

Announcement of an
International Conference

Developing Inquiry Based Science Education (IBSE): New Issues

The roles of assessment and the relationship with industry

jointly organized by

*the Global Network of Science Academies (IAP),
All European Academies (ALLEA)
& the Delegation of Finnish Academies of Science and Letters*

Helsinki, Finland, 30 May to 1 June 2012

Background

This international conference is being held as part of IAP's global Science Education Programme (SEP). The main objective of the SEP is the improvement of science education at pre-university levels in all regions of the world. The programme has specifically opted for the promotion of the inquiry-based science education (IBSE) approaches. The global programme is composed of 4 regional inter-academy networks, interacting with Science Academies and their education programmes. The European SEP Council, established within ALLEA's Working Group on Science Education, is co-organizing the Conference alongside with the local host, the Delegation of the Finnish Academies of Science and Letters. The other regional networks are active participants in deciding the Conference themes and invitations.

Since 2006, the SEP has organised global conferences (Stockholm, Santiago-Chile, York), bringing together pilot projects leaders, members of Science Academies and scientists, education leaders and researchers. Previously, they dealt with collaboration in the evaluation of IBSE programmes, the continuing professional development of teachers and specific issues involved in the introduction of IBSE into secondary schools.

Throughout this work **the role of student assessment** has emerged as increasingly important for the understanding, implementation and promotion of IBSE. The role of assessment can be positive, helping learning and developing general recognition of the goals of science education. But it can also have a restraining impact on change, when established assessment methods and content no longer reflect these goals. Addressing the issues that may inhibit the implementation of IBSE across school systems becomes more important in view of the value of inquiry-based learning in developing key skills required by the current and future work force in knowledge-based economies. It is by now widely recognised that the **changing and increasingly industrialised world** requires capabilities and dispositions that can be developed through inquiry-based education.

Programme

The conference will bring together aspects of policy and practice that influence the development of IBSE. The programme is based on themes related to the **formative and summative assessment of students** and to the **relationship between science education and industry**. Themes identified by the scientific committee include:

- Formative assessment of students ; its relationship with summative assessment
- Summative assessment of IBSE: the potential of assessment by teachers
- Current initiatives in IBSE students' assessment
- Impact of National and International surveys on IBSE implementation
- Computer-based assessment and computer-aided teaching
- The relationship between science education and industry

The issue of the **participation of girls** in science education will cut across all these themes. Invited presentations will be short, allowing plenty of time for discussion. Participants will be **invited to share their experiences**, problems and solutions arising from pilot projects through preparing posters and short presentations.

Scientific Programme committee

The programme is being developed by a scientific committee of international experts in IBSE, students' assessment and knowledge of industry, several being members of their country Academies of sciences. The members are: Dr Wynne Harlen (UK, Chair), Prof Patrik Scheinin (Finland), Prof Maija Aksela (Finland), Dr Derek Bell (UK), Dr Guillermo Fernandez de la Garza (Mexico), Dr Odile Macchi (France), Dr Patricia Rowell (Canada), Dr Wei Yu (China).

Local Organizing Committee

The local Organizing Committee comprises Maija Aksela (Finland) and Lauri Vihma (Conference Coordinator, Finland), Rüdiger Klein (ALLEA), Xavier Person (France).

Dates and location

The conference itself will begin at 9:00 am on **Wednesday, 30th May 2012** and will end at lunchtime on **Friday, 1st June 2012**. It will be held at the Faculty of Science in the University of Helsinki, Finland.

The conference will be followed by a working meeting of the ALLEA Working Group Science Education (IAP/SEP European Council), on Friday, 1st June 2012, 13:30-16:30.

Participation is by invitation only. There is no conference fee. The expected attendance is a maximum of 100 persons.

Further details on the programme, information about the registration process and on options for local accommodation will be posted soon on the websites of IAP (www.iap.org) and ALLEA (<http://www.allea.org>). You will be contacted separately once such information is available.

Contact: secretariat@allea.org

(with copy to Mrs. Ajchenbaum-Boffety, beatrice.ajchenbaum@academie-sciences.fr)

Programme Sketch
Global Conference

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Overview

The programme of the conference is structured by themes relating to IBSE and student assessment (days 1 and 2) and IBSE and industry (day 3), with the issue the participation of girls cutting across all these themes. Each theme will be addressed by two speakers (30 to 40 minutes) followed by a plenary discussion. The chairperson for a theme will be responsible for introducing the speakers and topic, leading the plenary discussion and reporting on the theme in the final discussion.

Themes

A. Formative assessment and its relationship with summative assessment

Concerning the assessment of individual students or groups that is conducted by teachers as part of interaction with students and self-assessment of students, used in on-going decisions about learning activities; how the goals of IBSE are supported by formative assessment; how formative assessment data can be used for summative assessment and summative data can be used formatively.

B. Approaches to summative assessment of IBSE

Concerning the purposes and desirable properties of summative assessment for reporting on achievement of the full range of cognitive and non-cognitive goals of IBSE; the use of tests and other approaches based on assessment by teachers and the conditions needed to ensure reliability.

C. Current initiatives in IBSE students assessment

Sharing procedures and examples of approaches to student assessment in IBSE which have been developed in different countries across the world, many arising in the context of pilot projects supported by Academies and inspired by exchanges in previous IAP international conferences in Santiago (2006, 2008) and York (2010). Short presentations followed by poster displays.

D Impact of National and International tests and surveys on IBSE implementation

Governments and public alike want to know about standards of student achievement and whether these are changing. This information is supplied by sample surveys such as NAEP, TIMMS and PISA.

E. Computer-based assessment

The potential for on-screen assessment to address all goals of inquiry-based science education; to provide information that can be used both to help learning, and to report on achievement.

F. The relationship between science education and industry

Concerning the capabilities and dispositions required by industry that can be advanced through IBSE, the help that industry can provide in motivating and supporting inquiry learning within and outside school.

Programme framework

NB. The names of speakers will progressively be filled by the Scientific committee, in order to reach a final program in February 2012, to be posted on the IAP website :

<http://www.interacademies.net/Activities/Projects/12250/18276.aspx>

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WEDNESDAY 30 MAY 2012	
9.00 - 10.45	Opening Background to the conference
10.45 - 11.15	Break
11.15 - 11.45	Roles of student assessment in education
11.45 - 12.45	Theme A Speaker 1 Theme A Speaker 2 Discussion
12.45 - 14.00	Lunch break
14.00 - 15.30	Theme B Speaker 1 Theme B Speaker 2 Discussion
15.30 - 15.45	Break
15.45 - 17.30	Theme C: 4-6 speakers Poster display and discussions
THURSDAY 31 MAY 2012	
9.00 - 10.45	Theme D Speaker 1 Theme D Speaker 2 Discussion
10.45 - 11.15	Break
11.15 - 12.45	Key-Note Speaker Discussion
12.45 - 14.00	Lunch break
14.00 - 15.30	Theme E Speaker 1 Theme E Speaker 2 Discussion
15.30 - 15.45	Break
15.45 - 17.30	Reports on themes Group discussion of theme reports General conclusions about student assessment

FRIDAY 1 JUNE 2012	
9.00 to 9.15	Introduction to Theme F
9.15 -10.45	Theme F Speaker 1 Theme F Speaker 2
10.45 - 11.15	Break
11.15 - 12.00	Theme F Speaker 3
12.00 - 12.45	Panel discussion (Speakers 1,2 and 3) Conclusions Conference closure
12.45 - 14.00	Lunch break
13.30 - 16.30	ALLEA Working Group on Science Education