

Minutes

ICPE 2002, Lund August 10-11

Attending: Sahm, Ogborn, Talisayon, Park, Alarcon, Vicentini, Hyodo, MacFarland, Tibell, Redish

Absent: Sere, Hamburger, Krotov, Seretlo

Guest: Trainer

1. Introduction

1.1 Welcome (Sahm)

Sahm opened the meeting by welcoming the attendees. Paul Black and Len Jossem, frequent guest and former chairs were unable to attend and sent regrets.

1.2 Minutes of 2001 Seoul

Redish reported that the minutes for the meeting at Seoul had been distributed and corrected via email. Some additional spelling corrections were made. The minutes were approved.

1.3 Agenda

The agenda was presented and approved

2, Reports on Conference

2.1 ICPEC 2001 in Korea

Pak reported that the conference went well. Proceedings and CD are being prepared and should be published before the end of this year. About 15 countries were represented with between 250-300 attendees.

Hyodo reported that after Korean conference, the Japanese invited Ogborn to give a lecture and workshop for the Japanese Physical Society and their Society for Education in Tokyo, Kyoto, and Osaka. Plan to translate his textbook into Japanese.

2.2 Computer and Information Technology in Physics Education, Manila, Dec 2001,

Talisayon distributed a report. There were 215 participants, including 26 foreign from 8 countries. The meeting included a teleconference with Japan. Proceedings on paper and CD are to be published by the end of the year. The CD with ICPE physics resources prepared by Jossem was distributed at the conference. Interested participants visited schools in Manila.

2.3 ESERA Conference in Tesseloniki, Sept. 2001.

Ogborn reported that the meeting, which included all of science education, not just physics, was well attended. His students attending the meeting reported it as being very successful, though he himself did not attend.

2.4 Conference in Les Houches, "Teaching Physics: a European Confrontation" 23-28 June, 2002.

Treiner reported that 40 people from 20 countries attended. A document has been prepared and will be available on website of European Physical Society, Division of Education, <http://www.nikhef.nl/~ed/EDUCATION/educa.html>.

2.5 Gordon Conference, South Hadley, Massachusetts, USA, June 9-12, 2002

Redish reported that approximately 100 physics education researchers, curriculum designers, and quantum researchers attended a Gordon Conference at Mount Holyoke College on the topic "Physics Research and Education: Quantum Physics." Although not explicitly an international conference, representatives attended from Canada, Switzerland, Australia, Israel, Japan, and Russia.

3. Future Conferences

3.1 Eighth Interamerican Conference on Physics Education, Havana Cuba, July 7-11, 2003.

The conference will be organized by Molto on the theme: Teaching Physics for the Future. ICPE support for this conference was approved unanimously.

3.2 Enrico Fermi Summer School, Research on Physics Education, Varenna, Italy, July 15-25, 2003.

Vicentini and Redish are organizing this first Fermi summer school of the Italian Physical Society to be given on the topic of physics education. The committee suggested that IUPAP support should be specifically earmarked for this conference and for fellowships.

The committee noted that the conference was in alignment with the long-term goals as laid out by ICPE in Seoul. The committee agreed without objection to give this meeting ICPE support.

3.3 International Conference on Physics Education for Reforming the Fundamental Physics Teaching, 20-24 August, 2003.

This meeting will be organized by Zhao Kai-Wa, No further information was available on this meeting and no application for IUPAP support has been received.

3.4 EUPEN General Forum, "Convergence of Physics Studies in Europe" 6-7 September 2002, in Varna Bulgaria.

Tibell reporting.

3.5 International Conference on Science and Math Education, Rio de Janiero, Brazil, 21-23 September 2002

This meeting will be held under the ICSU umbrella through its committee on Capacity Building in Science and will focus on early grades in school. We are involved through

our interest in the education of the teachers of these grades. Hamburger is an organizer and will represent ICPE and IUPAP at this meeting.

3.6 GIREP

Vicentini and Tibell reported that GIREP and the EPS will continue their seminar workshops with a meeting on the theme of teacher training in Udine, during the last week of July.

3.7 ESERA, Netherlands, August 19-23, 2003

3.8 ASPEN region 4th Regional General Assembly and Workshop on Adapting Active Learning Methods to the Asian Context, Sri Lanka. December 2-7, 2002

Alarcon reported that this meeting held a special session on evaluation and assessment in active learning and on international collaboration.

4. Publications

4.1 ICPE Newsletter

Talisayon distributed issue 43 of the newsletter and a report on the budget. 300 copies of issues 40, 41, and 42 were printed (Oct. 2000 - Oct. 2001).

