International Council of Associations for Science Education

Supporting and promoting science education internationally
The ICASE Newsletter

OCTOBER 2011

Welcome to the ICASE September 2011 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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For information please visit our web page: http://www.icaseonline.net/news.html

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

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Editorial;
Jack Holbrook
ICASE Past President
jack@ut.ee

Bulent Cavas
Publications Committee Chair
bulentcavas@gmail.com

ICASE News

Jack Holbrook, ICASE Past President

ICASE News

ICASE Strategic Plan

I am pleased to announce that the ICASE Executive Committee has put togther a clear vision of ICASE, looking forward to 2023 (the 50th anniversary of the founding of ICASE). This is a clear target related to excellence in science education and ICASE will strive to work with its member organizations around the world to give meaning to the way excellence in science education can be delivered.

Also included is a new mission statement which is a major departure from past practice. This mission sees ICASE playing a leadership role, guiding, aiding and supporting its member organisations along the path toward excellence. This is a major challenge for ICASE and calls for both expertise and clarity of vision on the part of the ICASE Executive, which in turn, will mean careful selection of future Executive Committees by the ICASE members. A summary of the intended strategic plans are also given below. I commend these to you for comment and debate.

Ben Akpan, ICASE President

VISION of ICASE in the year 2023

Delivering excellence in Science Education Worldwide.

> ICASE by 2023 will provide the foundation and leadership in delivering excellence in school Science Education globally. Its role will be to help develop and sustain Science Teacher Associations so that all science teaching is enhanced through collaboration, innovative methodologies and connections across the globe. ICASE will be known throughout the world for its reputation to deliver.

MISSION of ICASE:

Leadership in an active, global, collaborative science education community.

The mission of ICASE is to coordinate, enact and disseminate research, collaboration and resources that enhance the impact and growth of both science education and Science Teacher Associations throughout every continent. ICASE shows its capability to deliver world and regional conferences, enabling collaboration that positively impacts on the promotion of relevant and exciting science education.

ICASE coordinates research beyond national boundaries to improve the way science education is delivered in classrooms, online in virtual delivery modes and in published media.

ICASE delivers advocacy for the ongoing development of science education and relevant Science Teacher Associations to international bodies, such as UNESCO, and with governments globally to ensure relevant curriculum and science education policy development.

The vision recognises that in providing global coordination, the world can progress with both efficiency and relevant, meaningfully acquired, science education that improves every student's experiences and outcomes.

SUMMARY OF INITIATIVES TO DELIVER THE MISSION AND BUILD THE VISION.

SERVICES, INITIATIVES AND SPECIAL FOCUS AREAS

ICASE continues to research resource developments for science education to ensure affordable, relevant and fascinating science education is delivered through Science Teacher Associations in every part of the world. Ongoing reviews promote the development and updating of ICASE materials as well as evaluation of other science education resources produced around the world.

ICASE has a major passion to improve science pedagogy, student motivation, as well as strengthen Science Teacher Associations. It continues to deliver workshops and develop projects to help science teachers, build membership and increase the visibility, effectiveness and sustainability of Science Teacher Associations, especially in the developing world.

ICASE, working in consultation with countries and regions which do not have Science Teacher Associations, takes the lead to help develop structures, policy and mechanisms to create valued and effective resources for local science teaching.

COMMUNICATION, REPUTATION and MARKETING

ICASE continues to work on the development of its own marketing and reviewing communication of its value, its relevance and its ongoing work to the science education community.

ICASE continues to target and deliver relevant information to its members as well as media sources on ICASE initiatives, policy changes, publications, research, conferences and exhibits.

POLICY AND GOVERNANCE

ICASE is currently reviewing its constitution and its standing orders.

The executive committee is working to establish excellent accountability and its adherence to due process. In conjunction with improved accountability is the clarification and development of executive responsibility and role.

ICASE is working beyond this Strategic Plan to develop annual and five-year planning cycles and to balance action and activity across these timeframes. ICASE is also working to ensure achievement and delivery are closely audited and evaluated.

