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RESEARCH AND EVALUATION ON HEALTH CARE TEAMS:
HOW TO SHOOT AT A MOVING TARGET

PART I

SOME CONCEPTUAL AND METHODOLOGICAL ISSUES
IN TEAM RESEARCH

DeWitt C. Baldwin, Jr., MD

Although multidisciplinary specialty teams have achieved considerable acceptance and success in fields such as surgery, rehabilitation, and mental health, the use of interdisciplinary teams in the field of primary care is still relatively new. Indeed, much of the interest generated in this approach has developed only in the last decade, although pioneering efforts have existed for some thirty years (Kindig, 1975).

Innovations in health care need to be carefully evaluated before they can become fully accepted as part of regular practice. At the same time, such research poses a number of unique problems (Thornton, Baldwin, Dodson, & McIver, 1980a). First, most innovative projects have as their primary aim the demonstration of a particular method or approach, and therefore the energy and resources are devoted to this end. In addition, since funding generally is limited, evaluation and research efforts often receive a low priority. Second, persons who tend to become engaged in such pioneering projects tend to be visionaries or missionaries and frequently lack the theoretical knowledge and methodological skills of dedicated researchers. Third, such persons often react defensively to the skepticism and demands of their environments. This tends to set up a "we-they" mentality which precludes objective internal evaluation. Fourth, innovative projects are frequently undertaken before appropriate hypotheses have been posed and thus are often at the stage of attempting to define the questions rather than answer them. Fifth, research and evaluation in such innovative areas often depends on who wants what answers to what questions, in what form, and within what time period. In our modern "hurry up" world, projects frequently are under pressure from funding agencies and policy-makers to prove their social value or to establish their cost effectiveness. As a result, rather than measuring what should be measured, researchers often resort to measuring what can be measured.

Finally, innovative projects are usually in a phase of rapid evolution and growth, and the system seldom holds still long enough to be satisfactorily measured. An appropriate analogy might be one of trying to measure traffic patterns on a Los Angeles freeway. As with teams, cars (read team members) get on and off for different reasons, at different times, at different places, for different destinations, and with different speeds and sizes (read power and prestige). It is not surprising, then, that those of us involved in research and evaluation of teams frequently feel we are "shooting at a moving target."

The study of health care teams is essentially the study of human behavior in naturalistic settings. It tends to be applied research of the kind generally conducted by anthropologists, and, as such, it raises a number of conceptual and methodological issues. First of all, it does not easily fit into the traditional, linear-deterministic, closed system, cause and effect model so familiar in the physical sciences, where clear and quantitative relationships can be established between independent and dependent variables. On the contrary, naturalistic behavioral research appears to demand a nondeterministic, transactional, open system approach, more closely fitting General Systems Theory (Von Bertalanffy, 1962). Teams are, after all, small systems, or subsystems, which function within larger systems (hospitals, universities, communities) with which they interact in a variety of ways and at a variety of levels (Baldwin, Royer, & Edinberg, in press). Change in one part of the system precipitates change in every other part of the system, lending further reality to the picture of a moving target.

One of the basic problems complicating research efforts on teams has been the lack of a coherent body of theory. Teams are complex entities. They are composed of individuals who elect to work together a group. The group defines itself as a team, which to all intents and purposes looks and functions as an organization. Understanding teams, then, requires elements of individual, group, and organizational theory (Edinberg & Baldwin, 1980). An additional theoretical perspective which appears useful in the study of teams and other naturalistic behavioral systems is the Grounded Theory Approach described by Glaser & Strauss (1967), in which theory is generated from the observed data.

Communication is a key variable in the study of teams because it is a mutually causal social process in which each person's behavior is dependent on the behavior of the other members (Thornton, 1976). Interaction analysis has emerged as a specific technique for studying these processes in groups (Bales, 1950; Fisher & Hawes, 1971). The Nevada group has utilized this approach effectively for the study of interdisciplinary faculty and student health teams (Baldwin, Thornton, & Dodson, 1980; Thornton, McCoy, & Baldwin, 1980a; Thornton, McCoy, Glover & Baldwin, 1980b).

Research on health care teams also involves a number of issues in design and methodology. There is a wide range of observations which can be made on various aspects of team development and function, but unless these can be generalized from one team to another or compared with other approaches, it is highly unlikely that our understanding of interprofessional teamwork will make significant progress in the near future.

