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Interdisciplinary Problem-Oriented Research in the University

The societal problems that face us today are thorny ones. Even though most of them have large scientific and technological components, their solutions more often than not demand the *simultaneous and interactive* efforts of a wide spectrum of talented professionals: scientists, engineers, social scientists, political scientists, lawyers, and doctors, to name only the most obvious. These are the efforts that we have in mind when we speak of interdisciplinary research.

Neither the concept nor the practice of interdisciplinary research is new. Government laboratories, industrial laboratories, and nonprofit research groups like the Rand Corporation have been engaging in interdisciplinary research for years—often, however, oriented toward defense problems. What is new is the realization that a similar but vastly expanded approach must be directed toward society's problems. This realization has resulted in urgent calls for new research institutions: National Environmental Laboratories, Institutes for Health and Medicine, re-oriented National Laboratories, and so on. In such rosters of needed organizations, the universities are often missing. Apparently there is a common conviction that universities are not the place to obtain effective interdisciplinary research on societal problems. In my judgment this belief is both wrong and dangerous.

The reasons that are given for counting the universities out are well known. The universities, it is said, are discipline-oriented (physics, agronomy, sociology), an orientation inimical to interdisciplinary research. Furthermore, universities are oriented toward basic research, while the current need is for applied research. Finally, the pace of university research is too slow to be effective. There is a germ of truth in each of these points, but they do not encompass the whole truth and, in sum, are grossly misleading. Try, for example, to persuade a College of Agriculture or Engineering that it is not interested in applied research!

Why should one turn to the universities for interdisciplinary research? First, the universities are repositories of much of the necessary brainpower and knowledge. The ecologists, political scientists, and sociologists who are essential to these interdisciplinary studies are, in large measure, to be found in the universities.

Second, the universities have a deep concern. Faculty, and especially students, are sensitive to social problems, are eager to work on them, and are often prepared to change their previous ways of life to do so. The pressures of discipline orientation and the tradition of individual scholarship are strong among faculty members, but not strong enough to counter the pressures of social concern. Universities are changing rapidly and will change much more.

But the most important reason why the universities must become involved in interdisciplinary research—and the central reason why society must *insist* on their participation—is their obligation to youth. Coming generations must be taught about society's problems and about the best ways to solve them. College students must learn a genuinely interdisciplinary approach; this can only happen when their professors have personal knowledge of and commitment to interdisciplinary research and when there are programs wherein students can learn by doing—in short, when an interdisciplinary approach permeates the universities.

Pressure the universities if you will; castigate their occasionally overly narrow behavior; insist on changed structures and reward mechanisms. But for earth's sake, don't count them out. Without their active involvement, the future will be a good deal dimmer than it might otherwise appear.—F. A. LONG, *Cornell University*