The email list is bigger now than our mailing list used to be. Hard copies are largely for conferences. Sahm raised the issue of mailing to countries who do not have easy access to the internet. Ogborn raised the question about whether ICPE should maintain a mailing list of people around the world interested in physics education. Pak raised the issue that his colleagues in Korea did not know about GIREP and that the ICPE was supporting it.

4.2 Webpages

Since Redish is leaving the commission we need a new webmaster. Sahm suggested that it would be good to continue the secretary as webmaster. One suggestion is to have MacFarland and Zollman work together.

4.3 ICPE Book

Jossem, though not attending, sent on a packet of materials reporting on the status. Redish summarized this report, which is attached to these minutes.

Jossem asked for feedback on whether there should be a second edition of the Research to Teaching book. The commission thought it was a good idea to update. Five of the current members of the commission are involved with teacher education and agreed to review the existing book and send suggestions to Jossem. (Ogborn, Talisayon, Pak, Vicentini, Tibell, Sahm).

4.4 Future Publications

Redish reported on the idea of a virtual journal as proposed by Jim Stith of the American Institute for Physics. This would be a peer-reviewed selection of articles appearing on the topic of physics education in web-linked journals around the world and would provide links to the selected articles. The commission liked very much the idea and suggested including articles in many languages. This should be possible. The commission also suggested that the editorial board of such a web journal should have

representatives from many countries in 6 continents. Nominations for an editorial board could be found among members of the editorial board of IJSE or from a list of current and previous commission members.

5. Links to Scientific Bodies

5.1 IUPAP

The IUPAP General Assembly will meet in Berlin, October 7–12. A new commission will be chosen at that meeting. See the discussion of the current commission's recommendations in section 8. We will be one of 2 commissions presenting at the Assembly. Since Sahm will be organizing the meeting, Tibell will make the presentation for the Commission. See the discussion in section 9 below.

Women in physics will also be a theme of the IUPAP General Assembly. We should contribute to this.

5.2 ICSU

Sahm reported on an Inter-Union Meeting on Education held 17-18 Feb 2002 in Raleigh NC. ICSU asked the scientific unions to work together on science education. Education commission chairs of ICSU Unions met, sponsored by UNESCO. A number of ideas came out of this meeting. The minutes of that meeting are attached to these minutes.

Education meetings are being sponsored by other Unions in ICSU. An International Conference on Chemical Education is being held right now (August 2002) in Beijing sponsored by IUPAC. There will be a workshop of African Education ministers in Mauritius this December and we will try to contribute in some way. Alarcon reported that ICMI (Math Instruction) met in Paris in July. They were interested in a joint meeting between ICMI and ICPE.

5.3 UNESCO

Alarcon reported that she has changed position: she had been the program specialist for basic sciences in Djakarta. Now she has moved to Paris as program specialist for physics and math replacing Raiter. There has not been a major initiative from her office in Physics Education despite the fact that it is supposed to promote research in physics. Paris is supporting the Sri Lanka ASPEN conference and is bringing some Africans to initiate contacts. Alarcon reports that at the ICTP has connections to a lot of centers in Africa. UNESCO representatives are holding discussions with representatives from the ICTP in order to try to start something in Africa through them. There is a project on Optics with the OSA and SPIE in Africa. They would like to help encourage the growth of PER in Africa. There are useful contacts in PER in South Africa. In particular, Diane Grayson is developing workshops for teaching how to do PER. Madame Sere is also active in Senegal.

UNESCO wants to start change-enabling initiatives in physics education, especially in Pakistan and through them to Afghanistan. What do they need that we could offer? Trying to find something we could do. They are seeking contacts and ideas. For a while, they will focus on creating things in Africa and building on what has been started in Southeast Asia.

Computers and old journals would be very valuable to send to third world and developing countries. Many journals, books, and computers are destroyed because the costs of transfer are prohibitive. Sometimes you can get your own institution to pay the costs of shipping. Getting a list of who wants what could help a lot in getting people to contribute. Alarcon will contact ICTP about creating such a list.

The commission set up a working group to discuss this by email: "The Shipping Group" – Alarcon, Talisayon, Tibell, MacFarland, and Hyodo.

5.4 EPS

Tibell reported that the European Physical Society has established a division of education with a university and pre-university section. The EPS works closely with EUPEN. (They have overlapping directorates.) The division asked the 38 national physics societies in EPS to appoint presidential representatives for each of the two sections. Tibell chairs the pre-university section. He is facilitating exchanges of views and discussions among these representatives. Sahm suggested we add the names of the representatives to the mailing list for the ICPE newsletter.