In a recent issue of Anthropology and Education, Goetz and Le Compte (1981) discuss some of the problems involved in the study of human behavior in naturalistic settings. Their paper proposes a useful conceptual framework for understanding and conducting this kind of research. They suggest four dimensions which they believe expand and delineate the more mundane distinctions between quantitative and qualitative research. These dimensions are conceptualized as continua forming a map or framework, which allows one to approach different aspects of health care team function and development in a manner permitting comparison and generalization.

The first of these dimensions or continua includes the concepts of induction and deduction, in which the former approaches research with the collection of data, empirical observations, or measurements of some kind, building theoretical categories and propositions from relationships discovered among these data. At the other end of the continuum, the deductive approach begins with a theoretical system, develops operational definitions of the propositions and concepts of the theory, and then matches these empirically to the observations and data derived from the project.

The second major dimension or continuum involves the concepts of generativity and verification. The generative approach is concerned with discovering constructs and propositions, using one or more data bases as the source of evidence, while the verificative approach tests or verifies propositions developed elsewhere. Generative research is often inductive, just as verificative research frequently is deductive.

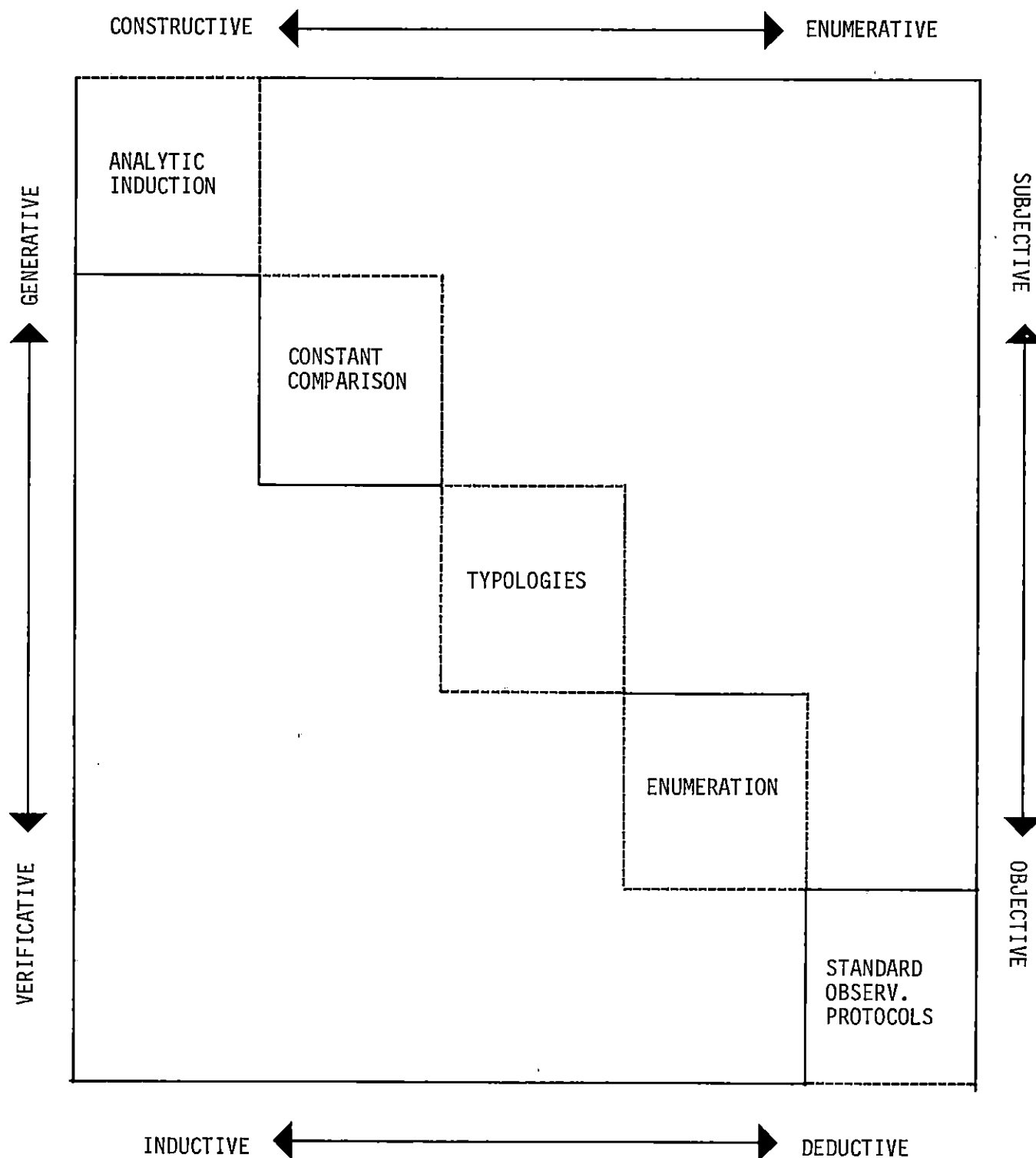
The third dimension includes the concepts of construction and enumeration. The constructive approach is aimed at deriving analytic constructs or categories from the stream of observed behavior and basically involves a process of abstraction, in which units of analysis are developed or discovered from the data. The enumerative approach, on the other hand, involves a process in which previously derived or defined units of analysis are subject to systematic counting or enumeration.

