

Research-Based Educational Policy

How can one discriminate between reliable and unreliable research?

By E. D. Hirsch, Jr.

The enormous problem to be faced in basing policy on research is that it is almost impossible to make educational policy that is not based on "research." I don't know of a single failed educational policy, ranging from the naturalistic teaching of reading, to the open classroom, to the teaching of abstract set theory in third-grade math, that has not been justified on the basis of "the research." The "experts" have advocated almost every known educational practice short of inflicting permanent bodily harm.

So we need to discriminate between reliable and unreliable research. The distinguished Harvard sociologist of science, Stephen Cole, in his recent book called *Making Science*, finds a continuous spectrum of reliability in most of the natural and social sciences. At the core of each discipline, there develops a consensus of the learned, and this consensus is highly dependable. It is close enough to being right that you can bet your life and your children's lives on that scientific core.

If this distinction between core and non-core research were rightly understood, then the days of faddism, blind partisanship and unwarranted experimentation would be numbered. I'm not saying that research can decide the aims of education. In a democracy, those aims are decided by the people. But core science can determine how best to achieve those aims.

Insistence upon ideological conformity makes for unreliable science, and it hinders the best research from getting disseminated to the education world. This is a situation that is reminiscent of what happened to biology in the Soviet Union under the domination of Lysenkoism. In Stalin's day, Lysenko was the powerful bureaucrat/scientist who controlled Soviet biological research and declined to fund any that didn't conform to the received ideology. During the Lysenko period, the

dominance of this ideology over disinterested research not only retarded Soviet biology, it also caused mass starvation. There may be some analogies lurking in that history.

Let me illustrate with one recent incident. The premier journal of educational research is *Educational Researcher*. Recently, an article was submitted to it that refuted the claims of situated learning. Situated learning is the supposed scientific basis of such teaching methods as project learning, integrated learning and thematic learning. The article also refuted the claims of constructivism, which is a supposedly scientific foundation for such teaching methods as inquiry learning, discovery learning and hands-on learning.

After a so-called peer review, *Educational Researcher* turned down the article and agreed to print only a section of its critique of situated learning. This decision would have been unremarkable except that the three authors of the article happened to be among the most distinguished cognitive scientists in the country, one of whom happens also to be a Nobel prize winner. No knowledgeable and disinterested person should doubt that these scientists are far more likely than their educationist reviewers to be expressing the consensus view at the core of mainstream psychology. It is also safe to bet that they are much more likely to be right than the peer reviewers chosen by *Educational Researcher*. This is a rather clear example of the way educational Lysenkoism closes off important and sometimes critical sources of scientific information from educators and policy makers.

In California, there are two rival math groups vying for approval. On the one side is what *Education Week* called "the reform group" who want to put in place the standards of the National Council of Teachers of Mathematics

(NCTM) and on the other the so-called "anti-reform" group that calls those standards variously "fuzzy math" and "whole math." The NCTM group stresses conceptual understanding over mindless drill and practice, while the dissident group stresses the need for drill and practice leading to mastery.

To resolve the issue, which researchers should be heeded? Here are three suggestions: John Anderson, David Geary and Robert Siegler, three highly-distinguished scientists in the psychology of math education. What are they likely to say? I believe you will get strong agreement from them on the following points: that varied and repeated practice leading to rapid recall and automaticity in mathematics is a necessary prerequisite to higher-order problem-solving skills in both mathematics and the sciences. They would probably explain to you that lack of automaticity places limits on the mind's channel capacity for higher-order problem-solving skills. Moreover, they would provide you with facts, figures and documentation to support their position, and these would be highly-reliable data that would come not just from isolated lab experiments but also from large-scale classroom results.

Over the past decades, educational Lysenkoism has created a conflict between the conclusions that are promulgated widely in education and those that are accepted in mainstream psychology. As Cole points out, we need to depend on the consensus views of scientists who are regarded as tops in their fields by other scientists. It does not make sense to depend any longer on the guru-principle in education.

(Adapted with permission from Vol. 10, # 1/2 of "Common Knowledge," the newsletter of the Core Knowledge Foundation, 1-800-238-3233)