counterparts in economically competitive nations.

Science teachers in the United States, if they wish to improve their competencies, must spend their own funds to attend evening classes or summer sessions. In Japan, science education centers are located in each prefecture. As part of their periodic responsibilities, Japanese science teachers are assigned to the centers for instruction designed to upgrade their competencies.

In theory, what is taught to students in American schools is determined by 15,300 local school boards and 50 state departments of education. However, because 70 to 90% of the instruction in schools is based on the textbooks used, the role of the textbook publisher is paramount. Textbook publishing in the United States is a highly competitive business and publishers cannot be faulted when they favor profits from sales over educational effectiveness. Consequently, they produce insipid books that are neither challenging nor interesting to students, but are profitable because no one objects to anything they contain. Other economically advanced nations, recognizing that education is of significant national importance, recruit some of their best scholars and practitioners to produce guidelines for what should be taught in their schools. Regardless of how textbooks are produced in those overseas nations, they are required to conform to those guidelines.

In summary, the greatest respect is due the devoted people involved in science education programs. To improve science education, however, the schools must be restructured. Required are a substantial increase of the time students spend in the classroom, year-long employment of teachers with a built-in retraining program, and the mandating of a curriculum designed by the groups mentioned above.

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The Science and Policy of Risk

The letters by Robert K. Adair and H. Keith Florig (18 Dec. 1992, pp. 1868 and 1869) concerning the potential health effects of electromagnetic field exposure do not tackle head-on the pertinent central questions in the interaction of science and public policy. Most of us can clearly identify the positive evidence needed to identify a risk. But how much *negative* evidence do we need to discount a particular suspected risk relative to other lines of necessary research? We must answer this question to the satisfaction of both the scientific and the general public before we can design and evaluate a meaningful research program. Inherent in the discussion of Florig is a second important question: Who decides what fears are justified and what levels of voluntary and involuntary risk deserve attention? The National Academy of Sciences set up by Abraham Lincoln to advise the government? Lawyers for self-appointed public interest groups? Elected officials or public forums?

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