The division is circulating a questionnaire to these representatives to gather information on how each country provides education for physics teachers. The results will be reported to EUPEN. The EPS Conference in Budapest this August will have a session on the topic: "Physics Education: ICT and the University-High School interface". The EPS will begin to make a European inventory of school physics, like the one EUPEN did on the university level.

The EPS has begun creating posters on biographies in the history of physics. They are available on the EPS website at <http://www.eps.org/biographies.html>.

5.5 ASPEN (Alarcon reporting)

ASPEN held a workshop on Active Learning in Physics in Vientiane, Laos, October 30-November 2, 2001. The objectives were to introduce active learning principles and a refresher course for physics teachers in mechanics. The workshop mostly discussed Interactive Lecture Demonstrations (ILDs) and some hands-on activities. The meeting was facilitated through a bi-lingual team teaching approach using an English and a Thai or Laotian speaker. The approach worked well. The workshop made use of traditional physics equipment in a non-traditional active-learning mode.

UNESCO is working with ASPEN to produce materials including video clips of physics demonstrations. In addition, some non-computer-based ILDs developed in Philippines will be made available on the ASPEN website (<http://www.swin.edu.au/physics/aspen/welcome.htm>) and distributed as CDs.

6. Working Groups

The commission discussed a number of issues that would be appropriate for future commission activity.

6.1 The gap between physics education specialists and traditional physics researchers

How can we help bridge the gap between education specialists and physics traditional researchers? The American Physical Society and the American Association of Physics Teachers no longer have meetings together in the US. Similar situations are developing elsewhere. In Germany and SA the groups are still connected. The connections are not strong, but the situation would be worse if they separated.

6.2 2005 World Year of Physics

The EPS has designated 2005 as "The World Year of Physics." (See <http://www.eps.org/wyp2005/wyp2005.html>.) Physics education is expected to be a significant part. What can the ICPE contribute? Help initiate a conference? Update the Physics 2000 book? Focus on information flow and infrastructure for developing physics learning and teaching? We might encourage the creation of an ICPE Conference in Africa. (Diane Grayson or Jan Smit?) "Building connections" is important, but it's expensive to get there. Could distance technology be used to bring in more people? Are there foundations with special interest in South Africa? Next year's commission should consider this. Alarcon will follow up.

6.3 Possible topics for conferences

6.3.1 The growing interdisciplinarity of physics

Physics has changed and continues to change. Complex systems, "les objets fragile" (soft matter, deGennes -- entropy more important than energy) -- foams, gels, defects in solids ... are playing more of a role. They are considered by many as interesting as the more "fundamental" topics of QM, relativity, and cosmology.

A physics conference on interdisciplinarity in physics could bring in folks from other disciplines (some trained as physicists) and could make contacts with other unions. Jon Ogborn thinks there might be a possibility to find someone in Portugal to do this. How about a joint conference in the various disciplines in ICSU? Or making connection with the more general area of science education?

6.3.2 How do we support the elementary school teachers?

6.3.3 Pratibha Jolly might be interested in creating a conference in India.

6.3.4 Pak is interested in organizing a conference on teaching science for talented and gifted students. (Could be a multi-union issue.)

6.4 Increasing the visibility of physics competitions

Tibell suggested that we have a number of physics competitions, some of which are global, some of which are local. Can we make these better known to the community of physicists? If we could somehow put this on the agenda and make them more visible it would help. They could put an interesting show on at a conference. Sahm pointed out that in 1991, the ICPE medal was given to the International Physics Olympics. Perhaps in 2005 the IYPT (International Youth Physics Tournament) might be considered.

6.5 Gender issues

Can we do anything to help promote the goal of increasing the number of women choosing to go into physics?

Sahm distributed two documents from the IUPAP International Conf on Women in Physics (7-9 March, 2002): the agenda item from IUPAP and the Recommendations from the Conference.

MacFarland reports that at Guelph they have between 1/3 and 1/2 women in the physics major. In the rest of Canada it is 1/6. Why? They include multi-disciplinary majors including biophysics and chemical physics. It seems to be important to be "biophysics" as opposed to "physics major with minor in biology". They like having what appears to be a special program. In first year science, typically 1/3 of the students change their minds as to what major they are going into. They therefore choose to keep the 1st year major common for all sciences. Any student in science has to take math, science, physics, and biology. This allows students to change their minds after the first year. In addition, the University of Guelph has an image of being supportive or "nurturing" for students. Other universities have an image of being hard-nosed and not supportive.

