MARKETING SCIENCE: ISSUES CONCERNING THE SCIENTIFIC METHOD AND THE PHILOSOPHY OF SCIENCE

A. Paul First, Appalachian State University, Boone, NC

ABSTRACT

There is a growing realization by marketing academicians that interest in the scientific method has mostly been mechanical. This has increased efforts within the discipline to improve measurement and construction of theories and concepts to achieve greater explanatory power. This paper argues, however, that threats to scientifi city are not only related to scientific methodology but also to metatheoretical and philosophical approaches to definition of concepts and building of theories and standards of political discussion using examples from the social sciences and marketing, and arguments are made for a scientific metatheoretical orientation.

INTRODUCTION

One of the most positive recent developments in marketing, if there is concern for the future of marketing as a socially relevant knowledge system, is the growth of interest in theory building and the scientific method. Thanks to this development, marketing is likely to produce methodologically sound, but also conceptually well developed and tested theoretical structures. What has led to a growing interest in these issues has been the realization that marketing academicians' concern in scientific methodology has been purely mechanical rather than theoretical and/or philosophical (Jacoby 1978; Bagozzi 1979; Anderson 1983). Without cognizance of the metatheoretical issues, however, the validity of accumulated knowledge is in question due to incorrect construction of concepts, and therefore, their measurement (Bagozzi and Fornell 1982). Furthermore, concepts may be invalid not only because of the methodological errors in their development, but also due to philosophical/theoretical errors and weaknesses in their construction.

The dominating scientific orientations, positivism and falsificationism, have been criticized in the social sciences by radical and Marxist scientists for a long time. Such criticism was not effective due to the incompatibility of the basic premises these scientists and the scientists in the dominant social science schools in the West held dear in their respective paradigms. However, certain recent developments in the social problems, politics, and the human condition in the world, and the inability of the social scientists to either discover or help take action regarding these problems, has enabled some of these criticisms to reach the dominant social science literature and milieu in somewhat restated terminology. A series of conferences, seminars, and publications dealing with the poverty of the dominant scientific methods and philosophy of science issues attest to this development. Many well known philosophers and methodologists from the dominant social and natural sciences schools have participated in these series, and radical criticisms of the dominant scientific methods have been prominent.

With few exceptions (Feyerabend 1978) the criticisms and concerns regarding scientifi city in the social sciences have concentrated on the scientific method or the methodological issues, rather than on the metatheoretical or philosophical problems facing the sciences today. This trend is reflected in the very recent and few discussions within the marketing discipline (Oholokia and Arndt 1984; Bagozzi 1979 and 1984; Anderson 1983). The purpose of this paper is to present some of the metatheoretical issues related to scientifi city in the social sciences, in general, and in marketing, in particular.

THE PRESENT STATUS OF THE "SCIENTIFIC METHOD"

A brief account of the development of thought regarding the "scientific method" is given in Anderson (1983). After a time of deductive thinking, inductive reasoning became dominant in the sciences, mostly due to the successes of Brahe, Kepler, Galileo, and the Newtonians. As a result, positivism and logical empiricism schools gained dominance in a world where technology, that is, putting "scientific" findings into practice to increase efficiency of human endeavor, was taking over as the driving force of human society. There was, of course, a great deal of concern between technology and positivism as the scientific method: Positivism was a practical technology of developing knowledge. As long as this technique (methodologies of measuring variables and relations among variables) produced results practically usable, it was considered productive.

Major contributions to recent developments in the scientific method by Einsteinian physics and quantum mechanics were (i) the introduction of the possibility that realities could exist outside of immediate human experience (for example, time as a relative dimension), and therefore, direct measurement of observables, and (ii) the principle of uncertainty (that is, primarily, we intervene and change a state when we measure it) (Hofstadter 1981). In the meantime, there was some philosophical criticism of the inductive method in terms of its lack of universality. To answer this second point, Popper (1961) developed the method of falsificationism, one where empirical measurements did not form the basis of knowledge, but were only tests of theories developed. These theories were not only products of individual empirical findings, but reflected deductive thinking based on life experiences and earlier accumulation of knowledge, theoretical or empirical. Thus, Popper's proposal was an integration of the earlier two schools of approach to science: deduction (theoretical thinking and development) and induction (empirical measurement).

