International Council of Associations for Science Education

Supporting and promoting science education internationally
The ICASE Newsletter

OCTOBER 2012

Welcome to the ICASE October 2012 Newsletter !

The ICASE Newsletter is a regularly distributed publication containing current information about topics of interest in the field of science education. The table of contents for this issue is located in the right hand column.

The International Council of Associations for Science Education (ICASE) was established in 1973 to extend and improve science education for chldren and young people throughout the world. Today, ICASE is a huge network of science education associations, institutions, foundations and companies, facilitating communication and cooperation at the regional and international level.

International Council of Associations for Science Education

http://www.icaseonline.net

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Read or Submit a Manuscript to the ICASE Journal:
Science Education International

For information please visit our Journal web page: http://www.icaseonline.net/seiweb

Contents of Newsletter

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ICASE News

Jack Holbrook, ICASE Projects & Secondary Science Education Journal

ICASE involvement in PROFILES Conference, 23-26 Sept 2012

ICASE, as a partner in this FP7 European project related to inquiry-based science education, was amply represented in this 2.5 day conference by 4 Executive Committee members as well a group of three ICASE invited teachers from Nantes in France. Of the approximately 100 participants, one half were teachers from the 19 countries in which project partners operate. These teachers presented posters, participated in workshop and attended keynote presentations on inquiry-based science education, continuous professional development, student motivation and educational gains plus the main ideas being promoted through the PROFILES project.

Bulent Cavas (right), the ICASE coordinator for PROFILES in Turkey, with myself as the ICASE leader for PROFILES, together with two Turkish science teachers (Funda Tunaboylu and Simge Akpullukçu) and their poster displaying the ICASE logo, at the PROFILES international conference for stakeholders in Berlin.

Declan Kennedy (2nd from right) the ICASE coordinator for PROFILES in Ireland, and ICASE European Rep with the Irish conference participants (from left Simon Hill, John Lucey and on the right, Paddy Duggan). with some of their posters describing teaching modules.

Post PROFILE module workshop photo of participants with Irish posters showing PROFILES modules in the background.

Declan Kennedy, Bulent Cavas and myself meeting with three teachers from the ICASE group for PROFILES from Nantes, France, teaching science in English to French students.

ICASE Workshop, Seminar and Management/Executive Committee Meeting

Between the 10-14th December, ICASE will conduct a series of meetings and events in Bangkok, Thailand. While the ICASE Management Committee Meeting on the 10th December and the ICASE Executive Committee Meeting on the 13th December are closed meetings, involving ICASE officials, there will be a workshop on the 11th December open to all, geared to CPD (continuous professional development) through ICASE science and technology education centres. It will focus on promoting student motivation for engaging in school science lessons, especially through familiar socio-scientific scenarios. Hands-on workshops will related to involving robotics in science teaching, data logging to find solutions to scientific problems arising from socio-scientific issues and micro-scale activities in the teaching of science to promote reasoned socio-scientific decision making.

A whole day seminar on the 12th December is designed to reflect on the role of science education for education for sustainable development and gives past and future directions promoted by ICASE in this area, especially geared to scientific and technological literacy, science for all, and encompassing social values through the teaching of science.

Both the workshop and the seminar will heavily involve ICASE Executive Committee members. For more information, contact Dr Janchai Yingprayoon (janchai@loxinfo.co.th).

UNESCO patronage for the ICASE World Conference

ICASE has received the followong positive reply to its request for UNESCO patronage for the World Conference.

I wish to thank you for your l etter of 20 February la st, b y which you request the patronage of UNESCO for the 4th ICASE World C onference on Science and Technology Education that will t ake place in Kuching Sarawak (M alaysia) from 29 September to 3 October 2013.

As you are no doubt aware, UNESCO has been most supportive of the ICASE World Conferences and I acknowledge that this initiative w ill emphasize the importance of science education as well as encourage students across the world to be more interested in careers in scientific research.

It is with great pleasure therefore, that I grant this event UNESCO's patronage and authorize the use of the Organization's logo in accordance with the enclosed General Conditions.

With my best wishes for t he success o f this initiative, I remain

Yours sincerely,

Irina Bokova
The Director-General,
UNESCO

The ICASE World Conference Flyer

Science or Science Education – is there a difference?