MEMBERSHIP

ICASE is reviewing its current membership listing, evaluating its databases and consolidating membership interactions to create an efficient and effective organisation.

ICASE is working on a series of strategies to improve recruitment, reporting and communication with its membership base.

ICASE is reviewing the need to encourage both a wider membership and engagement with Science and Science Education departments in Universities, other tertiary Education Institutes and organisations with an interest in science education.

FINANCE

ICASE is working on a range of actions designed to improve its fiscal position, its fund raising strength, sponsorship and patronage for the long term. ICASE is developing rigour in its financial policy and processes, its reporting and in the transparency of its financial position.

ESTABLISHMENT OF A SECRETARIAT

ICASE is investigating funding for the establishment of a permanent headquarters for ICASE. A future mission of ICASE is seen as requiring a central office and permanent staff to improve its ability to deliver on its promise and service Science Teacher Associations and other members promptly and effectively.

Student Motivation

Jack Holbrook, ICASE immediate past president

There seems to be general recognition that student motivation is important in the learning of science subjects in schools. Less recognized is the manner in which this motivation is initiated and the dgree to which students are self-motivated. Many teachers think that student motivation comes (or mainly comes) from memorable events in the classroom (a teacher demonstration, showing images on the screen/board or the teacher performing like an actor in front of the class). Memorable events can certainly be expected to trigger students' interest in the situation. They may even set up students to recognize they can have an interesting time in the science classroom. But do they aid learning? It is reasonable to believe that where students' attention is gained and the students are focused on the situation, then conditions for learning are enhanced compared with classrooms where the students are not expected to show interest. But such situational interest is all too often transitionary and, in itself, unlikely to provoke students' self-determination, or metacognition, without which the learning, if taking place, is likely to be shallow. In fact, teacher generated motivation of students (or extrinsic motivation in general which comes from impacts on the student by the teacher, the system - curriculum, examinations - or society, cannot be expected to be the main driving force for meaningful and deep learning. It is too transient, too reliant on situational interest and often not involving the students in the 'doing.' What alternatives are there to student motivation? The science education literature points to intrinsic motivation playing an important role. This is motivation derived from the students themselves. It may be triggered by many factors, but it is dangerous to expect this simply to be an outcome of the teacher's extrinsic motivation. For the most part, this is simply insufficient. More likely, intrinsic motivation towards the learning of science subjects comes from self-generated interest, stemming from enjoyment, or through the relevance of the learning to the students' personal lives. Rather than a situational component, the interest is personalized and long-lasting. The relevance stimulates meaningfulness and can trigger perseverance, initiative and ingenuity.

How to promote intrinsic motivation is thus an important question. And with many reports indicting science education, especially at the junior secondary level, suggesting science in school is boring, irrelevant and difficult, intrinsic motivation is seen as an important learning tool. One suggested approach here is to begin with situations (stories, scenarios, events) which have a relevance to the students' lives (are meaningful, seen as important) and which can trigger the students' desire to learn more. Such situations require some prior knowledge and an emotion input from the student. Once this is achieved, the motivation to learn is stimulated. Inevitably, such situations derive society, not the textbooks. And they are likely to be topical, only meaningful at a particular moment in time. Such situations are part of the student's world and are situations where they feel they can play a part. Concerns such as global warming (a likely textbook topic) are too remote. They are likely to demand a degree of prior knowledge, which is likely to be outside the students' comprehension. More likely, motivational situations are local and are socio-scientific in nature. Students then possess some degree of background and through building on this such situations can trigger the need to gain science and hence enable the students to be better placed to handle the socio-scientific situation.

Safety when dealing with gas pressure

An amended version of an incident written by Allison Horton, Staff Reporter (ahorton@ suntimes com) September 16, 2011 11:31PM

A chemistry experiment went horribly wrong last week when a student in a US suburban high school lost vision in his left eye after a plastic bottle containing dry ice and water exploded.

