International Council of Associations for Science Education

Supporting and promoting science education internationally
The ICASE Newsletter

January/February 2017

Welcome to the ICASE January/February 2017 Newsletter!

The ICASE Newsletter is a publication containing current information about ICASE initiatives conducted by ICASE member organisations, and 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 by leadership at the United Nations Educational, Scientific and Cultural Organization (UNESCO) to link national science teacher associations and to extend and improve science education for children and young people throughout the world. Today, ICASE is a network of science teacher education associations, institutions, foundations and companies, working together to promote science and technology education internationally. ICASE facilitates communication and cooperation at national, regional, and international levels. The ICASE Strategic Plan (2013-2023) calls for ICASE member organisations to adopt a position of Excellence and Leadership in Science Education.

http://www.icaseonline.net

Over the past 40+ years, over 200 organizations have been members of ICASE. Currently, there are 32 organizations from 30 countries contributing to the financial administration of ICASE.
www.icaseonline.net/membership.html

The ICASE Newsletter is distributed to Member Organisations and through them to their members

To be included on the listserve for notification of future newsletters please follow the guidelines at:
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

Contents of Newsletter

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ICASE News – How are your membership fees put to use?

In February 2017, the ICASE Executive Commitee approved a new a new policy on financial support of regional activities. Approval for funding will be considered based on a written submission (request for funding support) to the ICASE secretary, which clearly indicates how the activity meets the following criteria. All financial support for
activities will be approved by the ICASE management committee, in consultation with the Executive Committee, and is subject to funds (generated by ICASE membership fees) being available.

1. The applicant organisation must be a current financial member of ICASE.
2. The activity must promote science education at a regional level.
3. The applicant organisation should provide a description of the activity and the potential benefits (including the extent of benefits - number of beneficiaries, and how it meets the short term and long term goals of promoting science education in that region).
4. ICASE must be acknowledged as a sponsor on all publicity material including the website advertising the initiative. The ICASE logo must be displayed on all materials associated with the funding.
5. Funding requests will be accepted for the following range: $500 - $2,000. These funds are intended to cover
special initiatives associated with activities occurring in benefit of each region.
6. The applicant organisation must provide a budget for the activity including other sources of funding.
7. The applicant organisation must have an institutional bank account for the transfer of funds.
8. The applicant organisation must nominate a person in their organisation who will take responsibility for the activity, all expenditures and reporting (in writing) at the subsequent World Conference. The report may be presented via video conferencing if the organization is unable to fund a member to attend an ICASE World Conference. Please note that the ICASE Management Committee reserves the right to approve funding for second and subsequent applications, from the same region within a three year period, even when the application may come from a different organisation. Renew your organizational ICASE member fees today! Due January 1st each year. Three year options are available

Annual Membership Renewal Options: From 1 – 3 years: http://www.icaseonline.net/membership.html

ICASE provides opportunities for member organizations and their representatives to promote excellence and innovation in science teaching and learning for all through:

- connections to the members of other science organizations around the world;
- opportunities to serve in ICASE international leadership positions on standing committees and in international research initiatives;
- communication venues to disseminate information internationally to the members of international science organizations through the ICASE listserv, newsletter and peer-reviewed ICASE journal;
- collaborative funding opportunities to promote science education at regional levels; and
- organization of ICASE World Conferences, regional events, and workshops providing opportunities for professional development and networking.

Highlights from the ICASE 2016 World Science and Technology Education Conference
1-5 November 2016 - Antalya – Turkey

http://www.icase2016.org

WORLD
STE2016
5th World Conference on Science and Technology Education

Conference Theme: Interdisciplinary Practices in Science and Technology Education.