While in the scientific community and the philosophy of science literature the current status of the falsificationist method is in question, it has in general greater acceptance and respectability than the positivist or logical empiricist approaches. Despite this, the logical empiricist method is in greater use in the social sciences and receives greater acceptance in the journals for publication. This is especially true in the disciplines with more practical emphasis, such as social psychology, psychology, and the management disciplines. There seem to be several reasons for this continuing dominance of a method that has lost its usefulness from a philosophy of science perspective. One reason is its ease in execution. What it requires is measurement of two or a few variables under a research design that will enable valid and reliable measurement. While this design enables measurement of observables accurately, the fact that these observables are taken on their face value makes the arguments for the measurements and research easier, and the probably theoretical controversy is eliminated since a theoretical...
The concept is catchy from a democratic perspective also. It gives each approach and theory an equal chance of being heard as long as some structure of selection is not present. The inclusion or exclusion of certain ideas. However, this is very difficult in any "problem-solving" society. Solution of a pressing problem will require some consensus for standards of success and failure. Therefore, the meta-theoretical scientific problem is not one of eliminating standards, but one of how standards are developed and set in society, in general, and among scientists, in particular, as part of that society.

STANDARDS AND DEFINITIONS OF CONCEPTS

The question of standards concerns both the methodological and metatheoretical issues confronting the scientific method. The accepted and respected scientific method itself is a standard. If the research or study made does not meet this standard, that is, if the methodology considered as scientific is not implemented, and implemented correctly, the results of research will not be accepted. Standards are not respected in the scientific establishment. However, standards are social/historical constructs, they are heavily dependent upon specific life experiences, and therefore, they represent the values and interests of groups that participated in their development. Theoretical groups may favor the standard of science used because they are more effective in the development of the standards used. This has been recognized and criticized in some extent in education and women's studies literature (Kimich 1982; Hochlin 1973).

Similar conclusions have been achieved in the use of IQ tests. It has been realized that IQ tests prepared by those who belong to a certain culture favor others who belong to the same culture; that is, they score better, indicating higher intelligence. Here it is not only the measurement that is biased, in the sense scientific method itself is a standard. If the research or study made does not meet this standard, that is, if the methodology considered as scientific is not implemented, and implemented correctly, the results of research will not be accepted. Standards are not respected in the scientific establishment. However, standards are social/historical constructs, they are heavily dependent upon specific life experiences, and therefore, they represent the values and interests of groups that participated in their development. Theoretical groups may favor the standard of science used because they are more effective in the development of the standards used. This has been recognized and criticized in some extent in education and women's studies literature (Kimich 1982; Hochlin 1973).

Similar conclusions have been achieved in the use of IQ tests. It has been realized that IQ tests prepared by those who belong to a certain culture favor others who belong to the same culture; that is, they score better, indicating higher intelligence. Here it is not only the measurement that is biased, in the sense scientific method itself is a standard. If the research or study made does not meet this standard, that is, if the methodology considered as scientific is not implemented, and implemented correctly, the results of research will not be accepted. Standards are not respected in the scientific establishment. However, standards are social/historical constructs, they are heavily dependent upon specific life experiences, and therefore, they represent the values and interests of groups that participated in their development. Theoretical groups may favor the standard of science used because they are more effective in the development of the standards used. This has been recognized and criticized in some extent in education and women's studies literature (Kimich 1982; Hochlin 1973).

The difficulty of getting acceptance in journals when a widely accepted theoretical approach is questioned in research is portrayed in Mahoney (1977).

"Feyerebrand does clarify in a later work (1982) that he proposes the anarchistic approach as a temporary medicine."
since they are consequences of deeply rooted premises and assumptions in society.

One example of this tendency is the leadership studies where strangers from different groups in society are brought together randomly and asked to perform a task. In these studies, a leader seems to emerge leading to the conclusion that there is always a naturally emergent leader figure in people. Of course, randomizing the process whereby these people are selected for the experiment does not remove the fact that these people were all socialized and have learned within a society with defined structures of hierarchy. Thus, that they act out what they have socially been taught is no coincidence. Therefore, from a scientific perspective, the experiment contributes nothing to knowledge other than to the extent that human beings are social learners. Any other interpretation of the results from the experiment is really not universal, in that, it cannot be considered representative of other social formations or other historical periods. It definitely cannot be given the interpretation it unfortunately, is usually given, that this is "human nature."

Using standards and definitions of concepts rooted in social/historical human experience is, thus, likely to lead to historical bias. The bias is historical since the facts and relations measured may accurately represent the current historical period. But when taken as historical history, past and future, is considered, each measurement is biased toward the dominating structures of the time and context within which it was taken. From this perspective, science is the dominating structure of the historical process, and the explanation of facts/truths measured at each historical period within the historical flow; it is not a compilation of facts/truths and relationships bound by historical periods. To achieve this scientific end, the scientist must approach each measurement realizing that our concepts can be historically and contextually bound, trying to understand the emergence, transformation, and function of these concepts within history. Such an approach may eliminate to the extent the historical bias in our theoretical constructs because recognizing the historical limitations of our conceptualizations and measurements is the first step toward freeing science from standards and research that reinforce the historical bias in generalizations on the basis of temporal and contextual facts. The setting of standards, from this point of view requires further consideration. Since standards emerge as consequences of social/historical experience, any standard developed with differential biases of a certain group(s) in society will carry the biases of their specific view of history. In this respect, even an historical perspective of the kind mentioned above may be insufficient to achieve scientificity. In setting standards, the social process and structures involved, and the scientific community in particular, must enable equal participation by all social elements. Otherwise the standards will remain ideologically biased.

