

PHILOSOPHY OF RESEARCH

of

Eugene L. Bryan
Associate Professor
Humboldt State College
Arcata, California

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Research in a broad sense is one of the most important activities possible to man. Every human in a civilized society continually benefits both directly and indirectly from the results of research. In addition, almost everyone spends a significant portion of his lifetime engaged in activities which can be classified as research. However, individuals seldom take time to evaluate the abstract significance of this important activity; and as a result, its function beyond solving the problem at hand is not often clearly understood. The purpose of this paper is to examine the nature of research from a philosophical base to gain an understanding of its role as it pertains to individuals, to companies, and to human existence in general.

Definitions

First, the term "philosophy of research" should be clarified. Philosophy in the broadest sense pertains to the study of man in relation to the universe and to the pursuit of knowledge concerning that relationship. Research can be defined as those activities aimed at the discovery and application of facts or toward the revision of previously accepted theories in light of newly discovered facts. The philosophy of research then can be defined for this discussion as the underlying theory which places research activities in perspective with man's existence in the universe. In simpler terms, the subject relates to the reasons for and the significance of research in man's life.

The Traditional Approach

Most often, research is undertaken as a means to an end, as a tool to arrive at a solution to a particular problem or question, and this is done without explicit awareness of the "tool" involved or of important factors related to the research methods employed. This approach is common

among professional researchers as well as for individuals merely interested in gaining and/or using new facts for attaining specific goals. This is a "trusting" approach in that it assumes that one's actions are justified in all respects although no specific effort is made to verify the assumption.

The process of research represents action and action of any kind requires choice--the choice of values or goals at which the action is directed and the choice of the means of achieving these values. For rational men, such choices involve a conscious effort to distinguish between "right" and "wrong" so their action can be based on the former. Actions aimed at rational goals and implemented through proper means are "right"--all other are "wrong" to the extent they deviate from these conditions. Choices made without full awareness of all facets and aspects involved cannot be consistently right. Research of all types involves a quest for knowledge. One must know why he seeks the knowledge, how the knowledge is best gained, how it will be used, and what exchange of values is involved. To the extent one or more of these factors are not considered, the researcher subjects himself to the prevalent possibility of irrational action and corresponding consequences.

Depending on the degree of talent of an individual and the extent to which he depends on rational judgment, the traditional approach to research can be quite effective and may not often result in serious mistakes. However, it is desirable for everyone to maintain an awareness of abstract and indirectly associated factors which influence his work. Only in this way can he have consistent control of his own welfare.

Examination of Philosophy

The field of philosophy can be sub-divided into five subject areas: metaphysics, epistemology, ethics, politics, and esthetics. The first three areas are especially pertinent in regard to the present discussion and therefore will be considered in some detail. Metaphysics pertains to the nature of reality and existence. Epistemology deals with the nature of knowledge and the means by which it is acquired. Ethics provides a code of values which serves as the basis for choices and actions. Ethics is closely tied to the first two fields of philosophy--it involves the use of knowledge gained concerning reality as a guide in determining proper action.

Everyone holds a philosophy with which he faces life, whether it is identified as such or not. That is, everyone holds a view of existence, a theory of what constitutes valid knowledge and valid means of obtaining knowledge, and a code of values upon which his actions are based. Aristotle held a philosophy which considered reality to be objective, and considered valid knowledge to be that which is acquired by the application of reason to information concerning reality as provided by man's senses. He held that reality exists irrespective of how it is perceived by man. Plato held an opposite view. To him, reality was subjective and gained significance only in the minds of men. He believed that a different reality existed for each individual and that nothing could be absolute--reality depended on who perceived

it. Today, most people hold philosophies which fall somewhere between those of Aristotle and Plato.

It should be obvious that science and technology depend on an objective reality and as such they confirm Aristotle's view of existence. It would be meaningless for a scientist to seek facts and to discover laws and for a technologist to use the resulting information if such facts and laws are not absolute but change each time they are considered by a different individual. Inasmuch as research is aimed at the task of acquiring knowledge, it too must be based on an objective view of reality. Otherwise, the knowledge could be of little value.

