POLICY SCIENCES AND POLICY RESEARCH ORGANIZATIONS

Charles Wolf, Jr.

September 1970
POLICY SCIENCES AND POLICY RESEARCH ORGANIZATIONS

Charles Wolf, Jr.**

The Rand Corporation, Santa Monica, California

I.

That policy research organizations, like Rand, contribute to the demand for well-trained policy analysts is evident. What I want to consider is a question whose answer is much less evident: whether such organizations, or a subset of them, also have a potentially important role in contributing to the supply of such analysts, through advanced teaching and training programs?

One version of the answer is not controversial. Regardless of prior academic training and graduate degrees, young analysts should, and usually do, acquire valuable on-the-job training when they work on real problems with real-world time, budget, and organizational constraints. This is standard practice at the major policy research organizations. And if a research organization's environment is lively, the scope of its research reasonably broad, incentives toward interdisciplinary work are positive, and its concern for quality output is serious, a beneficial educational result is frequent if not inevitable.

A second role for policy research organizations is somewhat more innovative and ambitious. Graduate students, in the dissertation stage of their doctoral work at various universities, may identify stimu-
lating and relevant thesis topics by spending periods of varying length at policy research institutions, under varying degrees of supervision. One mode involves a short period (for example, a summer or an academic quarter), during which potential topics, alternative problem formulations, and data are sifted from several on-going research projects, after which the doctoral candidate returns to his university to do his dissertation on the topic selected. In another mode, the time may be lengthened to a full year, with an effort made to integrate the thesis more closely with on-going policy research than the shorter period usually permits.

Both modes require close supervision, especially the second; the latter more than simply in proportion to the longer time period involved. Both entail certain problems, more or less linearly related to the time period: for example, time and motivation for sustained supervision by senior analysts within the research institution; the risk of cross-fire between the academic thesis committee, and the research project leader; and funding.

Rand has had some experience with both modes of interaction with graduate students. On a rough, impressionistic basis, my judgment is that the first mode has been more cost-effective than the second, at least from the standpoint of the research organization. Nevertheless, the results from both have been sufficiently promising to warrant continued and further development.

There is a third form of educational activity, worth considering for a small subset of policy research organizations, that is substantially larger, more ambitious and more innovative than the others I've mentioned: developing a full-scale graduate degree program in policy analysis, either within the research institution itself, or in collaboration with an academic institution. At present, Rand is in the process of formulating and testing a "prototype" program along these lines. Since this alternative is not only more ambitious and challenging, but more complex, uncertain, and controversial, I will concentrate on it in the remainder of this paper.
II.

At the outset, it is worth raising a basic issue of educational theory and philosophy, which I will refer to as the problem of parallel-versus-series-"wiring."

Most of our higher educational system is wired in series, so to speak, with the problem-generating, as well as problem-solving, sectors of society. We study first (e.g., say, engineering, economics, mathematics, medicine, or law), and then, having acquired advanced degrees in these fields, we go to work on problems, more or less within their purview.* There are many variations of the process. Refresher courses, and sabbatical educational leave for government mid-careerists, have increased in frequency. Seminars on analytic methods and public policy problems for business executives have been a minor growth industry in some of the better business schools around the country. Even these variations usually retain the series connection; they provide a brief respite from work for academic refueling. So the predominant practice is still overwhelmingly a series connection: we learn first, and then go to work on real problems, occasionally although rarely, interrupting the latter briefly for further formal learning.

Of course, the reasons for this wiring practice are clear and strong. Before people go to work on real-world problems, they should have a reasonably firm grounding in theory, and an understanding and mastery of tools and techniques. These prerequisites are likely to be imparted most effectively in an atmosphere that has the detachment of the university, or, at least, the detachment we had come to associate with the university until recent years. Applications and adaptations will be more fruitful if the grounding in theory and technique is deeper, and if it precedes rather than accompanies the applications.

Yet questions arise not so much as to the general soundness of

*In medicine, of course, the series wiring is substantially modified in the last two years of medical school, so that direct on-the-job training in medical practice, through hospital attendance, diagnosis, and treatment, become an increasingly important part of the training.
these reasons, but as to whether they apply in all cases. The questions that arise do not come only, or even principally, from the campus disruptions of recent years, although these circumstances have at least slightly tarnished the aforementioned assumptions about detachment, rigor, and even seriousness of educational purpose in academia, particularly in the policy sciences. The issue that arises concerns the extent to which an alternative circuitry, a wiring in parallel between formal learning and application at an advanced training level, may not be fruitful to elaborate and test. Such an alternative, linking formal academic work with direct applications to policy problems, bears some relationship to the oft-repeated, as well as oft-abused, call for greater "relevance" that has been heard in discussions of academic curricula, as well as advanced as a slogan in academic disruptions of recent years. The parallel wiring also eases another problem embedded in the conventional approach; advanced graduate training is usually grounded in a single discipline, whereas the policy problems that are subsequently to be addressed are inevitably cross-disciplinary, or multi-disciplinary, in nature.