Jack Holbrook, past President, ICASE

It is noticeable in some countries that scientists play a strong role in designing the school science curriculum. Whether the science is multi-disciplinary, or in the form of such sub-divisions as Biology, Chemistry, Physics, the specialists in these fields play an invaluable role in seeing that the content of the curricula is sufficiently up-to-date. One example might suffice here and I choose teaching about atomic structure, especially the internal structure of the atom. In this respect, modern curricula see interactions within the nucleus of the atom of importance, in appreciating both fission and fusion reactions. This enables teaching to relate, on the one hand, to advantages and concerns about nuclear energy and the current debates on this issue, and on the other, to nuclear reactions such as those taking place in our, and other, galaxies. But what about the role of science educators? What is the significance of their role and for that matter, teachers themselves? Here we need to remind ourselves that teaching, irrespective of whether it is at the primary, secondary or even tertiary level, is an educational activity and it is prime purpose is that students will learn. This learning is indicated by the curriculum and the modern trend is to see this as far more than memorisation of content. In fact, if the challenge offered to students by the learning is to be meaningful, it does not only focus on cognitive development (although so-called higher order learning is expected to be a major feature of modern science curricula, especially at the upper secondary and tertiary levels). The acquisition of science content is insufficient, especially if it is isolated entities bereft of patterns. In today's world, science needs a reference, a context, and it needs to be accompanied by the gaining of evidence seeking abilities and almost certainly with cross-cutting learning such as problem solving, decision making, risk assessment skills. And as science in schools is more and more seen for all students, not only those seeking science related careers, science teaching needs to include social attributes such as collaborative team work and consensus, well-reasoned decision making arguments. These are seen of importance, especially for democratic societies. It is thus of major importance that the role of the science educator is recognized in the development of science curricula and it is their experience and educational insights that can set the limits to the subject matter to be included so that irrelevant learning for the many (students) is ignored and emphasis is placed on future needs for a democratic society for all. Science in school cannot be isolated from the learning in other subject domains and for this it needs to be recognized as science education, not simply science. Teachers need to recognise this and ensure that student feedback is not limited to scientific cognitive aspects only. Such an approach is likely to mean science teaching is viewed as irrelevant and abstract. It is here that the strong voice of science educators is heard. Science learning in school must have a purpose beyond memory testing.

To further the importance of identifying school science lessons as science education (and hence STEME if referring to STEM learning), it can be instructive to reflect on the latest framework for K-12 science education coming from the National Research Council in the US (National Research Council, 2012). This Vision for K-12 Science Education encompasses scientific and engineering practices, cross cutting concepts and, disciplinary (physical sciences/life sciences/earth and space sciences/engineeering, technology and applications of science) core ideas. While over 100 pages relate to the disciplinary aspects (including engineering), it is noticeable that over 40 pages relate to practices and 20 to crosscutting concepts. And for those who are not familiar, the framework identified the practices as**:**

Scientific and Engineering Practices

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

While the crosscutting concepts of importance for sciecn eteaching are identified as:

1. Patterns
2. Cause and effect: Mechanism and explanation
3. Scale, proportion, and quantity
4. Systems and system models
5. Energy and matter: Flows, cycles, and conservation
6. Structure and function
7. Stability and change

Not surprising, the framework document is designed to help realise a vision for education in the sciences and engineering in which students, over multiple years of school, actively engage in scientific and engineering practices and apply crosscutting concepts to deepen their understanding of the core ideas in these fields. And for this the role of the science educator becomes paramount, especially when linked to the involvement of students in the practices of communication and argumentation. *Without doubt – science education, not science, is the term to use to cover the teaching of all science subjects in school.*

National Research Council. (2012). *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas.* Committee on a Conceptual Framework for New K-12 Science Education Standards. Board on Science Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press)

Safety in Science Education

James A. Kaufman, Ph.D. Chair, ICASE Committee on Safety in Science Education
International Council for Associations of Science Education

Whose Line Is It Anyway?"

Do you remember Drew Cary's comedy show with Ryan Stiles, Colin Mochrie, and Wayne Brady and the expression "Whose Line Is It Anyway?". I was thinking about it last month as I was talking to a group about personal protective equipment (PPE). The OSHA general requirements for PPE are found in 29 CFR 1910.132.

Here's one of several important sections: hazard assessment ...

1910.132(d) Hazard assessment and equipment selection.
1910.132(d)(1) The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the employer shall:

1910.132(d)(1)(i) Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;

1910.132(d)(1)(ii) Communicate selection decisions to each affected employee; and,
1910.132(d)(1)(iii) Select PPE that properly fits each affected employee.
Note: Non-mandatory Appendix B contains an example of procedures that would comply with the requirement for a hazard assessment.

1910.132(d)(2) The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment.

