
Methodological Developments

Taking an ecosystem (L_{11} , L_{22}) as our unit of study had a wide range of implications for our methods of study. This is particularly so because the components of the unit are social and psychological. Most of the methods used in the social sciences have been adopted from, or ape, those used by sciences that could study inanimate isolates, or biological sciences that could treat their material as if it were composed of inanimate mechanisms. Even the basic categories of space, time, etc., were taken over, unchanged, from the sciences of the inanimate.

The first paper raises the issue of the categories appropriate to the study of socio-ecosystems. It suggests that as these systems are made up of overlapping nested events—qualitatively distinct and constantly in changing relations—time and space can only be represented topologically (i.e., nonmetrically). Time is to be measured by the relative duration of the nested events and space by the extension and inclusion of their qualities.

The next four papers relate to the analysis of a problem in a socio-ecosystem. Here we reject the notion that with a lot of imagination and a bit of intuition one can leap to hypotheses that warrant testing in a socio-ecosystem. That is socially irresponsible and a sure path to the self-destruction of the social sciences. Only a thorough analysis will reveal hypotheses, if any, that warrant intervention and change. The first step is to trace the ramifications through the totality of the coexistent field of relations within the ecosystem. This gives a first level of sorting out what may be genotypical factors (explanatory) and what are phenotypical (chaff). The next step, when time and cost permit, is systematic collection of data by survey or observation and multivariate analysis of that data. The second and third papers address this second screening process and suggest how this can be done without sacrificing complexity. My paper on the measurement of ideals points to an added complexity that seems necessary when we are dealing with purposeful systems in their environments.

Even with this caution, in the analysis of a problem we have the ever-present danger of hypotheses being formulated as if the sufficient conditions for behavior had a priori to lie with either L_{11} or L_{22} . The danger is ever-present because social scientists are living members of a culture which attributes human and social causes in that fashion (Ichheiser, 1949). Herbst's paper on co-genetic logic starts to spell out a corrective tool. He was still working on this when he died.

In socio-ecosystems the changes needed to test an hypothesis are not easily,

or usually, transposable to the social safety of a laboratory. The intended changes, and control conditions, have to be approved by the "subjects," and carried out by them. Likewise the outcomes have to be judged by the subjects' standards of what is a significant change. They, after all, have to live with the changes.

The last two papers in this part deal with this crucial problem. That by West Churchman and myself sums up where we were in the mid-1960s. By that time, this sort of action research was no longer problematic. The notion that learning goals should be established so that organizations could do their own action research had already been recognized.

A real step forward in methodology occurred with the revival and development of the search conference. This was a method that placed the responsibility for searching, analysis, hypothesis formation and sanctioning in the hands of the people whose ecosystems were liable to change. The social scientists, as conference managers, were responsible for ensuring that the process was conducted in an orderly manner and not short-circuited or captured by special interests. The search conference method was complemented by the Participative Design Workshop (F. Emery and M. Emery, 1974/Vol. II) that placed the design of the concrete changes, control measures and measurement of outcomes with those directly impacted by the changes.

References

- Emery, F. and M. Emery. 1974. *Participative Design: Work and Community Life*. Canberra: Centre for Continuing Education, Australian National University. Vol. II, "The Participative Design Workshop," pp. 599-613.
- Ichheiser, G. 1949. "Misunderstandings in Human Relations." *American Journal of Sociology*, Mimeograph 2.