

Science, Education, and the Common Good

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Calls to redress alarming inadequacies in science education appear regularly, most recently following the latest National Assessment of Educational Progress report on urban school districts (November 15, 2006). The report showed that students in urban schools lagged badly in scientific literacy. What is missing from the conventional response is a broader perspective on science education and its relationship to the status of science in contemporary culture.

The inadequacies of science education in our schools and the low level of scientific literacy among the American population are often blamed on deficiencies

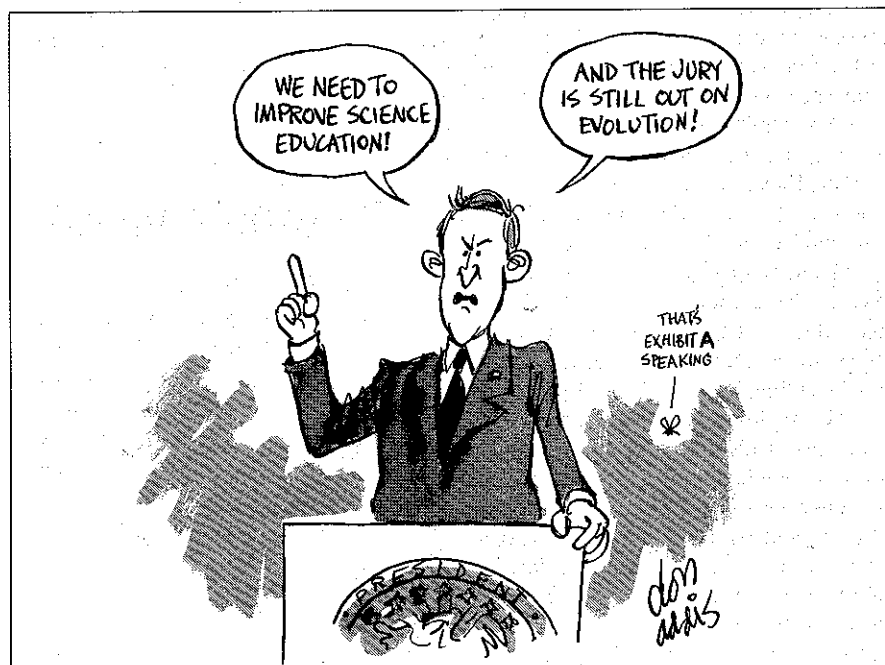
in the public-school system. However, the behavior of both students and teachers seems to reflect widely held, ambivalent, and even confused attitudes toward the progress of science and its benefits for society as a whole.

The prevalence of such attitudes at the very pinnacle of the U.S. government indicates their wide circulation. President Bush often highlights his endeavor to reinvigorate the American dream of education for all under the banner "No Child Left Behind." Yet, the president has failed to send the public a clear message of trust in the universal value of a secular science and its concomitant of free inquiry. Rather, he has

suggested that Americans must trust first and foremost in their religious beliefs and then evaluate the progress of science in areas such as stem cell research in light of their personal religious commitments.

Historically, the American dream of education and progress for all has been predicated on the notion that the form of education that can truly empower individuals is scientific in both spirit and principle. Now, if the president of the United States does not fully trust the progress of science, it could be expected that large sections of the American public also do not genuinely believe that science education is crucial to the intellectual growth of American children.

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The American dream of harnessing scientific progress to the betterment of each and every citizen arose in the heyday of the Progressive era in the early twentieth century. It was originally propagated by a coalition comprising a new breed of industrialists, public servants, and academicians, who believed that science and its universal method of knowledge acquisition could unify the nation and generate economic and social progress. This vision was predicated on the idea that secular science was,

and should be, value-neutral and thoroughly indifferent to each component of the amalgam of distinctive identities and beliefs that make up the American people. The Progressives professed that this indifference on the part of science

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was basic to its credibility and that the neutrality of empirical science was its strength.

The proclaimed indifference of science to belief is now being reciprocated. Teachers fail to relate factual knowledge adequately to the distinctive experiences and values of an increasingly ethnically and religiously diverse body of students. As a result, science in the classroom often fails to inspire students. Some students feel alienated, given the pressure of covering the basics of modern science. In addition, some parents believe that the integrity of their family's religious beliefs is undermined by the forces of scientific indifference. This hostility is expressed in their children's attitude toward science in the classroom. In addition, there is even a fashionable relativist outlook that belittles the achievements of science. Moreover, in an age when technology is increasingly user-friendly, one can easily be indifferent, alienated, or hostile to science yet at the same time continue to enjoy the benefits of science-based, high-tech industry.

This reciprocation of indifference between the scientific community and much of the general public has gradually eroded the status of science as a common good. Most Americans still believe that science, technology, and the market are reliable means of distributing material affluence in society. Nevertheless, too many citizens have, unfortunately, discovered at school that scientific work is not a model they wish to embrace. As a result, the traditional model of science education appears more elusive than ever. Though parents recognize that their children's futures depends on a good education, the swell of scientific illiteracy prevents these parents from assessing with confidence and clarity precisely what a “good education” means. And, despite the public's general expectation that science will progress, more and more individuals do not seek personal engagement in this adventure. In this respect, the dream of science for all has become a cliché rather than a source of personal inspiration.

The first step in reversing this unfortunate trend is recognizing the reality of pluralism. Diversity of personal identities and beliefs in American society is inevitable and indelible. For this reason, secular traditions—such as modern science—which are not subject to the authority of any particular creed or set of beliefs, are vital. These traditions generate a secular living space that enables individuals to transcend their distinctive identity and beliefs. This allows them to reach out and learn from others, thereby creating with others common assets that they could not conceive of on their own. In a culturally heterogeneous society, the cultivation of secular common assets is in the best interest of everybody, including those who hold dearly to their distinctive identities.

The second step requires a change of outlook among scientists and educators. They must recognize that deficiencies in science education are the effect, rather than the cause, of the deteriorating status of science in society. Science in contemporary society must be a collective endeavor aimed at achieving a shared understanding of our world. For this reason, it must be much more than factual knowledge and ought to be taught and learned as such. In this respect, the notion that scientific progress is value-neutral because it is confined to the expan-

sion of knowledge is misleading in theory and counterproductive in practice.

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Research scientists and educators ought to assume a leadership role that demonstrates, in theory and practice, that science is a model of human growth and development. This model should be applied in the classroom to address the values, concerns, and life experiences of individual students. Students will then come to recognize that science offers abstract knowledge as well as a mode of understanding their place in the world. It is hoped that they will be more likely to assume more active roles in the classroom. The result will be improved scientific literacy in society.

Needless to say, science as a model of human growth and development will never be immune to public debate. However, if the suggested steps are adopted, then the debate about science, education, and the common good could transcend the lamentable mood of ambivalence and confusion that we have currently. ■■

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