

THE CONTRIBUTIONS AND LIMITATIONS OF STATISTICS IN ANTHROPOLOGY¹

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1. **Introduction.** This preliminary paper has two main objectives: first, to consider the scope and significance of the method of cultural anthropology and, second, to underscore the contributions and limitations of the statistical method as a tool for social research.

It is often pointed out by well-meaning social anthropologists that human beings can never be measured with precision and rigor because they are human beings. The implication of this statement is that human beings are the exclusive subject matter of the humanistic studies and the social sciences and that statistics as a discipline is not of much use to the study of society and personality. On the other hand, social scientists are often accused of making unwarranted generalizations about Philippine culture and society on the basis of what they call impressionistic studies based on limited sampling. This mutual antagonism and suspicion between the social anthropologist and statistician can be explained by a number of factors. One crucial factor is the mutual ignorance of the scope and limitations of each other's discipline.

It is my view that each discipline can make a positive contribution to the other and that each plays a significant role.

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in the field of social research. With these preliminary remarks, let me now point out the nature and scope of general anthropology and one sub-discipline of anthropology—cultural anthropology and its methods and approaches in the research process.

Dr. Margaret Mead^[1] has correctly defined the boundaries of anthropology in the following words:

“Anthropology is a uniquely situated discipline, related in diverse ways to many other disciplines, each of which, in specializing, has also inadvertently helped to fragment the mind of modern man. Anthropology is a humanity . . . concerned with the arts of language and with the versions that human cultures have given of the definition of man and of man's relationship to the universe; anthropology is a science concerned with discovering and ordering the behavior of man-in-culture, anthropology is a biological science, concerned with the physical nature of men, with man's place in evolution, with the way genetic and racial differences, ecological adaptations, growth and maturation, and constitutional differences are implicated in man's culture and achievements; anthropology is a historical discipline, concerned with reading the record of man's far past and establishing the links which unite the potsherd and the first inscription on stone, in tying together the threads between the preliterate world wherever the sequence occurs, in Egypt, in China, in Crete, or in a modern African state. Anthropology is a social science, although never only a social science, because in anthropology man, as part of the natural world, a biological creature, is not separated from man as a consumer or producer, member of a group, or possessor of certain psychological faculties. Anthropology is an art. The research skills which go into good field work are as complex as the skills of a musician or a surgeon; a disciplined awareness of self is essential.”

With this brief definition of general anthropology we can now raise the question: What is distinctive of the cultural anthropological approach in the research process?

2. Methods of Cultural Anthropology. There are four distinctive ways or approaches: (1) the holistic approach, (2) the

prolonged participant observation, (3) the significance of language, and (4) the significance of context and meaning with respect to the anthropologist's informants.

(1). **The holistic approach.** By holistic approach here I mean that the cultural anthropologist tries to study human society and culture in their **totality**. Culture means the way of life of a people which has been learned, shared and transmitted from generation to generation by means of language and symbols. In order to carry out a study in cultural anthropology one should consider the total way of life of a people. All aspects of culture—politics, religion, social life, economic life, aesthetic life, educational problems, philosophical view of the world—should be included in the investigation. The anthropologist studies the integration of that way of life and therefore to understand this integration process one must comprehend the matrix of their total life and their relationships with one another. It is perhaps impossible, for example, to understand fully the land reform program of our government, if it is viewed only in terms of its economic implications; it is believed that an ambitious program like land reform is more than an economic arrangement between a landlord and his tenants. Land reform has social, political and moral implications. It is therefore the method of the cultural anthropologist to study the economics of land reform in the context of its social, political, religious and other consequences.

(2) **Prolonged participant observation.** The second distinctive method of approach of the cultural anthropologist is the **prolonged participant observation approach**. An anthropologist does not only stay in one barrio or tribe or nation for one day and write a book out of this stay. The anthropologist lives with the people and participates in their day-to-day existence in an effort to understand the totality of their way of life. He does not ask questions right away because he believes that to obtain valid, reliable and significant information or data he should first gain the respect and good-will of his informants. How does he go about establishing rapport with the village or the community he is studying? The anthropo-

logist, first of all, has to clarify his objectives to his informant. He has to be honest and sincere in his dealings with the subjects of his study. He has to be respectful so that he can gain respect in return. The villagers or his informant will first do research on him and when his informants are satisfied then and only then does the anthropologist start probing into the details of their lives and the intricacies of their culture. After gaining or obtaining rapport with his informant he then records as accurately and as faithfully as he can the way of this people. He asks all sorts of questions ranging from economic activities to such intimate areas as sex and religion.

I have underscored here the term **prolonged** because the anthropologist believes that to gain valid and reliable information one has to have the trust of his informants so that in the process the informants will tell him the truth. His interviews should be carried out in an atmosphere of trust and sincerity. They are done as much as possible in an informal way for the convenience of the natives. The anthropologist should therefore make an effort to stay long for accuracy in the recording and reporting of day to day events, and in probing into the intimate lives of the natives. This can only be possible by overcoming the language problem.

(3) **Language problem.** A genuine anthropologist who is studying another culture or way of life other than his own should know the language of his informant for a number of obvious reasons. It has been pointed out by students of language and culture that language tells much about the way of life of a people and therefore by knowing something about language the anthropologist will be able to know and understand many of the complexities of the society and culture under study. It is important therefore that the anthropologist should study the language of the natives. The other alternative for the researcher is to use interpreters. The danger of this method lies in the fact that the interpreter may not be as effective as the anthropologist would like. Full reliance on the interpreter, to some extent, works against valid and reliable data in anthropological research.