Few scientists, technologists, or researchers of any type would deny the existence of an objective reality or would doubt that reason, not faith, is the proper road to knowledge. Unfortunately, these same individuals commonly fail to carry their objective philosophy into the realm of ethics. They hold that a code of values must be subjective and dependent on the individual or individuals involved. What they fail to realize is that, although individuals will seek and maintain different values, all of their values and goals can and should be established through recognition of objective reality. One can work toward irrational goals, but this could never be considered advisable or advantageous. The only way one can avoid such action is to bring logic and reason into the field of ethics.

Inasmuch as all actions, including those related to research, are directed toward values or goals which are considered to be of value, the establishment of the initial goal becomes a crucial first step which will determine in advance whether or not the action can be worthwhile. For the researcher, a rational approach to an irrational goal can have very little meaning.

Value of Research

It was stated in the beginning that research is one of the most important activities possible to man. This fact stems from man's basic nature and from his requirements for survival. Man lives in a universe where the requirements for his continuing existence are not fulfilled automatically, and where his only means for survival is his mind. Prehistoric man found his skin was not thick enough to keep him warm and his fingernails were not adequate weapons to obtain his meat. Only through the reasoning power of his mind applied to the knowledge he was able to gain concerning his environment was he able to shelter himself and obtain his food. The process he went through to gain that knowledge and to apply it in meeting his basic needs represented research in its crudest and earliest form.

Since man has learned to record and pass on information from generation to generation, an ever increasing store of knowledge gives man more and more control over his environment and correspondingly adds more meaning and fulfillment to his life. However, his means of survival and fulfillment beyond his basic requirements remains the same--he must continue to use his mind. All that which man has produced on this Earth has resulted from the application of individual minds

to acquire knowledge concerning reality and to apply that knowledge to achieve specific goals and values. Herein lies the significance and the importance of research. Research is the term which describes this process of gaining and applying knowledge.

Research Goals and the Exchange of Values

All rational action will involve a proper exchange of values. Action described as research is not an exception. Here, time and money are usually exchanged for something of greater value to the individuals making the exchange--namely, knowledge which will be useful in attaining specific goals. As in any action, much can be learned about the advisability of a particular research project by examining the exchange of values involved.

For "private" research conducted by an individual for his own information, such an examination can be quite straight forward. He must ask himself whether or not the contemplated results of his work are worth more to him than the time, energy, and material he must spend in working toward his goal. He must also determine if the goal has sufficient value to justify the risk involved; i.e., the risk of not achieving that which he seeks.

When an individual does research for a company or some other sponsor, the exchange of values becomes somewhat more complex. If he is a rational man, he will undertake an assignment only if he will profit from the experience. Here, the primary exchange for the individual--namely, his time and mental efforts for a paycheck--is incidental to the actual goal of the research. However, if he has chosen his field of work properly, he will also gain direct value from the results of his research in that he will find out things he really wants to know. As far as a professional researcher is concerned, this will be the most significant "fringe" benefit possible. Companies and sponsors will strive to employ people who will gain personal value from the goals of their projects, because under such conditions the researcher will be directly as well as indirectly motivated toward the desired end. A man's efficiency and quality of work will reflect such motivation.

For a company, the exchange of values is similar to that described for the "private" research of an individual. Goals such as new products, improved products, more efficient and less costly processes, etc., are deemed valuable and research programs involving the expenditure of other values are established. As with the individual, the company must see to it that the exchange of values is worthwhile and that the element of risk is properly considered. The primary difference between company and private research is that the responsibility for the judgment of values usually is held by a committee instead of by an individual. In addition, the so-called "standard of good" becomes the company rather than the individual. However, inasmuch as the value judgments of a committee reflects those of its members, that which is good for the company will not and should not contradict that which is good for its individual employees and stockholders.

Conclusions

Research is the only sure road to improvement and advancement, and its potential value to individuals, to companies, and to mankind in general is unlimited. However, it must be undertaken in full awareness of all direct and indirect factors of importance if maximum value is to be obtained and if all goals are to remain fully rational. One must strive to maintain perspective by always knowing where it is he wants to go (and why), what path is best, and what the cost will be. It is in this regard that an understanding of the philosophy of research can be very helpful.