ICASE 2016 World Science and Technology Education Conference
1-5 November 2016 - Antalya, Turkey - Summary by Dr. Bulent Cavas

The preparation of the conference began more than 3 years ago. After a review process of more than 200 submissions, the event consisted of 75 Oral Presentations, 7 Keynote Speakers, 5 Workshops, the Dennis Chisman's Oration and 1 Special Session on ICASE Journal. In total, 100 participants from the following 23 countries across Africa, Asia, Australasia, Europe, Latin America and North America were in attendance:

1. Bangladesh
2. Canada
3. Chile
4. China
5. Estonia
6. Finland
7. France
8. Greece
9. India
10. Indonesia
11. Ireland
12. Israel
13. Japan
14. Jordan
15. Malaysia
16. New Zealand
17. Nigeria
18. Sweden
19. Thailand
20. Turkey
21. Uganda
22. United Kingdom
23. USA

Established in 1973, the objectives of ICASE are to extend and enhance the work of its member organizations; provide and support activities and opportunities to enhance formal and non-formal science and technology education worldwide; establish and maintain an international communication network; and encourage and support the establishment and development of professional science and technology organizations, especially where none currently exists in a country.

ICASE is dependent on its member organisations that form the Governing Body of the organization. ICASE also maintains important relationships with many organisations around the world to ensure that a collaborative international community of science educators can thrive. Partnership with UNESCO, the founding organization, remains an important objective of ICASE. Since the first meeting of ICASE members in 1973, UNESCO has been very supportive and involved in ICASE activities, and has also assisted with many research projects and activities undertaken by ICASE membership. ICASE is recognized by UNESCO as an official collaborating Non-governmental organization (NGO) and important stakeholder.

Members of the ICASE Executive Committee, as well as representatives from ICASE member organisations, are frequently invited by UNESCO to take part in consultation meetings and as well as the Collective Consultation of NGOs on Education for All CCNGO/EFA, a key mechanism within the UNESCO Education Sector created to facilitate reflection, continuous dialogue and joint action between NGOs and UNESCO in the area of Education for All (EFA). ICASE regularly receives documents pertaining to UNESCO science education initiatives and disseminates these materials to the international ICASE community through the ICASE website, at all ICASE world and regional conferences, as well as through the ICASE Newsletter.

In striving towards these objectives, ICASE activities have included the publication and production of teaching resources, organization of conferences, symposia, and workshops as well as the organization of World Conferences on science and technology education. At its General Assembly in Kuching, Malaysia in 2013, ICASE approved a strategic plan for the future. This includes re-examining the goal of ICASE in order that by its 50th Anniversary in 2023, the vision of the Association to provide the foundation and leadership in Delivering Excellence in Science Education Worldwide could be realized. Thus moving forward, ICASE envisions its role as helping to develop and sustain science teacher associations so that all science teaching is enhanced through collaboration, innovative methodologies and connections throughout the globe. In this direction, ICASE mission is to deliver and coordinate, enact and disseminate research and resources that enhance the impact and growth of science education and science teacher associations throughout every continent.

ICASE World Conferences are, therefore, meant to further the vision and mission of the Association. The first World Conference was held in Penang, Malaysia in 2003. This was followed by other conferences in Perth, Australia (2007); Tartu, Estonia (2010); Kuching, Malaysia (2013) and Antalya, Turkey (2016).

On behalf of the International Conference Committee, we would like to thank everyone who has contributed this conference in different capacities.

ICASE WorldSTE2016 Conference Committees

Organizing Committee

Ben Akpan, Nigeria (ICASE WorldSTE Conference International Committees Chair)
Bulent Cavas, Turkey
Gultekin Cakmakci, Turkey
Hamide Ertepinar, Turkey
Jack Holbrook, Estonia
Teresa Kennedy, USA
Sue Dale Tunnicliffe, UK
Lutfullah Turkmen, Turkey
Sedat Ucar, Turkey
Hamide Ertepinar, Turkey
Christiane Gioppo, Brasil
Elaine Horne, Australia
Sahin Idin, Turkey
Elif Ince, Turkey
James Kaufman, USA
Gulfem Kaygısız, Turkey
Declan Kennedy, Ireland
Tarik Kisla, Turkey
Piet Kommers, The Netherlands

Scientific Committee

Devrim Akgunduz, Turkey
Buket Akkoyunlu, Turkey
Kader Bilican, Turkey
Yilmaz Cakici, Turkey
Pinar Cavas, Turkey
Orhan Curaoglu, Turkey
Beverley Cooper, New Zealand
Lindsey Conner, New Zealand
Asit Kr Das, India
Kadir Demir, USA
Joseph M. Makokha, USA
Yasemin Ozdem, Turkey
Ilhan Silay, Turkey
Steven Sexton, New Zealand
Manabu Sumida, Japan
Michael Padilla, USA
Miia Rannikmae, Estonia
Sedat Ucar, Turkey
Bahadir Yildiz, Turkey
Janchai Yingprayoon, Thailand
Mamman Wasugu, Nigeria