But there is another, simpler perspective worth bringing to bear upon consideration of this alternative, which relates simply to the question of whether one shouldn't experiment with more than one alternative "wiring" or tracking pattern in graduate training. In some fields, and for some people, with varying talents and temperament, one pattern may turn out to be more fruitful than another; for others, a different pattern may be preferable.

Clearly, there are drawbacks, as well as possible advantages, to such an alternative. Adding applied work on policy problems to a formal academic curriculum may just be trying to do too much. The on-going policy research may distract and subtract from the scholarly content of the curriculum; rigor, depth, and breadth of academic training may be sacrificed as a result. And the policy research may be slowed down and diverted, too.

On the other hand, parallel wiring may possess the powerful advantage of enhancing motivation to learn, and sharpening the perception of
purpose and relevance in learning. We know that there are tradeoffs between motivation and formal curricular content in the production of effective learning. Hence, in a strict sense, one might even be willing to pay some price in reduced or foregone curricular content if one can heighten motivation in the process. Of course, holding the content at least constant while enhancing motivation, is the preferable direction in which to go.

The advantages of parallel wiring may be especially strong for certain types of graduate students: namely, those who, while bright and energetic and with serious educational aims, are also acutely impatient. (Since impatience is an attribute that is hardly rare among graduate students these days, let me note that I mean the term to apply in a relative sense.) Indeed, given that people in general follow a distribution according to impatience, temperament, and sensitivity to policy problems, it would be surprising if parallel wiring didn't turn out to be an efficient way of propitiating the learning process for part of the student population. The presumption would seem to be strong enough to warrant experimentation. There is probably ample room for more diversity in the wiring of educational circuitry than we have been imaginative enough to exploit thus far. At least for some students, and maybe not inconsiderable numbers of high quality students, we may even be able to arrive at purely dominant solutions: combining the advantages of enhanced motivation without any loss in rigor, depth, or even breadth of curricular content.

In this process, certain policy research institutions may have a useful role to play. It is possible, if not likely, that some of them may be singularly well situated to combine exposure and immersion in real policy problems with disciplined, formal educational effort in interdisciplinary theory, method, tools, and techniques.

III.

These considerations, as well as others, were behind a decision made at Rand in mid-1969 to explore the feasibility and desirability
of undertaking an educational program in policy analysis. With this exploratory aim in mind, an educational advisory committee was set up consisting of a dozen senior staff members in mathematics and the physical sciences, as well as economics and the social sciences, with the author as chairman. Over a number of months, the committee discussed issues relating to purpose, comparative advantage, and curricular content, as well as possible accreditation and funding.

As a result of these discussions, as well as other discussions with people involved in the principal university programs concerned with policy analysis, the committee recommended that Rand establish a graduate program in policy analysis, beginning with a small experimental effort, and with the understanding that the information thereby gleaned would be used in deciding whether and how to proceed further. (In other words, the decision was made in accordance with precepts derived from studies, done at Rand and other research institutions, on how to proceed with decisions in the face of large uncertainties, such as those that exist in the whole research and development field.) The experimental "prototype" effort is to be conducted as an "in-house" venture, with Rand staff members who meet certain qualifications as the students, and other staff members, with suitable qualifications as faculty. Student qualifications included, among others, that the participant have a Master's degree, but not a Ph.D., that he or she be under 30, and that he or she have been at Rand not less than one year nor more than five. It is also understood that students should have at least a modest degree of literacy in mathematics, social science and physical science.

From Rand's own institutional point of view, the broad reasons for moving in this direction include: the national need, reflected, for example, in the National Science Foundation's statement about the lack of manpower properly trained for interdisciplinary research; the possibility that a policy research organization like Rand might have special capabilities for helping to meet this need, in addition to the efforts and programs already underway along these lines at Harvard, Berkeley, Pennsylvania, and several other institutions; the keen interest of some of Rand's best staff members in undertaking the effort; the benefits from
upgrading the Rand staff who participate as students in the experimental prototype phase; and the benefits from having a small and select group of graduate students working at Rand in the follow-on phase, if indeed a decision is made to go ahead.

