

The California Science Framework: How Firm a Foundation?

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As a resident of earthquake-prone California, I used to be appalled at where some people built their homes. Driving along the freeway, I often shuddered as I passed houses that hung off the edge of a cliff, supported only by frail-looking timbers.

Although I no longer live in California, a similar feeling grabs me when I consider the frail underpinnings on which Californians have based their science education: I ask myself why anyone would ever build on such a foundation.

That frail foundation is California's new Science Framework, a document that specifies important guidelines for teaching science in California. Released late September in final form, this document contains much that is commendable. But it also contains flaws and frailties that are astonishing for a state with California's intellectual resources. One of the most remarkable flaws in the new Framework is the distorted image of science that it presents. Proponents of science education reform have rightly emphasized the need to give students a realistic understanding of the scientific enterprise -- an understanding that recognizes the power of science without deifying it or making it the sole claimant to rationality. Unfortunately, their message never made it to California, where science is now officially enshrined as the be-all and end-all of rationality. According to the Framework:

Science has its own character as an intellectual activity. Science differs in several ways from other scholarly inquiries, such as literary criticism, historical writing, or the development of a philosophical or religious perspective. Science aims to be testable, objective, and consistent.

What the authors of California's Framework fail to understand is that testability, objectivity, and consistency are the aim of *all* scholarly activity, separating good scholarship from bad scholarship--not science from everything else. By claiming otherwise, the Framework's authors have illegitimately elevated science to the level of an all-inclusive world-view, which leading philosopher of science Nicholas Rescher calls the "peculiar and distorted doctrine" of scientism.

Another serious flaw is the Framework's strange inconsistency when it comes to teaching children scientific reasoning. In one place, for example, the Framework admonishes teachers to "show students that nothing in science is decided just because someone important says it is so (authority), or because that's the way it's always been done (tradition). In the free marketplace of ideas, the better new idea supersedes or absorbs the previous ones. This open

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competition of ideas is a major part of the excitement of science." Furthermore, "emphasis should be placed not on coming up with the 'right answer,' but on doing science the right way."

Only two pages later, however, it becomes clear that the "free marketplace of ideas" has sharply limited hours:

At times some students may insist that certain conclusions of science cannot be true because of certain religious or philosophical beliefs that they hold....It is appropriate for the teacher to express in this regard, "I understand that you may have personal reservations about accepting this scientific evidence, but it is scientific knowledge about which there is no reasonable doubt among scientists in their field, and it is my responsibility to teach it because it is part of our common intellectual heritage."

The essential message, therefore, is that whenever students question scientific conclusions that touch on important issues, teachers must close up shop and reimpose the accepted orthodoxy. Such paternalism is hardly consistent with the "open competition of ideas." It's also hypocritical, for it allows science educators to challenge students' deepest beliefs, while denying students any chance to fight back.

No doubt, the Framework's authors would justify their paternalism by arguing that philosophical and religious considerations have no bearing on scientific theories. But this is a mistake that would embarrass any responsible scholar. Science is not an isolated enterprise. The history of science demonstrates that it is common for other disciplines to raise conceptual problems for scientific theories. And this makes perfect sense. As philosopher J.P. Moreland points out, "if one has arguments or reasons for holding to some proposition, and if a scientific theory conflicts with that proposition..., then the proposition itself provides some evidence against the scientific theory. This is so even when the proposition in question is theological, philosophical, or related to some other discipline outside science. The real issue is not what kind of proposition it is, but how strong the evidence is for it."

One can only guess at how some of California's finest educators managed to produce such shoddy work. But it does seem just the ticket for an educational elite bent on establishing their own authority in the public schools while silencing dissent from other sources. If science were indeed set apart from other disciplines by virtue of its rationality, if philosophical and religious considerations were indeed irrelevant to scientific theory, then who could legitimately challenge the authority of science educators? Not the students, not the parents, not even scholars from other fields. Science educators would have everything to themselves, which is perhaps just what they want.

It does not bode well when a state with California's influence builds their education system on such a frail and flawed foundation. Like a house teetering on a cliff, California science education is headed for disaster. And if the rest of America follows California's lead, our foolishness will lead only one place: the rubble heap.