The fourth dimension or continuum described includes the concepts of subjectivity and objectivity. The former approach attempts to reconstruct categories used by the subjects involved to conceptualize their own behavior and experiences, whereas the latter applies conceptual categories and explanatory relationships readily visible to external observers to the analysis of unique populations.

It is obvious from this brief description that, due to the nature of teams and their relative stage of acceptance and development, most research on teams tends to be inductive, generative, constructive, and/or subjective and, therefore, is unlike that found in most physical sciences. It is also obvious that these dimensions represent continua, and individual researchers thus may utilize mixtures of these approaches in studying a particular problem.

Figure 1 illustrates these four dimensions or continua as forming the four sides of a square, in such a fashion that various research efforts may be placed in spatial reference to each of the eight constructs. Figure 1 also illustrates a series of five analytic techniques or strategies (among many others) which might be followed in studying the development and functions of health care teams, as well as other naturalistic innovations and experiments. The first of these strategies involves a process of analytic induction, where one scans the data for categories of phenomena and for relationships, developing working typologies and hypotheses, later modifying and refining these based on the emerging data. At this stage one frequently looks for unusual or negative data to test tentative constructs. Such an approach can also be used to identify subjective participant constructs. This approach can

Figure 1. Relative characteristics of selected analytic strategies. (Broken lines indicate that the strategy varies on a dimension; solid lines indicate invariance.)



From: Goetz, J.P. & LeCompte, M.D. Anthropology and Education Quarterly Review, 1981, 12, 51-70.

also be employed in generative research, used for constructive purposes, or can be adapted for enumeration.

A second analytic strategy involves constant comparison, in which the researcher identifies categories and generates statements of relationships. Inductive category coding is combined with simultaneous comparison of all observed behaviors. The discovery of relationships (hypotheses) begins with an analysis of initial observations, undergoes continuous refinement through the data collection and analysis, and feeds back into the process of category coding.

A third analytic strategy involves typological analysis. Typologies may be derived from a theoretical frame, a set of propositions, from common sense or mundane perceptions of reality, or maybe borrowed from other studies. Analysis of these typologies can serve descriptive as well as generative purposes.

A fourth analytic strategy involves the development of enumerative systems. These require a more precise identification of phenomena or categories and consistency in data collecting techniques. This strategy involves efforts to generate, refine, or verify a hypothesis and is mostly aimed at objective data.

The fifth approach involves the use of standardized observational protocols, in which phenomena are coded into previously designated categories of behavior which have been field-tested to guarantee reliability and validity. In this approach one selects precise aspects of behavior from the general stream of events. It differs from the others in being more deductive and is primarily designed to verify hypotheses.

It will be obvious from this brief review of Goetz & Le Compte's paper that this conceptual framework and these analytic approaches can be extremely useful to those of us engaged in attempting to measure the development and function of interprofessional teamwork in the delivery of primary care. Rather than simply waiting for the serendipitous or fortuitous appearance of phenomena which can be measured, by utilizing this conceptual framework researchers can be assured of some cohesion and consistency in categorizing and directing their efforts.

Thus far most research on teams has been largely descriptive or anecdotal, depending almost entirely upon head counts or attitudinal measures. It is essential that research and evaluation efforts on teams begin to develop greater objectivity and standardization, so that the results can be more generative. It would appear, then, that broad programmatic approaches, using multimethodological and multidimensional techniques, are more likely to pay off than those which fix on a particular dimension, such as patient satisfaction or professional attitudes. Research efforts in this field have not yet included many such programmatic efforts. Indeed, apart from the contributions of the Kentucky January project, the University of California at San Francisco, the University of Rochester, and the Team-Trac Program at the University of Nevada, Reno, few institutions in this country have had sufficient interest or opportunity to develop broad-based programs of research and evaluation on teams. Most of these efforts have been reported elsewhere or are alluded to in the previous or present proceedings.

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