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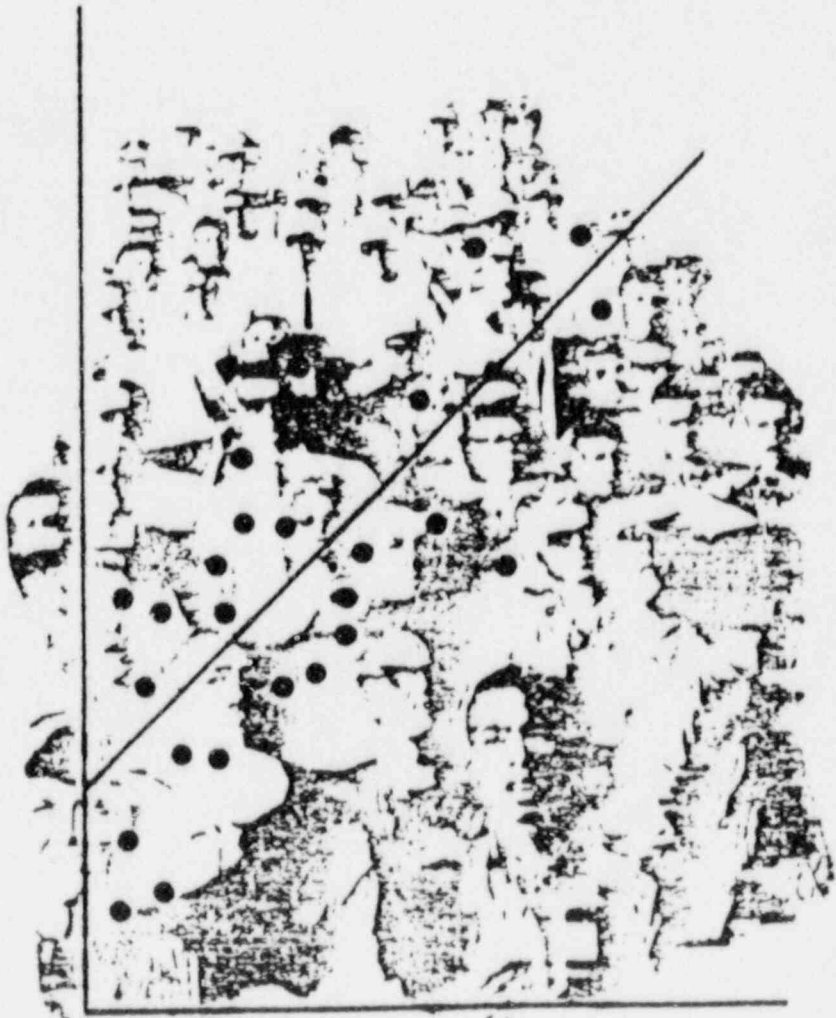
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THE SOCIOLOGICAL METHOD
An Introduction to the Science of Sociology

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significant, for most science it is not clear to participants whether the work will turn out to be important or not at the time when it is produced. Although we have always assumed that this is true for the social sciences, the studies I have conducted suggest that it is also true for the natural sciences.

Let us return to the question with which I began this section: Is sociology a science? If we base our answer on a comparison of the day-to-day behavior of researchers in sociology with that of researchers in the natural sciences, we have to conclude that sociology is indeed a science. Although it would probably be true that physicists, for example, would be more likely than sociologists to agree on core knowledge, most social researchers spend no more time than do physicists debating fundamentals. And when it comes to work at the research frontier, all sciences, including sociology, seem to have roughly equal levels of consensus. Although much more work remains to be done on this topic, preliminary studies indicate that the differences between the natural and social sciences in the way in which new knowledge is developed are not as great as we had assumed.

CAN SOCIOLOGICAL STUDIES BE OBJECTIVE? For many years there has been a heated debate in the sociological community as to what the proper role of the sociologist should be. There are at least two important questions on which sociologists disagree. The first concerns the orientation of researchers toward the subject matter of their studies. Should sociologists be neutral observers and analysts of social events and structures, or should they *morally* evaluate and critique them? Should the sociologist be "value-free" or "value-involved?" There is no right or wrong answer to this question—the side a person takes depends on his or her own values. We should, however, be familiar with the arguments used on both sides.

Value-Free Sociology? The sociologists who believe that sociology should be value-free argue that, if researchers do not attempt to be objective and limit their own biases, then the results they obtain and the conclusions they reach have no legitimacy. For example, suppose the sociologist is interested in studying whether or not discrimination against women is occurring in a particular

segment of the society. If sociologists start out with the strong belief that there is discrimination and that this is wrong and must be eliminated, won't they design their studies in such a way as to assure that they actually find evidence of discrimination? If their desire to prove that discrimination exists is greater than their desire to know the truth, then they will have difficulty in designing an objective study. They will also have problems in interpreting the results of their studies. Won't they be tempted to ignore any evidence that contradicts their beliefs and emphasize that which supports their beliefs?

