



## **Report of the Committee on Education December 21, 2005**

*Members:* Edward Redish (Chair), Garry Gladding, Elizabeth McCormack, Warren Rogers, Janet Tate, Ramon Lopez, Margaret McMahan, Harold Metcalf, Gay Stewart

*Staff:* Ted Hodapp, Sue Otwell, Darlene Logan

### **Next Chair**

The APS President-Elect approved Ramon Lopez as CoE Chair for 2006.

### **Meetings**

During 2005, the CoE held two meetings as follows:

- May 11, 2005, College Park
- November 21, O'Hare Airport, Chicago, IL

In addition, the committee consulted on conference calls on July 26<sup>th</sup> and October 3<sup>rd</sup>.

### **Issues**

In its last meeting of 2004, and the first meeting of 2005, the committee identified numerous issues of interest to the committee. Three were selected for particular emphasis:

1. *Lobbying:* Encouraging the APS to become involved with lobbying for increased funding for science education
2. *Licensing Teachers:* Finding mechanisms to involve APS with providing advice to states on the requirements for the licensing of physics teachers
3. *Preparation of School Teachers:* Increasing the role of the APS and physics departments in the training of school teachers of physics (in high schools) and science (for earlier grades)

In addition to these primary issues, the committee worked on a number of additional issues:

4. *Funding the Education Award:* Fund raising for the APS Award for Excellence in Physics Education
5. *Task Forces:* Responding to and advising the task forces creating documents on Self Study and Graduate Education
6. *Sessions at APS meetings:* Working with the FEd to encourage education sessions at APS meeting
7. *NAEP:* The CoE reviewed a proposed document setting science standards for schools

### **Activities**

#### *1. Lobbying*

The Federal Government traditionally provides support for the wide variety of activities needed for the maintenance and improvement of science education. The connection between education and the scientific community has largely been via a variety of programs in the National Science Foundation. These programs have recently come under attack and been targeted for dramatic reductions or elimination. The CoE felt that this could have dire consequences for the profession

of physics and for the strength of science in the US. As a result, the CoE began to try to get the APS to raise the priority for support of science education in their lobbying mix.

Redish and Hodapp met with Mike Lubell and the group at the APS Washington Office in December, 2004 for advice on how to increase the APS into the lobbying effort on science education funding.

In February, Hodapp, Redish, and Norman Fortenberry attended the PPC meeting in DC to make the case for support of funding of science education. Hodapp and Fortenberry made a presentation.

In April, Hodapp and Redish attended the PoPA meeting in Tampa and made a presentation.

Discussions throughout the year led eventually to the concept of placing the CoE chair or committee member designee on the Physics Policy Committee (PPC), and a one-year trial is being pursued.

In its November meeting, the CoE discussed the statements on teacher education being prepared by the APS Washington office and made suggestions and recommendations.

COE decided to write its own one-page paper to reflect the two priorities for legislation: improving undergraduate science/math education through increased funding, and the need for discipline-based research on science and math education. The paper needs language to show that research on physics education is critical to produce excellent teachers. A subcommittee of Lopez, Redish, and Gladding are working on preparing these documents.

## *2. Licensing Teachers*

The committee agreed to prepare a list of states with the dates of their reviews of teaching standards.

## *3. Preparation of School Teachers*

The committee received regular reports on the state of the PhysTEC project. PhysTEC has funding for year 6 and possibly for year 7 and is exploring various federal and private sources for continuation of the project.

Ed Lee has run a number of valuable teacher's days at APS meetings and the committee was interested in finding ways to extend these activities by involving the APS units. The CoE unanimously approved the following motion:

Send an email to executive committees of APS units encouraging them to create a committee on education and identify a liaison for education issues for the purpose of interacting with the FEd and doing outreach activities. Seconded and unanimously approved. The message should go to divisions (not the FEd), sections, and topical groups. The purpose is to increase communication between COE and Fed for the purpose of outreach and developing sessions at various meetings.

The committee assigned members to draft a letter to appropriate APS units and to create a draft webpage to provide information for units on how to create effective Teachers' Days.

## *4. Funding the Education Award*

At the November meeting, Janet Tate reported that the goal for funding the Excellence in Education Award is nearly in sight, the balance being about \$79,000 including matching funds

from Forum on Education. APS Development Director, Darlene Logan, is pursuing opportunities with private foundations.

#### *5. Task Forces*

Two task forces completed reports during the past year: The Task Force on Guidelines for Self-Study and External Evaluations of Undergraduate Physics Programs and the Task Force on Graduate Education in Physics.

The committee recommended changes to the Self-Study document, in particular, suggesting the inclusion of references and resource links.

The Task Force on Graduate Education in Physics completed its report and the committee discussed possible next steps.

#### *6. Sessions at APS Meetings*

The FED continues to sponsor education sessions at the March and April APS meetings, at one division meeting a year, and an APS session at the summer AAPT meeting. Committee members are working with the FED to increase the level of this activity.

#### *7. NAEP*

A new blueprint outlining the science content of the National Assessment of Educational Progress (NAEP) is being developed. States will use this document in determining their own standards. COE, representing APS, was asked to sign a letter from the scientific societies endorsing these revisions; however, the committee felt the document contained some erroneous and misleading statements. The committee decided that it would not vote to support the document in its present form. The committee is preparing a letter to the NAEP steering committee requesting changes.

#### Other Approved Motions and Statements

The CoE voted unanimously to endorse the Departmental Self-Study Guidelines.

The CoE voted unanimously to congratulate the Graduate Education Task Force on the completion of its report.

The CoE was informed of the death of former APS education director, Fred Stein. The committee voted unanimously to express condolences to his family in remembrance of his many contributions to the American Physical Society and the Committee on Education.

### **Topics for Consideration in the Coming Year**

Interaction with the new AAPT Topical Group in Physics Education Research and its elected Leadership Organizing Committee.

Involvement with Teach for America

Involvement with defense of science against theocratic attempts to suppress or distort the teaching of science (especially evolution)

Could the task force that created the SPIN-UP report be used as a starting point to create a “best-practices” document for undergraduate physics programs at four-year colleges? (This document would be meant to include suggestions and examples of modern pedagogy and would be intended as descriptive rather than prescriptive.)

Involvement with the GRE to improve the effectiveness of the graduate physics exam

Involvement with the Center for Educational Policy Research (CEPR) study to determine an introductory best practice college course, in order to improve the AP Physics exam and as a result, influence the AP course. (The CEEB has requested this study in order to possibly redesign the Physics AP exam.)

Review and suggest modifications for the New Faculty Workshops.

Review and suggest changes for the education and outreach pages on the APS website in conjunction with the ongoing review and upgrade of the overall APS website.