16-year-old Dillon was in chemistry class when the teacher attempted a demonstration. The teacher combined dry ice and water in a plastic water bottle and sealed it with a cap. The teacher passed the bottle among the students so they could feel the build-up of pressure. But, alas, the plastic bottle exploded — causing severe and permanent bodily injuries to Dillon's face and hands, along with "irreparable loss" of sight in his left eye and loss of hearing.

It seems the students were not given safety goggles even though the demonstration was "inherently dangerous" and involved a "highly volatile compound which threatened the safety and well being of all the students present in chemistry class."

It is difficult to appreciate why the students were being asked to experience the building up of pressure. But maybe the demonstration was more about dry ice changing state from a solid to gas, which, of course, increases the pressure (volume kept constant) or the volume (constant pressure), temperature assumed to remain constant. If the effect of pressure change is the target, it would seem that an easier demonstration is to take a coca cola, or any soft fizzy drink, bottle and observe and listen as the cap is removed and there is a release of pressure.

Alternatively, if the demonstration is about the increase of volume, it would seem the experiment is more appropriate carried out in a syringe, when the volume increase is very noticeable by movement of the plunger. And if the volume is maintained by applying finger pressure to the plunger, this would enable the increase of pressure to be very easily felt.

This is not suggesting the use of safety goggles can be ignored with such modifications, as indicated above. Clearly pressure always has the potential to cause unsafe situations. But a wiser choice of demonstration is to keep it small scale, or use common everyday phenomena. And in countries where safety goggles are not easily available for whatever reason (usually cost), the use of small scale is suggested to be important.

And as a footnote, it is worth pointing out that in experiments involving the potential for pressure to build up, it is usual to make sure there is a safety system in place. Often this can be the use of a simple manometer (U-tube), which allows pressure build up until the liquid is pushed out of the manometer completely and the apparatus then equates itself with atmospheric pressure.

How to Get More Science Teachers Who Can "Do" Science:

And Use Their Teaching as an Example

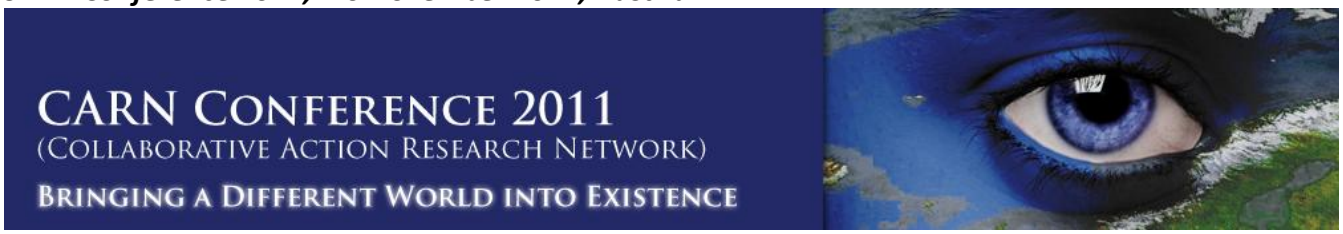
Prof R.E.Yager, Univ of Iowa

Why is there not more attention to all students (and teachers) actually "doing" science in every kindergarten, all the way up to, grade 16 science classroom? The faulty assumption is that there is information, thought to be accurate, that all must "know" before "doing" science. Most science teachers continue to use typical science textbooks and lab directions in excess of 90% of the time! Doing science means personal exploration of nature and attempting to explain objects and events encountered. It also means exploring what others have done (and reported) as ways of evaluating their initial ideas. Science cannot be done in a vacuum! It takes "doing", "trying", "creative thinking", and "evidence gathering"! Textbooks, lab manuals, and quick fixes are all the opposite of actually "doing science."