**IDEAL METHODS AND TAUTOLOGICAL DEFINITIONS**

In eliminating the threats to validity in measurement of causal relationships, the experimental method is considered to be the ideal method (Campbell and Stanley 1963). The assumptions for the success of such a method, however, are heavily rooted in a certain social structure which enables social control and manipulation of human subjects by the researcher. In a society where complete dissemination of information rather than selective guarding of it has become the norm, and where control and manipulation of human subjects are, therefore, actually and politically not feasible, however, the experimental method will not be applicable for social scientific research. Thus, along with the concepts and abstractions that are rigidly defined and contextualized, scientific methods considered ideal may also be so bound. Therefore, the scientific orientation must transcend methodology.

The need for a scientific orientation that transcends methodological concerns is further emphasized by the tautological definitions encountered in the social sciences, closely related to the historical biases in definitions. While the unscientific nature of tautological definitions are well recognized in the sciences, the tendency to develop such theoretical concepts continues, nevertheless. An example of such a concept in the marketing literature is the recently established core concept in marketing: exchange (Kotler 1972; Bagoszi 1975). The human experience in the marketplace, and the growing dominance of this system in contemporary Western societies, therefore, in the day-to-day practice of these societies, have influenced the perception that all social interactions involve exchange (Homans 1961). This perception and conceptualization is further reinforced by the premise that "human nature" is selfish. However, in defining the concept in this all-encompassing manner it has been caused to be tautological (Robson 1968). Here, the human experience in the marketplace is extended to all areas, and in every social behavior, post-facto, an exchange is sought. This is similar to the Skinnerian operant conditioning (Chomsky 1973) in that as long as a certain behavior is repeated or discontinued, the presence of a positive or negative reinforcement is post-facto proven.

The premise that "human nature" is selfish is further based upon a tautological definition of selfishness. For example, when the kamikaze are called selfish with the reasons that they were seeking an honorable death or afterlife, that they wanted their own kind to survive and be safe, etc., the concept of selfishness leaves no space for any action or behavior to be defined as altruistic, or as something other than selfish.

**CONCLUDING REMARKS**

This paper has endeavored to point out the metaphysical and/or philosophical threats to scientific knowledge which emerge above and beyond the issues concerning the scientific method. The message is that while scientific understanding will be furthered by the methodological improvements in the way concepts are measured and constructed, the problems of (i) ideological definitions bound by temporal and contextual experiences and knowledge, (ii) standards set on the basis of such biased perceptions, (iii) methodologies assuming temporal social structures, and (iv) tautological definitions biased by limited experiences which make these definitions so obvious, thereby, all encompassing, cannot be overcome by scientific methods but only by a scientific meta-theoretical orientation. This orientation needs to be historical, in that, it must not generalize from facts and truths collected at a certain point in history, but must try to understand these collected facts within the context of history. There are some requirements for the achievement of such an orientation: (i) grand level or macro theories or philosophies must be developed and compete to understand and explain the historical process involved in the formation and transformation of social constructs (concepts included) and standards, and, (ii) present conceptualizations must be developed with linkages to such theories of the historical process, considering their present definitions as a part of their history, (iii) studies must not be limited within disciplinary boundaries but must break these boundaries when and if a holistic understanding requires involvement in cross-disciplinary variables, and (iv) a real understanding of phenomena and historically valid definitions of concepts must be primary over the preciousness of the measurement of a few empirical operationalizations (Pirat 1964).

Furthermore, this orientation must enable, in its definition of theoretical concepts and standards, the participation of different social/historical experiences. We have been alerted by the growth of women's and minorities' feelings of being left out of the discussion.
studies to the fact that "scientific" knowledge has been the basis for the exclusion of certain social groups from social choices in society. As scientists, we must not let further exclusion of certain realities, which can help society to improve the human condition, by limiting ourselves within boundaries built by our own social experiences.

REFERENCES


Lakatos, Imre and Alan Musgrave, eds. (1968), Problems in the Philosophy of Science, Amsterdam: North Holland Publishing Company.


Mahoney, Michael J. (1977), "Publication Prejudices: An Experimental Study of Confirmatory Bias in the Peer Review System," Cognitive Therapy and Research, 1, 161-175.