Antalya Declaration on Interdisciplinary Practices in Science and Technology Education

The ICASE World Conference on Science and Technology Education was held in Antalya, Turkey from 1-5 November 2016. We, the conference participants from 23 countries across Africa, Asia, Australasia, Europe, Latin America and North America believe that education through science should be relevant to learners of all ages to include all levels of formal education and all opportunities of informal education.

Interdisciplinary practices in science and technology require teachers to be equipped with quality teacher education and teaching materials for both learning in and out of the classroom. However, parents, industry, government officials, and the wider community need to recognize that education has changed from when they were students. Science and technology are a part of everyone's life and therefore necessitates functional literacy. While there are some teachers who may not realize they are already incorporating interdisciplinary practices, not enough teachers have been trained nor are enough student teachers being prepared for the interdisciplinarity of education through science and technology.

The conference participants call upon all involved in research, policy development and practice in Science and Technology Education to carry out their actions in implementing this Declaration in their region of the world, acknowledging the key role of teachers for all students.

We resolve to:

- raise ICASE member organizations appreciation of the value of interdisciplinary science and technology education (STE) for raising teacher diversity of teaching approaches and assessment techniques and for ICASE to provide support and encouragement in this,
- highlight the importance of education through science to promote problem-solving, decision-making and personal development of not only teachers but also their students,
- build on students' intrinsic motivation and initial enthusiasm for learning through interdisciplinary science and technology,
- encourage conceptual learning within a context-based environment that adopts and adapts relevant interdisciplinary practices not just in science and technology,
- pursue educational policies related to promoting education through science both within society and the world of work/industry,
- promote a common language for the goals of education through science that recognizes its place in the interdisciplinary education of students,
- rethink current certification and summative examination policies as a means to enable greater attention to assessment of personal and social development of the individual through teaching within science and technology,
- work in collaboration with UNESCO, science teacher associations, national and regional governments and other NGOs to further the cause of science and technology education in a changing world.

Opening Address and Primary Keynote Speech

Flavia Schlegel, UNESCO Assistant Director-General for Natural Sciences provide dthe Opening Address & Keynote Speech on Tuesday, 2 November 2016

"UNESCO acknowledges the important role played by ICASE in providing and bolstering formal and non-formal science and technology education worldwide, and in developing a global network of science and technology professionals. We are particularly enthusiastic by the possibilities offered to work more closely with ICASE to advance science and technology education on a global scale. Indeed, we believe that the experience accumulated by both organizations in the field of science education is a bedrock for a mutually beneficial collaboration in view of the achievement of the Sustainable Development Goals."

Additional Keynote Speakers

Romain Murenzi
Director, UNESCO Division of Science Policy and Capacity Building

Julia Heiss
UNESCO Education Sector - ESD

Jim McDonald
President, Council for Elementary Science International (CESI) – USA

ICASE received more than 250 presentation submissions from 31 different countries (Algeria, Australia, Bar Brazil, Canada, Chile, China, Denmark, Estonia, France, Greece, India, Indonesia, Ireland, Israel, UK, Japan, Jordan, Latvia, Mexico, New Zealand, Nigeria, Pakistan, Philippines, Republic of Mauritius, Romania, South Korea, Sweden, Thailand, Turkey, USA). These presentations delivered in breakout sessions.
In addition, a **special session on ICASE Projects** was provided by **ICASE Past President Jack Holbrook** (2008-2011) from the University of Tartu, Estonia.