Most Professional Development efforts invite persons with current understandings of science to tell, share, and encourage others to remember and repeat relevant research results. This view of doing science is what characterizes procedures for conferences and for most Professional Development efforts which are typically designed to influence the science that is taught. There should be major efforts to produce students who recognize and produce questions and then to investigate personally the validity of the evidence collected. Such actions would illustrate "doing science." Could not Professional Development efforts (including reports at conferences) start with problems/questions, followed by varied attempts to answer them? This would lead to the collection of multiple responses and a sharing of such evidence in science classrooms? Could there be some sharing of results and changes in teaching that occur after actual Professional Development sessions or conference presentations? We need more than happy attendees; we need reporting of new approaches to teaching which are tried and evaluated after a Professional Development experience!

Science is typically taught by sharing the explanations and interpretations of others. These are then used to determine what is put in textbooks. This information is then used for evaluating student learning. Student ideas and involvement are not expected, nor are they welcomed. Science is too often like art where teachers admire and/or criticize the performances of the best students. Standardized tests too often require only statements repeating what has been presented or assigned. The information included in textbooks or directions for labs only focus on students remembering and/or duplicating performances with no use of questions, possible answers, real investigations, or interpretations. Such teaching does not consider how science can be done better and made a part of efforts illustrating real learning and human life itself!

CARN Conference 2011, 4-6 November 2011, Austria



Bringing a Different World into Existence

The Collaborative Action Research Network (CARN) was founded in 1976. Since that time it has grown to become an international network drawing its members from educational, health, social care, commercial, and public services settings. CARN aims to encourage and support action research projects (personal, local, national and international), accessible accounts of action research projects, and contributions to the theory and methodology of action research. In line with the tradition, we would like to invite academics and practitioners by welcoming a diverse range of contributions, no matter what stage the research is at (from initial ideas through to completed reports and papers). There will also be opportunities to consider methodological issues.

Keynote Speakers
Peter Posch Herbert Altrichter Ingo Eilks Katherine Froggatt

Indicative Themes
- AR for unity and diversity
- AR for coping with the challenges of a knowledge society
- AR and workplace cultures
- AR in teacher education and professional development
- AR in palliative care and in nursing homes
- AR in health promotion
- AR and community development
- AR methodology and methods
- AR and Participatory Research in fields of social work
- AR in science education, environmental education/education for sustainable development
- AR in curriculum development, school development, networking and system intervention

Indicative Dates
30th April 2011 deadline to send a proposal
20th June 2011 answer for the approval of a proposal
1st July 2011 deadline for early bird registration
Call for papers and posters end of January 2011. Participative workshops are particularly welcome.

For more information please visit: http://ius.uni-klu.ac.at/carn


CoSMEd 2011
4th International
Conference on Science and Mathemathics Education
Transforming School Science and Mathematics Education in the 21st Century
15-17 November 2011
SEAMEO RECSAM, Penang, Malaysia.
Organised by:
Southeast Asian Ministers of Education Organisation
Regional Centre for Education in Science and Mathematics
(SEAMEO RECSAM)
In collaboration with:
The Ministry of Education, Malaysia
Penang State Education Department, Malaysia
Universiti Sains Malaysia
Universiti Pendidikan Sultan Idris, Malaysia
important dates
Deadline for Submission of Abstracts 1 June 2011
Notification of Acceptance of Abstracts 15 June 2011
Deadline for Submission of Full Papers 1 July 2011
Notification of Acceptance of Papers 31 August 2011

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

Science Education Research

ASE Annual Conference 2012 @ University of Liverpool

Wednesday 4th - Saturday 7th January 2012

Research Seminar Series Promoted by the ASE Research Committee

Papers or poster presentations will cover 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

Contributions come from teacher educators, teachers, higher education degree students and from colleagues involved with curriculum development and evaluation.

