



Director's Matters

Guest column by Jack G. Hehn, former director of Education, AIP

Education is important ... As little as schools may change, the students change dramatically every year.

I have greatly appreciated the opportunity to work with and serve the science and science education communities over the last 20 years. I have seen significant changes in science education over the 40-year span of my academic and administrative career; most of the changes are positive, but some are not. As I transition into a new AIP position, Education fellow, I fully intend to continue to interact with colleagues and offer my services and knowledge where it might be useful.

I offer a few observations related to progress in American education:

Scientists are recognizing that it is vitally important to communicate to citizens and taxpayers that the quality of their lives is improved by science. Teachers are spending more time relating science and engineering concepts to the context of students' lives.

Funding support for education and for science is under stress, and that stress will continue and likely increase.

Scientists and science teachers, in collaboration, must continue to take a more active role in advocating for supportive science education policy at the local, state, and federal levels. Education, whether graduate, undergraduate, secondary, or elementary, is a much more complex enterprise than most pundits and policymakers will acknowledge. The national pattern of postulating dramatic progress in education produced by simplistic experiments and reforms while failing to make the investments promised or necessary has caused more harm than good in many cases. Many experimental programs often last only long enough to demonstrate preliminary results and fail to make fundamental changes in the system.

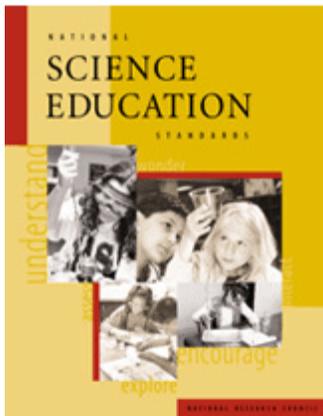
However, much excellent science education reform and progress has come through projects supported by federal and state agencies. There are many models that should be widely reported for adoption and adaptation.

While more students are learning physics with a broader curriculum, focus is shifting from what is taught to what is learned and how students can demonstrate



From the left, Jack Hehn with citizen scientist Neal Lane and SPS member Justin Stimatze at the 2008 Sigma Pi Sigma Congress.

learning gains. Significant research efforts are being undertaken to determine what and how students learn, and instructors are applying those findings in and out of class. The improving quality of students' work is what must ensure a future for the scientific enterprise.



There is a growing emphasis on the premise that ALL students must be given the opportunity to learn science, through a framework of core ideas in disciplines, practices of science, and unifying cross-cutting concepts. This national reform agenda will be primarily based on implementing preK-12 science standards, clear statements about what students should know and be able to do.

At the post-secondary level, thriving physics departments are creating a strong "sense of belonging" and community among their undergraduate majors and with the faculty, staff, graduate students, and alumni of the department. SPS chapters have

demonstrated success in helping departments achieve this goal. Networks and resource collections (like ComPADRE) are being developed to promote community and communication among physics teachers and students at all levels. Technology will play an ever-increasing role in education.

Increasing attention is being given to the science preparation of future teachers at all grade levels. While the school environment is important, teachers have the most influence on positive student learning gains. Teachers need career-long opportunities and support to continue their professional development.

I thank the many mentors I have had throughout my career. I have confidence that AIP and AIP's Member Societies will continue to support science education and policy in many ways.

Education is a complex enterprise that is deeply embedded in a culture, and, in the words of Melba Phillips, "Unlike most physics problems, problems in education do not stay solved."

PHYSICS RESOURCES CENTER MATTERS

Tracking entrepreneurs through the "valley of death"



From the left, Orville Butler, HoPE project historian; Mark McDonnell, CFO of ARCH Venture Partners, Chicago; and Joe Anderson, NBLA Director.

Since the three-year History of Physics Entrepreneurship (HoPE) study began in May 2010, Niels Bohr Library and Archives (NBLA) staff have completed 151 interviews with physics entrepreneurs, university technology transfer officers, and venture capitalists across the country. While the interviews are still being analyzed, some trends are obvious at this point. Despite the fact that the interviewees have to take

new technology through the "valley of death" from idea to product, they do not see their

behavior as especially risky. Rather, they generally feel confident in their ability to analyze risk and meet with success. Another unexpected finding is the important role that immigrants play in physics-based entrepreneurship. More than one-fourth of the entrepreneurs interviewed immigrated to the US, many to complete their education. For more information on the study's initial findings, see the lead story in the [summer issue of the AIP History Newsletter](#).

AROUND AIP

Inova Wellness Webinars



[Inova Employee Assistance](#) offers a variety of services, such as counseling, work life services, assistance locating child, elder, or pet care, and suggestions for improving overall health and well-being.

Employees and their household members can call Inova Employee Assistance at 1-800-346-0110 or search its services online.

In addition, Inova also offers monthly webinars on wellness, stress management, helpful hints for working parents, and many other topics through www.inova.org/eap. Contact [Human Resources](#) for AIP's user name and password. You can register for any upcoming seminar and also look at previous seminars in the archives.

The next webinar, "**Information Overload: Navigating Through the Chaos**," takes place on September 20, 2011. Learn how to achieve greater control of the information you need and want, thereby reducing the noise and increasing your understanding.

WHAT'S HAPPENING THIS WEEK

September 14 – 16

- Association of Learned and Professional Society Publishers Conference, Heythrop Park, UK. Friday, September 16: Terry Hulbert, director of Business Development, speaks on social media and the scholarly record.

September 15 – 18

- Chinese Physical Society Fall Meeting, Zhejiang University in Hangzhou, Zhejiang, China. Friday, September 16: AIP hosts an afternoon of sessions.

We invite your feedback to this newsletter via email to aipmatters@aip.org.

For past issues of this newsletter, visit the [AIP Matters archives](#).