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Integrating Policy and Decision Making into Undergraduate Science Education

This article, part of a quarterly column “From the National Academies” in the online journal CBE Life Sciences Education, summarizes a national convocation that was held in 2007 and organized by the National Academy of Sciences, National Academy of Engineering, and the Institute of Medicine. The convocation brought together scientists engineers, and technology experts with state-level policy makers, along with communications experts, to discuss how science and technology can be more effectively communicated and used to inform the decisions of legislators and policymakers (a report from the convocation is available at http://www.nap.edu/catalog.php?record_id=12160). The National Academies engage the nation’s top experts in a unique committee process that produces objective and scientifically balanced advice on some of the most difficult and critical issues the nation faces. Expert reports have addressed such topics as recovering from devastating natural disasters, addressing climate change, protecting endangered species, curtailing the spread of human and animal diseases, and reducing threats from terrorism, to name a few. For policymakers, these issues require considering the needs of the several ‘publics’ that hold various values, ideas and often competing interests. Science plays a crucial informing role; it represents the best mechanism we have to provide objective information about risks, costs, and benefits of policy decisions. So what does this have to do with science education? The answer is that the intersection of science and public policy provides a rich and exciting view to some of the possible “story problems” of science, and help to better illuminate the role of science itself. Several state leaders at the convocation shared their stories of the questions they asked the Academies: “How can we save the iconic salmon of Washington state while still meeting needs for water for drinking water, farming, and recreation?” “Can we revive an oyster industry with the safe introduction of a non-native oyster?” In addition to providing the story problems of science, the convocation raised questions about how more people, including policymakers, might better understand science. These questions focused on issues such as how can elected and appointed government officials as well as the general public be made more “STEM literate” and to better understand and appreciate the processes, nature, and limits of both the scientific and engineering methods? How can more students (especially women and underrepresented minorities) be recruited into the STEM disciplines and made more aware of the rich, rewarding careers that focus on public service and the applications of STEM to public welfare? The article provides several additional examples of National Academies’ reports that explore the relevance of the science and technology to real world problems. We hope that the stories will inspire professional scientists and engineers, along with education experts and policymakers to think about new ways to bring cutting-edge science, engineering, and public policy issues to the attention of students both in formal and informal education. It might even help students who go on in science to eventually answer the NSF grant application question that asks: “What is the broader impact of the proposed activity?” For additional perspectives, see another “From the National Academies” article by Jurkowski, Reid, and Labov (CBE Life Sci Educ 6(4): 260-265, at http://www.lifescied.org/).

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