I want to focus on the part that says: ***The employer shall assess the workplace to determine if hazards are present ...***

Ok, you've been patient. Here's the punchline … "Whose Job Is It Anyway?"

I have the sinking feeling that at many organizations (schools) it is not the least bit clear whose job responsibility this is. When I speak with many persons working in laboratories, they have no idea.

I have the sinking feeling that at many organizations it is not the least bit clear whose job responsibility this is. When I speak with folks working in labs, they have no idea.

Normally, when an employer has a job that needs to be done, the employer will hire an employee, list the job responsibilities in the employees job description, and pay them to perform these duties.

Want to have some fun, visit your HR director (school principal/headmaster) and ask whose job description covers workplace hazard assessment. You do not need to limit this to laboratories and science experimentation. We face hazards wherever we go and identifying the risks and determining whether the risks are acceptable are important.

By the way, if you want to see that this is accomplished in one of the worst possible ways, try this.

Ask each PI and faculty member to do it for their research or course. You might end up with 10, 50, or 500 different ideas about what's needed for PPE (personal protective equipment) when handling something like concentrated nitric acid ! Is special equipment needed, if the bottle of concentrated nitric acid is sealed (the lid cannot be removed unless the seal is broken or removed) and also the bottle is inside a sealed, clear plastic bag (the bag ensuring fumes from the bottle are severely limited)? An interesting question? The answer of course comes don't to how you assess the risk. Just imagine, for example, what is likely to be outcome of the bottle is dropped!!

The risk for an entire organization (school) is being assumed by the employer itself. Therefore, it is recommended that all organizations designate a specific employee with the authority to establish minimum guidelines for health and safety including the selection of PPE, not only in the laboratory but throughout the whole building and outside premises.

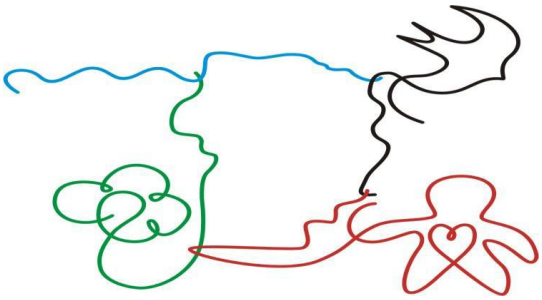
In many organizations (schools) this might be a director of environmental health and safety. Others my feel it's more appropriate to have recommendation or decisions made by a committee.

Regardless of how it is done, it is critical that assignment of the responsibility be made clear and that it is not a free-for-all - perhaps justified in the name of "academic freedom".

How is it being done at your place?

Please drop me a line to let me know how it's going. Don't forget to sign it so that I know "Whose Line Is It Anyway?"

…. JAK



V International Conference on Biology Education

Theme: knitting the lines of Biology Education in a emancipatory warp

October 11 – 13, 2012

Villa Giardino – Córdoba Argentina

More info on the url:

http://www.congresoadbia2012.com

for foreign information and payment please refer to: tesoreriacongreso2012@gmail.com

June 15th is the deadline to submit an oral presentation

info from: the Association of Biology Teachers of the Argentine

XV IOSTE INTERNATIONAL SYMPOSIUM

Yasmine Hammamet – Tunisia – 29 October – 3 November, 2012

We are pleased to invite you to participate in the XV IOSTE International Symposium on **Science & Technology Education for Development, Citizenship and Social Justice** to be held at Yasmine Hammamet (29 October – 3 November, 2012).

The conference is organized by EDIPS / ISEFC in cooperation with **UVT, DISEMEF, FSB, CENAFFE, ATDSVT, ATDM**, and other institutions and associations *(see below the meaning of these acronyms).*

IOSTE XV is an International Symposium for researchers to present research papers, workshops, posters and explore collaboration with other researchers in the fields of Education and Research. Our aim is to inspire and provoke meaningful discussions and debates.

IOSTE XV will include a diverse and comprehensive program covering a number of areas of science and technology education (teaching, learning, practice, development, innovations, evaluation,..). The program will also include a wide range of activities designed to facilitate the exchange of expertise, experience, and resources amongst researchers, educators and trainers.

The IOSTE XV will be held in **Yasmine Hammamet**, a city in the North-East part of Tunisia. The event will bring together scientists, technologists, teachers, trainers, education inspectors, policy makers and graduate students from across the globe to promote discussion of issues relating to the theme and sub-themes.

