Objectivity, Autonomy, Funding, and the Survival of Multiple Cultures

When I received the invitation to this meeting, I somehow assumed that it would be mainly concerned with the controversy between quantitative and qualitative research. Conscientiously I made some notes and thought about what I was going to say. Having long ago chosen my side in that issue, I had no difficulty collecting some useful arguments. Yesterday morning, however, when I listened to the presentation by our main speakers, George and Louise Spindler, I suddenly realized that here are two famous exponents, on my side of the issue, who are obviously convinced that we have prevailed and that there is no longer any question about the fact that qualitative research is the research that really matters. Consequently, to say what I intended to say could give the impression that I want to reopen the discussion, and this might bring an unintended edge to this friendly meeting. But as the discussion developed today, other panelists mentioned a few things that indicate that the controversy is still very much alive. The points I wanted to make, therefore, are aimed at the quantitative fanatics who, at least in my view, are anything but straw men and women.

First of all, I would like to recall that, for about eighty years, the soldiers of the other side have maintained that quantitative research and only quantitative research can be "objective" and that qualitative research, no matter what you do or how you present it, is telling stories and remains anecdotal.

Concerning objectivity, I can do no better than quote a friend of mine, Heinz von Foerster, one of the fathers of cybernetics, who many years ago at the Biological Computation Center of the University of Illinois, said: "Objectivity is the illusion that observations could take place without an observer." I do not think that one could formulate it better. Anything added to that statement would only water it down.

Whatever is said by a scientist is at some point based on his or her observations. He may claim that his observations are no more intricate than reading the dial of some instrument; but what is an instrument? Instruments, after all, are nothing more than extensions of the human senses and what one reads off them is no less phenomenon-like than anything else that might be seen or heard. The instrument gives you numbers all right — but the numbers by themselves are meaningless. They have to be mapped into a conceptual network, and the conceptual network is entirely of your own making.

So much for objectivity.

As to the claims of autonomy that some quantitative researchers have made, let us see for a moment how quantitative researchers proceed. Above all they measure and count. But before they can go out into their experiential world to count and measure, they must make up their minds what precisely they intend to count or measure. That is to say, they have to decide what commodity, what objects, what processes are to be quantified — and this decision is, of course, under all circumstances a qualitative decision. In case you think that this is a rather trivial point to bring up, I would ask you to review any specific research project you have undertaken and to try and remember how you decided to study a particular phenomenon and what were to be the dependent and the independent variables in your experiments.

These two considerations place our discussion into the proper framework, I certainly don't want to say that quantitative research is useless. But I do want to say that it is useful only insofar as it operates in the context of distinctions that are based on values and on goals that are not only incontrovertibly qualitative but also qualitatively interesting.

Having said this, let me hasten to add that I find myself in agreement with most of the things that were said in the Spindlers' talk. One thing I want to add is that I would put a different emphasis on certain expressions. One of these is the notion of "heritage culture". I would attribute to it much more importance than it was given in the Spindlers' presentation. Heritage culture, in my view, involves everything to do with language.

Before coming to this conference, I was near Los Angeles at a cybernetics meeting that was concerned, among other things, with language and language processing. One of the people there, who was a computer person — and one whom I consider an enlightened computer person — made a statement that immediately rang a bell in my brain. He said, whenever you sit down at a computer, be it a main frame or a personal one, and you give that computer some instructions, you do this in a computer language. In using this language you must, whether you like it or not, submit to the ontology that is inherent in it. With computers this should be obvious, because what you instruct the machine to do has to be something the machine can do. Indeed, the language you are using does not allow you to express anything else. You cannot make the computer do anything that is not expressible in the particular language. I would claim that this is not very different from the human situation.

If one grows up, as I did, a non-native speaker because, he grows up between several languages, one thing quickly becomes clear. Whenever you use one of the languages you happen to know, you have to submit to its ontology. "Ontology" may be a complicated word. What does it mean in the ordinary living context? It means the network of concepts and relations expressible in the language of the social group which is habitually using that language. Their language, in fact, constitutes a large part of their cultural heritage. That term, therefore, comprises far more than the manners, the conventions, the traditional beliefs of a social group, it comprises the very organization and understanding of experience. You understand and deal with experiences differently depending on whether you happen to have been brought up in Italian or in English, let alone a language that belongs to a more distant culture. Consequently, there is a difficulty there, and though Ben Blount has referred to it

already, I want to emphasize it once more. When anthropologists or ethnologists go to a place where language and culture are different, they necessarily struggle to understand what they observes in their own terms. And not only that — they cannot but observe in terms of the heritage culture that is the one in which they have been used to live and think. Thus the foreign observer will inevitably see things that have no meaning for the native and be unable to see things that are evident to them. — The point I want to make is simply this: cultures are separated not only by rites of personal interaction, of celebration, and of the management of emotions; they are separated also by cognitive rites that determine their way of seeing and their way of thinking. The discrepancies between the notion of culture prevalent in the United States and the notions of culture one might find in Europe are quite large. Consequently, it is not an easy thing to evaluate, from this side of the Atlantic, how and to what extent the local cultural heritage might influence what goes on in a German school.

Another expression that tempted me to make a comment is the "expressive autobiographical interview". As the term was being used and explained, it struck me that this is, in fact, something Jean Piaget used in his work from the very beginning, calling it *la methode clinique*, except that in his practice language played a very small part. What he was aiming at was to get from the children he worked with, not a biography, i.e., an account of events in their lives, but an account of the changes in their thinking. In other words, he was investigating how the children he was dealing with had come to develop the ways of thinking they were using at the moment. The course of the interview — and I was delighted that the Spindlers talked about this — cannot be predetermined because it develops out of what transpires during the interview. You ask a question, and according to what your respondent answers you develop a new question. This has to be so, because you are trying to pursue certain paths, and these paths are in the head of the interviewee and cannot be pre-established in yours. Given this peculiarity, I am sure you have experienced something that we come up against all the time: the necessary indeterminacy of interview patterns in this kind of research is a fearful handicap when you are writing research proposals. The granting agencies and their reviewers expect you to have a fixed and extremely detailed program of work. They tell us that doing interviews is a good idea, but then they ask, how are you going to conduct them, how are they going to be structured, and what are your questions? And we have to say, we don't know. We have a rough idea of the direction we want to go in but we cannot possibly list sample questions because the questions arise out of the individual interviews. (If we knew the questions beforehand, we would probably not have to ask them.) This is a very real difficulty because granting agencies and reviewers have an enormous influence upon what research is going to be done. I know that not only we with our decidedly qualitative research in mathematics education, but also others who are involved in qualitative research have a good many proposals rejected, not because their ideas are considered useless, but because these proposals do not contain sufficient indications of a precise program, when it is the very purpose of this kind of research to adapt the researching tools and to form ideas on the basis of what one hopes to get out of the subjects.

Finally, I was struck by the statement that education is necessary for the survival of a culture. I agree whole-heartedly. But, as I see it, education is not only a cultural enterprise but also a political one. No matter whom you ask, no matter how open-minded they might be, if they are educators, they have some explicit and also some implicit goals. They want their students to turn out a certain way — and, of course, that certain way is quite often like themselves, at least in some relevant respects. I believe that this is necessary if one wants to perpetuate a particular culture. But I would like to voice a worry which, I think, we as educators should all have. This worry of mine concerns education in general. Given the state of the world today, I do not think we can afford to claim priority for our own local culture. Unless we find a way of educating that makes it possible for the people who go through this process of education to consider different cultures and, more importantly, to understand the need for the variety of cultures on our planet to get on with each other rather than to compete, there may very soon be no longer anyone to educate.