Contact the ASE website for more details

21st Symposium on Chemistry and Science Education to be held at the TU Dortmund University, 17-19 May 2012

Issues of Heterogeneity and Cultural Diversity in Science Education and Science Education Research

The 21st Symposium on Chemistry and Science Education will continue the long tradition begun in 1981 with the first symposium on chemical education organized by Hans-Jürgen Schmidt. The 2012 symposium is titled **"Issues of Heterogeneity and Cultural Diversity in Science Education and Science Education Research"**. Heterogeneity and cultural diversity are becoming increasingly important challenges for educational systems worldwide. Growing rates of migration and higher numbers of multi-cultural societies mean that educators must achieve a broader spectrum of competencies among their young people. Science and chemistry teaching are not untouched by these developments, challenging the practices and methodologies in these areas. Answers are demanded from science education research in the areas of understanding potential problems and providing impulses towards more effective practices.

The symposium's main questions will address:

- Which science teaching problems are connected to different areas of heterogeneity in science classrooms? How can they be overcome?
- Which influences do learners' multi-cultural backgrounds have concerning the learning of science?
- What types of problems arise due to different linguistic abilities or a background including a different native language? How can we best deal with linguistic heterogeneity in science classrooms?
- How can we teach the domain-specific language of science in classes containing students with different native languages?
- How do we cope with students with special needs in science, e.g. in lab environments?
- What are the challenges in and potential innovations involved with teaching gifted children in science classes?

Which changes can examples of good teaching practices in different countries suggest for bettering science teaching with respect to issues of heterogeneity and cultural diversity?

All contributions will be presented by invited lecturers. There will be key-note lectures and short presentations. Suggestions for appropriate lectures are welcome by May 2, 2011. Please contact Dr. Silvija Markic, University of Bremen: *smarkic@uni-bremen.de*.

Conference chairs: Prof. Dr. Bernd Ralle, TU Dortmund University, *bernd.ralle@tu-dortmund.de;* Prof. Dr. Ingo Eilks, University of Bremen, *ingo.eilks@uni-bremen.de;* Dr. Silvija Markic, University of Bremen, *smarkic@uni-bremen.de;* Prof. Dr. David Di Fuccia, University of Kassel, *difuccia@uni-kassel.de*

Further information: *http://www.chemiedidaktik.uni-bremen.de/symp2012/index.html*.
A second announcement will follow in Autumn 2011.
Conference fees: None. Travel costs, accommodation and social events are the responsibility of the participants.

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**.

President
Dr. Ben Akpan
Executive Director of STAN, Nigeria
E-mail: ben.akpan@stanonline.org

Secretary
Dr. Beverley Cooper
E-mail: bcooper@waikato.ac.nz

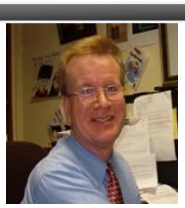
Past President
Dr. Jack Holbrook
Professor, Centre for Science Education
University of Tartu, Estonia
E-mail: jack@ut.ee

Treasurer
(to be determined)

President Elect
Dr. Teresa J. Kennedy
Professor, University of Texas at Tyler
E-mail: tkennedy@uttyler.edu

Regional Representatives

Regional Representative for Africa
Mamman Wasugu
E-mail: mammanwasagu@yahoo.ca



Regional Representative for Europe
Dr Declan Kennedy
E-mail: d.kennedy@ucc.ie

Regional Representative for Asia
Azian Abdullah
E-mail: azian@recsam.edu.my

Regional Representative for Latin America
Christiane Gioppo
E-mail: cgioppo@yahoo.com

Regional Representative for Australia/Pacific
(to be determined)

Regional Representative for North America
Michael Padilla
E-mail: padilla@clemson.edu

ICASE Executive Committee 2011-2013

Chairs of Standing Committees

Safety in Science Education
James Kaufman
E-mail: jim@labsafetyinstitute.org

World Conferences & Environmental Education/Sustainable Development
Elaine Horne
E-mail grovesr@ozemail.com.au

Pre-secondary and Informal Science Education
(to be determined)

Publications & Website
Bulent Cavas
E-mail: bulentcavas@gmail.com

For more information about ICASE Executive Committee, you can visit ICASE Web www.icaseonline.net