Also, what happens if the evidence strongly contradicts the researchers' beliefs? If sociologists start out to prove that women are being discriminated against in a particular segment of society and they find no evidence of discrimination, should they publish these results? Supporters of value-free sociology answer affirmatively; opponents, more than likely, would answer negatively.

The essential problem involves the credibility of the results of the research. If researchers are not objective, why should anybody believe the results of their research? Sociology could become a crude attempt to justify a set of values or a political ideology rather than a way of discovering knowledge about human behavior. If sociology is not value-free, it could become nothing more than ideology. And if sociology becomes ideology or is used merely to justify a particular ideology, it will have no utility in solving social problems.

The critics of the value-free approach, of course, disagree with the above argument. They claim that leaving aside the question of whether or not value-free sociology is a good thing, it is impossible for the sociologist to be value-free. All of us have our own values, biases, and opinions. It is impossible to suppress them; they will influence the design of the studies and the interpretation of the results. We cannot be objective even if we try, and therefore we might as well make our biases explicit. Any attempt to hide our biases produces nothing more than pseudo-objectivity.

Furthermore, even if it were possible to be objective, it would be immoral for researchers to ignore the political implications of their work. Just as nuclear physicists should have refused to work on the development of nuclear weapons, sociologists should refuse to publish work that may have "undesirable" consequences. For example, even if some sociological research provided some evi-

dence in support of the belief that differences in learning ability have a substantial biological component, the sociologists should refuse to publish this work since it will be used by racists to justify continued discrimination against minority groups. Ridding the society of discrimination is more important than discovering the real reasons why some people find it easier to learn than others.

Sociologist as Technician or Reformer? The second major question that sociologists have been debating is: Should sociologists be "technicians" available to society or should they try to change society to conform more closely to their own values? The people who believe in value-free sociology tend to take the first position; the critics of value-free sociology, the latter.

The people who believe that sociologists should act as technicians argue that how society should be organized is a matter of values and not science. Whether, for example, capitalism is "better" or "worse" than socialism cannot be determined scientifically. In fact, all important social questions facing us involve values. Should we have capital punishment? Should heroin be legalized? Should we have a guaranteed national income? Should we have socialized medicine? The answers we give to these questions depend on our values. Since an answer cannot be scientifically proven to be right or wrong, the sociologist's opinion on what *should* be is worth no more than that of anyone else.

Once a goal is determined, however, the role of the sociologist is to inform the society as to what techniques will be effective or ineffective in attaining it and, perhaps even more importantly, what unexpected consequences a particular course of social action might have. For example, let us consider the problem of urban crime. If society wants to reduce urban crime, some sociologists may suggest that one efficient course of action would be to legalize heroin. Since in some cities like New York City, a high percentage of crimes are committed by heroin addicts who must steal to support their habit, the legalization of heroin would reduce crime. This measure, however, might also have the undesirable consequence of increasing the number of addicts. Which is more important to society—the reduction of crime or the limiting of the number of drug addicts?

It is the belief of the advocates of the first position (sociologists should act as technicians) that the question of the legalization of

heroin is a political and not a sociological one. Each member of society can individually answer this question and can encourage his or her political representatives to act in the way each individual believes is right. Therefore, the sociologist's opinion on this question is no more valid than that of anyone else.

People who believe that the primary aim of the sociologist should be to change society reject the notion that the sociologist should be merely a technician, or consultant. These people argue that if sociologists are merely technicians, they will become flunkies of the ruling class. Only the rich and powerful have enough money to hire sociologists, and these patrons have a vested interest in maintaining the status quo. It is the moral obligation of sociologists to criticize and try to change society. Although it is true that how society should be organized cannot be scientifically determined, this is all the more reason why sociologists must take an active political role. They must become critics of the establishment and champions of the underdog.

As is typical in most ideological debates, the two positions that I have described are not as contradictory as they appear. And they actually have little effect on how sociologists go about their work. Let us consider the question of whether sociologists should be value-free. With few exceptions, most social researchers, whether they be radical, conservative, or totally apolitical, try to convince their readers that their research has been objective. Even sociologists with very radical views realize that few people will take their work seriously if it is obviously biased and subjective. If sociologists of any political persuasion want their colleagues to consider their studies and conclusions, they must convince them that the work was carried out objectively, even if its purpose was not strictly analytical. Thus, in practice, most sociologists who may argue that it is impossible to be value-free still continue with their studies, while working in as objective a manner as they can. There are, of course, some exceptions, but for the most part, they are ignored by other sociologists and nonsociologists alike.

It is important to understand that, although it is probably true that it is impossible to be completely objective and suppress personal values, the extent to which objectivity is attained varies. Some studies will have been more affected by the researchers' values and biases than others. Since sociological research, once it

is published, becomes public knowledge, it would be difficult for biases to go undetected. Research is subject to criticism and replication. Sociologists who would publish work that is clearly biased and could not be replicated by other researchers would lose credibility and have their work ignored.