Alarcon has done work in UNESCO on the issue of women in physics. A first step is to make people aware of gender imbalance at workshops.

Vicentini says the problem is not so much with women students. The problem is largely with getting jobs and promotions.

The discussion raised many points and agreed that there are complex cultural issues. Situations are different in different countries. The commission agreed to encourage people developing conferences to include a session on the topic. Another issue is to encourage "gender friendly" teaching and materials.

Ogborn reports that in Poland and Slovenia they used to be 50-50 under the communists, but women dropped substantially in physics when the communists were thrown out.

7. The ICPE Medal

We have no more medals. We need to create a new one. We chose last year to continue with the old design (created by Miklos Barsos, a Hungarian artist). John Lewis sent his medal (one of the original 6). Sahm's brother's foundry will create copies for 30 Euros each. They scan it with a laser rather than make a new mold. The commission agreed to make 6 more.

Although no nominations were received this year to award an ICPE medal, the commission felt they would like to award one. A number of names were suggested including: Lillian McDermott, Laurence Viennot, Tai Ryu, and the IYPT (perhaps for 2005)

For a nomination one needs a CV and a nomination letter. After some discussion of the candidates suggested, Ogborn moved that McDermott and Tae Ryu both receive this year's medal. We will collect CV and nomination letters before the new commission takes over and vote by email.

Ogborn suggests the following wording for an announcement: "Recognizing the growing number of people who have, over many years, made important contributions to physics

education internationally, this year the committee has decided to award two medals. The ICPE Medal is awarded to Lillian McDermott and Tae Ryu. The two recipients have made very distinctive kinds of contributions, equally valuable but distinctly different."

8. ICPE Member and Officer Candidates for 2002-2005

The IUPAP General Assembly in October will select a new commission. Two candidates have been nominated for chair. The current commission favors having continuity, someone who has served on the current commission. (Tibell) The nominee for Vice-Chair, Hyodo, agrees to serve and is supported by the current committee. There was no nomination for Secretary, but MacFarland was nominated by the current commission and has agreed to serve.

The commission is entitled to nominate associate members one year after the commission has been appointed, so the new commission will appoint a new slate of associate members. The current associate members, Alarcon, Dinardo, Talisayon, will continue next year. The slate of 18 nominees for 13 positions was discussed.

Additional nominations were suggested : Mathilde Vicentini, Pratibha Jolly, Alex Mazzolini.

The commission discussed the nominees and recommends the following slates:

for officers

- Tibell (chair)
- Hyodo (vice chair)
- MacFarland (secretary)

current commission members to be reappointed

- Ogborn
- Pak
- Vicentini

from the new list of nominees

- Grayson
- Luo
- Pietrocola
- Schlichting
- Treiner
- Zollmann

unnominated but recommended

- Jolly

additional possibilities supported by the commission

- Ferdinande (for associate member representing EUPEN)
- Carrion
- Saletsky
- Mazzolini (for associate member representing ASPEN)

The lack of representation from Islamic countries was noted. And it was noted that the Associate Member connection from C-13 has not worked in the past term.

9. Other Business

9.1 Presentation of C-14 Activities at the IUPAP GA

IUPAP asked for a report of this commission at their general assembly at Berlin (about 25 minutes + 15 minute discussion) – not only what the commission has done but what it plans to do. (One or two commissions report at each general assembly.) Sahn requested that Tibell give our presentation since he is hosting the general assembly.

Some discussion of the presentation took place with mention of future activities including recreating the (very successful) web book, Physics 2000 (which was facilitated by C-14 and which tied together contributions from all the other commission), participation in a virtual journal, expansion of the website with resources for teachers from previous conferences, pro-active in helping to create international meetings, moving back issues of journals to 3rd world.

9.2 Inappropriate Activities at GIREP

One of the speakers at the GIREP meeting showed photos of scantily clad women as a joke. This is highly inappropriate and the commission requested that Sahn write a letter to the organizers and the speaker protesting this.

Igal Galili reported that a Palestinian student of his attempting to attend the GIREP meeting was refused a visa. A letter from Jonte Bernhard claimed that this was a result of an EU decision. The commission requested that the chair bring this issue to the attention of IUPAP.

10. Next ICPE Meeting

The only conference on the schedule at present is the Havana conference, July 7-11, 2003. This timing would not be convenient for the re-nominated members. The commission could also consider joining the ESERA meeting (in the Netherlands in August) There is also a GIREP workshop in Udine in July. It was decided to have the new commission members select the meeting place and dates by email.