Workshop 2: Creative Science for Early Childhood Learning

Dee Jean ONG* - Janchai Yingprayoon**
* REAL Education Group Sdn Bhd - Malaysia
** Suan Sunandha Rajabhat University, Bangkok, THAILAND

Workshop 3: Using Low-cost Science Toys to Teach School Science
Sudhakar C Agarkar, VPM's Academy of International Education and Research, Thane, M S, India,
Rajendra Kavathekar, Pendhakar College of Arts, Commerce and Science, Dombivali, M S, India,
Prashant Thakare Sardar Patel Mahavidyalaya, Chandrapur, M S India

ICASE Projects

Promoting SMILES

(Student Motivational Inquiry-based Learning and Education through Science)

By Dr. Jack Holbrook

ICASE Standing committee on International Projects (projects of interest internationally)

In the previous newsletter, examples of SMILES were introduced to readers. In this newsletter, ICASE seeks to support member organisations who have an interest in developing teaching materials (modules) that relate to the SMILES ideas.

What are the SMILES ideas?

In the previous newsletter, the idea of SMILES was indicated as focusing on 3 key aspects:

1. Student motivation via a context-based approach.
2. Inquiry-based learning to promote science conceptual learning.
3. Promoting science in society through SSI decision-making, related to the earlier context.

SMILES is put forward as an approach, which teachers may find useful for enhancing student interest through a contextual introduction, this being a base for undertaking inquiry-based steps to develop cognition and then further, the conceptual learning gained is consolidated though relevance to society.

Thus, SMILES is **not** a curriculum, but a suggested way to promote teaching to enhance scientific literacy (SL). In this, SMILES seeks to pay particular attention to simulating student motivation, promoting cross-curricula or 21st century skills and stressing relevance of the learning in the eyes of the students. SMILES does this by guiding teachers, or Science Teacher Associations, etc., to develop, for themselves, teaching modules ready for use in the classroom.

The ICASE role is to supply examples and, where appropriate, assist member organisations to better understand and appreciate the rationale for the suggested approach. ICASE can do this by putting examples on its website (as is the current case). However, ICASE realises that member organisations may wish further guidance to better appreciate the philosophy behind the approach and on ways how to get started in developing suitable modules, which teachers are expected to find useful at a particular grade level, or for a particular science (STEM) subject.

The modules are based on the long history of ICASE involvement in promoting scientific literacy (SL), stemming from a UNESCO conference in 1993. This approach to SL has been through running workshops for teacher organisations to develop their own modules and also in developing the ideas in science education journals (and of course the ICASE journal – *Science Education International* see www.icaseonline.net/seiweb). Using these ideas, each teaching module is designed to promote 'education through science,' as opposed to 'science through education,' in line with today's developments in science teaching. In fact, each SMILES module is based on a unique, 3-stage model (Holbrook & Rannikmae, 2014; Holbrook, Rannikmae & Valdmann, 2014). For example, in a 4 lesson teaching unit, approximately 1 lesson is allocated for the motivational stage 1 and is initiated by means of a scenario. The scenario provides a base for stage 2 covering approximately 2 lessons and involving students in science learning through appropriate inquiry-based approaches. The 3rd step is again approximately 1 lesson, following up on stage 2 and seeks to establish the societal value of the stage 2 science learning.

The 3-stage model has a philosophical base, but is sufficiently flexible to allow inclusion of other ideas or teaching models and also to promote formative as well as summative assessment.

What does ICASE mean by support?

ICASE has a long history of organizing training workshops for member organisations. In the past, these have typically been of a 1-week duration, where the initial stage is to promote the 'education through science' ideas, strongly linked to the goals of the local curriculum. This is followed by examining and working through a module example or examples, before participants are guided, either individual, or more often in groups, to try to develop their own module in an embryonic state and present this to the other participants, gaining suggestions to guide the module to a finished project. In the past, the workshops have been presented in English, but the modules are usually developed in the preferred language of the teachers from the beginning. While most often the workshops have been coordinated by an ICASE project team member, this has not always been the case and local science teacher associations have coordinated their own workshops, usually with pre-consultations on procedure with ICASE, or post-consultation on how to edit and enhance the module.

How can member organisations follow-up and initiate further collaboration?