The one area in which values enter sociological work in a potentially dangerous manner is in choice of topics. Conservatives may be more likely to choose to do research on areas of social activity in which the society is functioning well and ignore areas in which there are significant problems. Radicals may do the opposite. But since sociologists have widely differing personal values, this does not turn out to be a serious problem. Whereas the value biases of some sociologists may cause them to ignore a particular subject, the value biases of other sociologists direct them to the very topic ignored by their colleagues.

On the question of whether sociologists should be technicians or critics, it is reasonable to state that there is no need to have all sociologists be one type or the other. Here, as in other areas of human endeavor, division of labor solves the problem. [There is probably a need for sociologists as technicians and critics, and indeed there are many sociologists who are one type or the other or both.]

SUMMARY According to the traditional view of science, what differentiates science from other forms of knowledge is the commitment by scientists to test the validity of their ideas by the use of empirical observations. Theories that are not supported by empirical data are supposed to be rejected. Using this empirical method, scientists will come increasingly closer to learning the "truth."

Research by historians, philosophers, and sociologists of science has shown that in actual operation science is not as rational and as cumulative as the traditional view described it. Thomas Kuhn has shown that scientists frequently ignore empirical evidence that contradicts their theory and that new theories are not invariably better than the ones they replace.

Studies investigating the relationship between theory and empirical research in sociology lend support to Kuhn's views. Most sociologists who use theory in their own work do not attempt to

empirically test its validity. Instead, theory is generally used to legitimate the author's interpretations, suggest problems, and interpret data.

Although sociology is a science in the sense that sociologists attempt to support their hypotheses with empirical evidence, it is widely believed that the social sciences are less theoretically developed and have less consensus than the natural sciences. My research indicates that, if we consider new knowledge as it is produced, there is actually as much consensus in the social sciences as in the natural sciences.

have 50 percent Catholics.³ Some samples show 58 percent Catholics and some show 42 percent Catholics. In a sample of only 300 cases, then, it is quite possible to get considerable discrepancy from the population proportion. However, even with samples of this relatively small size, we notice that most of the samples are concentrated within 3 percentage points of the population proportion.

These three bar graphs show that the larger a random sample, the less the chance that the sample results will differ greatly from the real population. Thus, in studies that require highly accurate description, such as political polls that will be used to predict who will win an election, it is important to have large random samples. On the other hand, in studies aimed at showing the relationships among variables, it is possible to use smaller samples because the primary purpose is to discover the relationship among variables, not the population proportion.

It should be remembered that the precision of a random sample is a result of its size and *not* the proportion of the population represented by the sample. Thus, 1,000 will be just about as accurate a sample of a population of 10,000,000 as it will be of a population of 10,000. If we are doing a political poll in a county of 200,000 people, we will need just as large a sample as we would in a country of 200,000,000 people. This would not be true, however, if the variance in the population of the small county were considerably lower than that of the large country. Since we usually do not know the variance prior to doing the study, we must assume that it may be large and use a large sample.

Systematic Sample One of the problems in taking social surveys is making sure we get a representative sample of the people we want to study. We must pick our sample in such a way that every member of the population has an equal chance to fall into the sample. For example, if we wanted to study the students in a particular school, what would be wrong with interviewing every tenth student to enter the library? This would not be a random sample because not all students use the library, and the students who do not use it would have no chance to be represented. We

³Of course, the number 13.5 would be translated as either 13 or 14 samples having 50 percent Catholics.

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could, however, get a list of all the students and pick every tenth student on the list. This kind of sample is called a *systematic sample*. If we interviewed all the students chosen in this way, our results could be generalized to all the students at the school.

What if 30 percent of the students chosen to be interviewed could not be found or refused to be interviewed? We would never know if the students we were able to interview were different from the students we could not interview. This is a very serious problem in using mail questionnaires or telephone surveys. Researchers who use these techniques rarely complete interviews with more than 70 percent of their sample. They never really know if the people who did not return the questionnaire or refused to be interviewed were different from those who did.

We may check the accuracy of samples by comparing characteristics of the sample with known characteristics of the population. For example, if we were using a mail questionnaire to study drug use by students at the school, we might first compare the proportion of upperclassmen in our sample with the proportion in the school. However, even if the sample perfectly matched the population on known characteristics, it would still be possible that people who returned the questionnaire differed in important ways from those who did not. For example, it would be possible that heavy drug users would be less likely to return the questionnaire because they might fear that in doing so they might be disclosing their identity and be subject to repercussions. It is important, therefore, to be wary of accepting generalizations made from non-random samples and applied to populations.

SAMPLING METHODS FOR POLITICAL POLLS In conducting the political poll on the Maryland gubernatorial election, I faced a difficult sampling problem. Because face-to-face interviews take too long and cost too much, I was unable to employ this technique. Mail surveys take too long to get the responses back, and the proportion of people receiving questionnaires who return them is generally too small to be used for a survey requiring a high degree of accuracy, such as a political poll. Therefore, the survey was conducted by telephone.

Who should be called? One way to select the sample would be to choose a systematic sample of residential telephone numbers