(4) **Problem of Context.** One other significant point I want to stress here is that the anthropologist considers the problem of cultural context and meaning in any attempt to analyze and interpret human behavior or data about human behavior. This is considered important because the anthropologist feels that social phenomena can better be understood when viewed against their social and cultural milieu or setting.

All these factors, methods or approaches—holistic approach, prolonged observational approach, language and context—indeed make anthropology a more demanding and flexible science. With this approach on methods in cultural anthropology, let me now review some of the recent developments in the use of statistics in anthropological science and later the limitations of the statistical methods.

3. **Recent Trends in Statistical Anthropology.** In a special issue of *American Anthropologist* (Vol. 65, No. 5, October 1963), a number of American anthropologists have written papers dealing with some uses of statistics for the anthropologists. I will review briefly these papers before going to the limitations of the statistical method in the social sciences.

Edward T. Hall, in a penetrating article entitled "A System for the Notation of Proxemic Behavior" underscores the significance of the field of proxemics which is concerned with "how man unconsciously structures microspace." Hall's methods "refines categories of observation down to a finite scale of particulars that is rare in social and cultural anthropology, outside of studies in linguistics and terminological systems". (*American Anthropologist*: 1961).

Paul Kay^[2], on the other hand, has evolved "a formal model that can handle certain ethnographic data and demonstrates the kinds of predictions that the model can, and cannot, make."

Marcia and Robert Ascher^[3] of Cornell University's Department of Anthropology have discovered "a systematic way of deriving an ordered matrix from unordered data so that it can

be fed to a computer." To the authors, "programming for a computer forces research to have a clear goal in ordering data, and forces the researcher to proceed to it in an orderly way. This byproduct may prove to be as important in similar programs as the final results.

Narol and D'Andrade^[4] have tried to explore a problem in cross-cultural survey in order to help the analyst to see whether the relationship between factors considered "functionally related... is an artifact of common historical circumstances or truly functional. The underlying logic of probability theory, and culture diffusionist theory, is used in the form of two relatively simple statistical techniques."

Frank Cancian^[5] considers a way by which "more and less psychologically real descriptions...utilizing informant errors about public offices..." can be differentiated. Metzger and Williams^[6], for their part, have come out with "an analytic procedure resulting in an ethnographic description that parallels the categorizations (of events and their contextual meaning) of the people under study." The author's method is based on replicability, recoverability and its being microanalytic. Replicability here implies that another analyst should come out with the same conclusions, given the same techniques and data, while recoverability here means that "the original data can be recovered from the analytic categories." Microanalytic here implies that "analytic categories are reduced to smallest possible units commensurate with the analytic task."

4. The Limitations of the Statistical Method in the Social Sciences. Although some eminent anthropologists have utilized statistical methods in their researches and publications (e.g., Franz Boas, Alfred Louis Kroeber, George P. Murdock, Harold Driver, among others), still other anthropologists feel that since anthropology is more of a humanistic discipline, no amount of statistical correlation or computer techniques can make the study of man and his works scientific (e.g., see Morris E. Opler, "The Human Being in Cultural Theory," in *American Anthro-*

pologist, 1961). The significance of context, meaning, and cultural relationships cannot be over-emphasized. Some anthropologists feel that the flavor or *elan* of a particular culture should be explained and described in depth to be truly meaningful. The historic, socio-cultural and ecological context of any social phenomenon or of human behavior should be largely considered for a better understanding of human beings and their social interaction. Cultural process and values simply cannot be reduced to sheer mathematical computations.

For example, how much of the values, the inner thoughts and feelings of the people can be revealed in a statistical table? How much of human interaction goes on in a hurried interview? How accurate and faithful to the truth are informants not known by the researcher or investigator? Is it possible that much cultural bias is done in an impersonal and brief researcher—respondent interview situation? And as one social scientist once asked: Suppose all of your informants are not really telling you the truth? Where then is your science? I believe this is where the cultural anthropologists can contribute greatly to problems of reliability and validity. The anthropologist's stress on rapport between researcher and respondent, the emphasis on language learning, cultural context, and the holistic approach discussed earlier might be crucial factors that can neutralize the impersonal, brief, and sometimes hurried interview based on set questionnaires.

This is not, however, to discount the usefulness of statistics. A broader and bigger sample can complement the case-study in depth of the anthropologist. The rigor and precision of the statistical method can likewise supplement and complement the approaches of the cultural anthropologist.

6. Concluding Remarks. The scope of this paper is limited. I have not discussed the role of statistics in the other sub-disciplines of general anthropology, archaeology, physical anthropology and anthropological linguistics. These three sub-disciplines lend themselves to quantification more easily than

does cultural anthropology. And statistics play a very significant role in their methods. Suffice it to say that cultural anthropological field research techniques can contribute to statistics and vice-versa. But before this can happen anthropologists and statisticians need to establish better rapport—anthropologists will need to re-examine the uses of statistics and statisticians will need to reexamine their field and perhaps propose new methods better suited to the needs of a field-oriented science.

6. **Acknowledgment.** The author is grateful to the PSA, to Dr. Gloria D. Feliciano, Mr. Robert Lawless and Natividad Noriega for their help. The views and limitations of this preliminary paper are solely the author's. For a very informative book on methods in cultural anthropology, see Richard N. Adams and Jack J. Preiss (editors), **Human Organization Research Field Relations and Techniques**. Dorsey Press, Inc., Homewood, Illinois, 1960. See also the rich bibliographies on methods in anthropology by John J. Honigmann of the University of North Carolina, U.S.A. and Donn V. Hart of the Department of Anthropology, Syracuse University.

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