Forging partnerships in science education reform

By Danielle Mihram

A report on the annual forum of Sigma Xi

Scientists, Educators, and National Standards—Action at the Local Level" was this year's theme for the annual forum of Sigma Xi (the honorary society for research scientists), held April 14–15, 1994, in Atlanta. The forum included talks by Marshall Smith (U.S. under secretary of education) on education reform; Bruce Alberts (president, National Academy of Sciences) on national education standards; William E. Kirwan (president, University of Maryland) on undergraduate education for science teachers; and Luther Williams (assistant director for education and human resources, National Science Foundation) on the cost of alternative changes in science education.

The pertinence of such a forum for both educators and librarians is perhaps best judged in the context of several national initiatives which took place during the years 1989–1991, starting with the 1989 report from the National Center for Educational Statistics which stated that students in the U.S. generally lag behind many of their counterparts from other developed countries in mathematics and science achievement. This report followed hundreds of reports responding to the outcry created by the publication of A Nation at Risk (1983), the secretary of education's report on the decline of America's schools. In retrospect, these reports had (according to Kirwan) very little impact on educational reform and the number of students demonstrating science literacy has declined during the last few years. Indeed, there appears to be a national consensus that we need standards as well as a system of national assessments to check on both students' knowledge of science and how well the schools are teaching them. This "consensus," recently codified into national legislation, is known as "Goals 2,000," and the act was signed by the president in early April 1994.

Goals 2,000

goals 2,000 is designed to stimulate standards-based reform in each of the Union's 50 states. The hope is to create a long-term productive partnership among local schools, districts, states, and the federal government focused on bringing all students to far higher levels of achievement than in the past. The act has two parts: 1) it establishes a mechanism for assessing and certifying voluntary national content and performance standards; and 2) it is designed to stimulate reform of the entire education system by providing resources for the development, at the state and local levels, of systemic educational reforms based on challenging state standards.

A partnership that includes librarians

According to Bruce Albert, probably less than one percent of our elementary school students are being exposed to the type of "hands-on" science that they need for the future. Hence, the need for an effective national network of experts: to inform and communicate with local groups; based on a partnership of informed scientists, interested citizens, and outstanding science teachers within districts; and to use the resources of both the National Academy of Sciences and many scientific societies interested in this issue. No mention was made of academic science librarians whose role in this educational enterprise will be quite significant. C. Kumar N. Patel, Sigma Xi's current president, acknowledged this oversight (during the (Sigma Xi cont. on page 435)

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432 / C&RL News
Secretary: Julie M. Hurd (229); Mara L. Sprain (110).

Slavic and East European Section
Vice-Chair/Chair-Elect: Laszlo L. Kovacs (48);
write-in candidate (4).
Member-at-Large: Bradley L. Schaffner (50);
write-in candidate (2).

University Libraries Section
Vice-Chair/Chair-Elect: William J. Crowe (686);
David W. Lewis (540).
Member-at-Large (two elected): Elaine Didier
(465); Louise Sherby (274); James Cogswell
(263); Tyrone Cannon (159).

Western European Specialists Section
Vice-Chair/Chair-Elect: Michael P. Olson (101);
Thomas M. Izbicki (57).
Secretary: Gretchen E. Holten (95); Reinhart
Sonnenburg (57).
Member-at-Large: Sem C. Sutter (69); Julie M.
Still (50); Peter B. Allison (40).

Women's Studies Section
Vice-Chair/Chair-Elect: Grace M. Jackson-
Brown (99); Rita M. Pellen (67).
Secretary: May M. Jafari (142); write-in can­
didate (2).
Member-at-Large: Kristin Ramsdell (95);
Pauline D. Manaka (68).

(Sigma Xi cont. from page 432)

The view from the field
Several members of the audience noted the
negative effects on children of television pro­
grams and sitcoms, most of which present sci­
ence either as a subject for nerds or of little
value to the individual's well-being or national
survival. One suggestion was that Sigma Xi
members use their influence in the corporate
laboratories to restrict their respective compa­

nies' advertising in any television show which
does not actively support education and/or sci­
ence and their positive roles in America's fu­
ture.

The major concerns expressed by almost all
speakers were: much of the current content-
based science curriculum is out of date, many
teachers are out of touch with "live science," most have little more than a nodding acquain­
tance with the practice of the very subject which they teach, and, finally, the median age of the
nation's K–12 science and math teachers is in
the mid-40s; hence, most have been out of
school for more than 20 years.

The proceedings of the forum, due to ap­
pear in fall 1994, may provide very interesting
and detailed accounts of efforts aimed at coun­
teracting such a situation. Understandably, the
role of college librarians in these efforts was
not even mentioned, yet the following sug­
gested collaborative actions at the local level
could certainly include them: Assist teachers in
locating funding sources; provide (on-campus)
hosting facilities for science fairs; and volun­
teer to serve on school committees to provide
technical assistance on technology (hardware,
software, and electronic and multimedia re­
sources).

Next year's theme
The theme for next year's forum will touch upon
an issue with global implications: A 50-year re­
rospective on Vannevar Bush's book Science: The Endless Frontier, which was first published
in 1945 and dealt with research and develop­
ment plans just after World War II. How this
frontier will develop in the future, particularly
with the close of the cold war, will be the sub­
ject of next year's forum to be held in North
Carolina at Sigma Xi's headquarters, 99
Alexander Drive, P. O. Box 13975, Research
Triangle, NC 27709; phone: (919) 549-4691 or
(800) 243-6534. ■