literature on the specified subject. The important identified differences are represented in the table-1[20].

Table-1: Distinction between Applied Research & Fundamental Research

Applied Research	Fundamental/Basic/Pure Research
It tries to eliminate the theory by adding to the basic discipline	Aims to identify solution to the problem by adding to the field of discipline
Problems are analyzed from the point of one discipline	Solution is sought from several disciplines
Generalization is Preferred	Individualization is preferred
Presumption approach is used	It suggest the ways for change
Assumes that other variables do not change	Presumes that other variables will constantly change.
Research findings are compiled in the technical knowledge of the discipline	Research findings are presented in the common language.

5. ANALYSIS AND DISCUSSION :

Traditionally, research has been classified into pure research and applied research. Pure research is employed to propound theories as the core business of institutions engaging in the scientific research especially Universities of Science and Technology for improving fundamental knowledge about the worldly affairs with an aim of proving or disproving the existing theory. New scientific inventions and ideas may emerge from the knowledge generated from certain pure research works. Applied research is used to test the theories discovered and proposed through the pure research. It aims to utilize the results of pure research to find appropriate solutions for the specific problem. For example, pure research may propound a new theory or discover a new law whereas applied research can test the propounded theory or law to address the problems by suggesting appropriate solutions. Hence, the applied research is carried out by the subject experts under the field of study. The distinction between the pure and applied research is not absolute. Action research always will be carried to find solutions to the real life problems of the society which requires action or pro decisions hence becomes problem oriented and action directed. Action research also conducts evaluation study, in which concurrent evaluation of action is undertaken to derive solutions for a specific problem in order to improve the existing situation. With the quest for development, advancement, excellence and promotion of welfare, government, institutions

and voluntary agencies perform action research for achieving certain set objectives. Fundamental research is duly concerned with generalizations for formulating theories with an aim of ‘gathering knowledge for the knowledge sake’. Research works connected to study the human behavior can also be a subject matter for the fundamental research. For example, Einstein’s theory of relativity, Newton’s law of gravity and Galileo’s contribution etc. However, research aimed to conclude any concrete social or business problem are the examples for applied research. Evaluation of matters connected to social, economic and political trends affecting institutions, market and human life falls within the criteria of applied research. It can be concluded that applied research discover solution for practical problems and basic research provides information base adding to the body of scientific knowledge. In terms of its utility, basic research may be a game of chance, as like for water many dry holes are drilled but in case of applied research the eventual output will be more than the cost as it wholly depends on the statistical methodology. Hence basic research can be a good investment if it is planned wisely since the proceeds of the research will pay more than the total outlay. The essential difference between basic and applied research can be noted within the freedom permitted to the scientist in conducting particular research. In applied work problem is defined and scientist seeks best solution within the available condition whereas, in basic research he is confines himself to his own

imagination and creativity. His findings forms the part of steady advancement in fundamental science but always gives a chance for discovery with great significance under the applied research.

6. CONCLUSION :

Most of the Government Initiatives in the Indian Economy are based on Research. 'Frascati Manual' is considered to be the internationally recognized methodology to use Research & Development Statistics helping statisticians and policy makers of the world. The updated edition provides improved guidelines even on the recent changes adding new stock of knowledge in this regard [21]. For instance, government budget is decided on the basis of people's needs and availability of revenue to meet such needs. There is a need to equate the cost of public needs with the probable revenues which is possible only through the assistance of research. Research can identify alternative policies and examine its utilities. Even though decision making is not a part of research but it helps the policy makers to take proper decisions. Government shall chalk out various programmes connected to all facets of economic operations in the country. Now government maintains a large number of research experts in taking up applied researches. A nation depending on other for new basic scientific knowledge will be slow in its industrial progress and weak in its competitive position in the world trade regardless of its mechanical skill. Research facilitates economic and social welfare through the process of compilation of facts, diagnosing problems, depicting the driving forces, forecasting the future and finding appropriate solution deriving maximum utility to the society.

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