The committee decided that these positive arguments outweighed the non-negligible negative ones: the complexities, distractions, and fragmentation that such a program might entail for our principal research endeavors; the uncertainties connected with the trade-off question that was alluded to earlier, namely, whether indeed dominant combinations of rigor and relevance could be achieved at Rand, or whether in fact the sacrifice of the one might be too great in terms of the benefits obtained from the other; and, last but certainly not least, prospective funding problems, if we decide to expand and sustain the program.

The curriculum to be tested in the prototype effort has three parts, which would continue for nine academic quarters of ten weeks each: (a) an "on-the-job training" segment, comprising on-going Rand research projects that the students will work on, initially in an apprenticeship role, assuming increasing responsibility as the training progresses; (b) a seminar workshop based on on-going and prior Rand studies, to be conducted by the project leader and participants in the study; and (c) two core courses, one in concepts and theory, the other in tools and techniques, which would continue through the entire nine quarters.

The apprenticeship-OJT segment of the three-part program is one in which the comparative advantage of policy research institutions is most evident. In a sense, the two other segments can be viewed as feeding into and reinforcing the OJT.

The case study workshop is to be built around what we have called "clusters" of topics, on which there has been a significant body of Rand research produced in the past couple of decades, as well as analysts in residence at Rand, who worked on the project and would be well qualified to lead the workshop. The idea is not to confine the materials used in the workshop only to those generated in the Rand studies, but to use these materials and the staff members who produced them, as the initial basis for a detailed review of the particular study: how the
policy problem was initially conceived; how it changed in the course of the effort; the methodological and data problems that were encountered, and how they were resolved; the results and implementation, or lack thereof, issuing from the study; how it would have been done differently if the project participants had known at the beginning what they learned by the end, and so on. The subject matter of such clusters would include housing; education; population and demography; foreign economic development and aid; strategic analysis; health and hospital operations; military and non-military Research and Development; tactical gaming; and environmental pollution.

The third part of the curriculum, devoted to the two core courses mentioned above, would run throughout the nine quarters, hence would comprise 18 units in total. The concepts-and-theory track would include micro-economic theory, mathematical game theory, decision theory, organization theory; the politics of policymaking; and law and legal reasoning. (Some of the major subjects, for example, micro-economics and organization theory, would be pursued in several successive quarters.) The tools-and-techniques track would include computer languages, software and hardware; multivariate analysis; operations research; linear and dynamic programming; program budgeting; cost-benefit analysis, and systems analysis; simulation; and forecasting, through DELPHI and other techniques.

During the last year of the program, students will be expected to produce a substantial monograph to satisfy the dissertation requirement for award of a Ph.D. The monograph will grow out of, and thus be part of, the policy project with which their OJT has been concerned. It will be reviewed and certified by the project leader, as well as by qualified faculty in the program and other members of the Rand staff.

Faculty would be selected from the Rand staff, seventy members of which currently teach at various institutions in the area. However, the course content of their teaching would be adapted and elaborated, in accordance with the concepts and design discussed earlier.
IV.

After some experience has been acquired in the "prototype" phase of this effort, various potential improvements in the program will no doubt become visible. Based on this experience, too, as well as on other considerations, a decision will be made on whether to expand the program and open it to qualified people outside Rand. If such a decision is made, the market for trained professionals coming out of the program should be strong: in federal, state and local government; in other policy research institutions; in universities; and even in certain parts of the private sector that are increasingly concerned with public policy, as well as with the public aspects of private corporate policy. In the last category, for example, are domestic corporations that use and affect the environment in substantial ways, and international and multinational business, whose activities are increasingly a subject for, as well as subject to, public policy choice.

The graduate program in policy analysis will be a major departure from Rand's principal activities in the past. Nevertheless, it is not as large a departure as might be assumed. Indeed, there have been considerable, if unfocused, educational activities pursued in the past several years. Besides the teaching by staff members in universities in the Los Angeles area mentioned above, these educational activities have included: a continuing summer program for graduate students, referred to earlier; a systems analysis training course developed and given at Rand for several Filipino officials at the request of the Philippine President; an association of several years standing, between Rand and the University of California at Irvine, in training mid-career officials from the federal government; a training course in urban policy analysis designed for senior local, state, and federal government officials; the planning of policy analysis programs for selected officials from Puerto Rico; and the design and presentation of courses in the systematic analysis of urban problems by Rand staff members at the California Institute of Technology, UCLA, and the New School for Social Research in New York City.
Nevertheless, despite these legacies, the graduate program in policy analysis at Rand is a major new venture. It is also one of the rare instances in Rand's history when -- in accordance with the Rand acronym -- we will be moving from "research" to "new development."