Early Registration Fees	**Late Registration Fees**	**Symposium dates**
Before July 31, 2012	After July 31, 2012	October 29 - November 3, 2012

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Contact: *Mondher**ABROUGUI*** *abrouguimondher@yahoo.fr*
EDIPS - ISEFC - University Virtual of Tunis *Chair, Local XV IOSTE Symposium Organizing Committee*

Website URL: *http://www.inedp.org* ***Direct URL:*** http://www.inedp.org/?conference=ioste-XV
Organizing Committee Email: iosteXV@gmail.com

The Association for Science Education
Promoting Excellence in Science Teaching and Learning

Science Education Research

ASE Annual Conference 2013 @ University of Reading

Wednesday 2nd - Saturday 5th January 2013

Research Seminar Series Promoted by the ASE Research Committee

We welcome papers on science education research topics.

The contributions can include:

- teacher education
- early years education,
- primary education
- secondary education
- curriculum development and evaluation
- pedagogy
- learning and assessment in science

We hope to have contributions from teacher educators, teachers, higher education degree students and from colleagues involved with curriculum development and evaluation.

Submissions
Please submit an abstract of no more than 500 words (in PDF format) to the ASE at f.j.woodhouse@hud.ac.uk setting out your research questions and rationale, background to the study, methods, findings and references (references are not included in the word limit).
All submissions will be peer reviewed and accompanying papers published in an on-line **Conference proceedings** and we welcome work in progress and contributions from across the world.

Format for submissions :

The presentations should be 20 minutes with an additional 10 minutes for questions.

Initial submissions **31st July**. A final conference paper (circa 2,500 for research in progress or circa 5,000 for completed research and available for publication) to be submitted by **31st October 2012**.

For registration details please see the ASE website www.ase.co.uk

ICASE World Conference 2013

Following similar conferences in 2003, 2007 and 2010, the International Council of Associations of Science Education holds the next World Conference on Science and Technology Education

Sunday 29 September - Thursday 3 October, 2013.
in the Borneo Convention Centre, Kuching, Sarawak. See: http://www.icase2013.org/

The theme of the conference, ***'Live Science, Love Learning, Create Change'***, addresses contemporary issues of importance to Science Teacher Associations, Science Centres, science teacher educators as well as both students and teachers as we move into the second decade after the millennium.

"Live Science" – encourages ICASE member Science Teacher Associations and Science and Technology Education Centres to recognize that science is more than just a subject at school, to impact knowledge and skills adopted from yesterday's approaches. The promotion of science education as interdisciplinary learning is a vital step toward promoting students' acquisition of 21st Century skills not only for sustainable and responsibly citizenship but for a career in an increasing science and technology driven world society.

"Love Learning" – focusses on the role of the teacher, and hence considerations for Science Teacher Associations and Science and Technology Education Centres, not only to guide students to want to participate and acquire the knowledge and skills for tomorrow's society, but that students' own self-motivation is a necessary and key factor in embracing science education as a crucial component of learning.

"Create Change" - deals with the role of Science Teacher Associations, Science and Technology Education Centres as well as teachers themselves in using science education at every level as a way of shifting the mindset on meaningful sustainability, from merely 'talking about' best pedagogical practices to 'undertaking' them, creating a generational change in student attitudes and values towards science and school and the role of leanring through science lessons in shaping their future lives.

ICASE World Conference 2013

Call for papers

WorldSTE2013 Call for Papers

Want to be part of what is shaping up to be the premiere science and technology education event of 2013?

Well now is your opportunity… The World Conference on Science and Technology Education (WorldSTE2013) is proud to announce the Call for Papers. With diverse topics and a unique destination that will inspire, WorldSTE2013 promises to bring the world of science and technology education to teachers, educators, policy officers and scientists worldwide.

The paper submission process can be viewed by clicking on this link

http://worldste2013.org/conference/call-for-papers.html

The deadline for paper submissions is 31 December 2012.

We look forward to seeing you in Kuching, Malaysia, 29 September - 3 October, 2013, for the most anticipated WorldSTE Conference ever on the theme:

"Live Science, Love Learning, Create Change"

ICASE Executive Committee 2011-2013

The ICASE Executive Committee is persons who make decisions on behalf of the ICASE Governing Body. The ICASE Governing Body is the **ICASE member organisations**.

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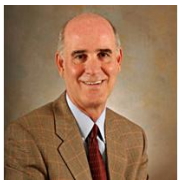

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ICASE Executive Committee 2011-2013

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For more information about ICASE Executive Committee, please visit the ICASE Website www.icaseonline.net