There is no fixed method to follow-up. Clearly, ICASE is most interested in learning of member organisations interest in SMILES and to publicise developments. But perhaps in the first instance, the contact with ICASE is with the standing committee chair for International Projects, the ICASE President, or any ICASE Executive Committee member (see the last pages of this newsletter for contacts). Furthermore, ICASE has set up a number of ICASE centres under the guidance of Dr. Janchai Yingprayoon and ICASE is interested in using such centres for the development of SMILES should there be interest from ICASE member organisations.

Finally, the conducting of workshops requires funding. In the past ICASE has willingly supported and offered guidance when others run and finance such workshops. ICASE has also willingly given their name to the workshop where this enabled the local ICASE member organisation to raise their own funding. But, to go further, ICASE is willing to explore how it can help member organisations overcome the financial burden of such a workshop. This clearly depends on the ICASE financial situation and how ICASE is able to raise funds (refer to the news on page 2 of this newsletter), but in the past, ICASE has supported workshop leaders to participate.

ICASE is very interested in hearing from member organisations on their interest in SMILES, as a way of making science teaching more successful. Please do contact your regional ICASE representative or other members of the ICASE Executive Committee.

The ICASE vision is delivering EXCELLENCE in Science Education Worldwide. The ICASE mission is to support and promote Leadership in an active, global, collaborative science education community.

Reference

Holbrook, J., & Rannikmae, M. (2014). The Philosophy and Approach on which the PROFILES Project is Based. CEPS journal, vol. 4, no. 1, pp9-29. (www.cepsj.si)

Holbrook, J., Rannikmae, M., & Valdmann, A. (2014). Identifying teacher needs for promoting Education through Science as a paradigm shift in Science Education. Science Education International, 25(2), 133. (www.icaseonline.net/seiweb)

ASSOCIATION FOR SCIENCE EDUCATION CONFERENCE

Dr. Declan Kennedy

The Association for Science Education (ASE) conference was held from 4-7 January 2017 at the University of Reading, England. The conference was attended by several thousand science teachers from primary, secondary and tertiary levels. ICASE was well represented and, as usual, we had our own stand in a very prominent position. The ICASE stand was staffed throughout the conference by Dr. Sue Dale Tunnicliffe, Mr. Jeff Jamias (ISTA) and Dr. Declan Kennedy.

Dr Conor O'Brien, President of the Irish Science Teachers' Association, flying the flag of Ireland at the ICASE stand! Also in the photograph is Dr Sue Dale Tunnicliffe and Dr Declan Kennedy. (Photo: Jeff Jamias)

We were pleased that a steady stream of conference delegates visited the ICASE stand to learn about the work of ICASE. The ASE Conference is always a good opportunity for ICASE representatives to meet its members and to encourage others organisations to join ICASE. The membership information packs produced by Dr. Teresa Kennedy were of enormous benefit to us in our efforts to promote membership of ICASE and, over the four days of the conference, our entire supply of promotional material was completely depleted. We also displayed some of the modules developed by the ICASE teachers in Ireland who were involved in the PROFILES project. PROFILES stands for Professional Reflection-Oriented Focus on Inquiry-based Learning and Education through Science. This research project, in which ICASE played a leading role, was funded by completed, ICASE is still actively involved in disseminating the resource materials prepared. The project involved a consortium of 21 partner institutions from 19 different countries and the entire project was coordinated by the Chemistry Education division of the Free University of Berlin.

The PROFILES project aims at promoting inquiry-based Science Education (IBSE) by raising the self-efficacy of teachers by means of an ongoing and long-term continuing professional development (CPD) programme. The project is targeted at second-level science teachers and particular attention is paid to student motivation for the learning of science in terms of intrinsic motivation (relevant and meaningful from the point of view of the students) and extrinsic motivation (teacher encouragement and reinforcement).

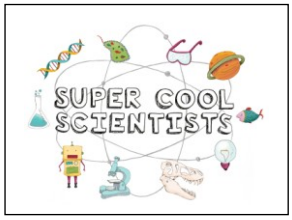
The ICASE stand at the ASE conference was an ideal opportunity for us to promote ICASE, to introduce teachers to some of the teaching resources that ICASE has created and to emphasise the important role that ICASE is playing in providing leadership and support to science teachers all over the world.

ASSOCIATION FOR SCIENCE EDUCATION CONFERENCE, cont.

Dr. Declan Kennedy

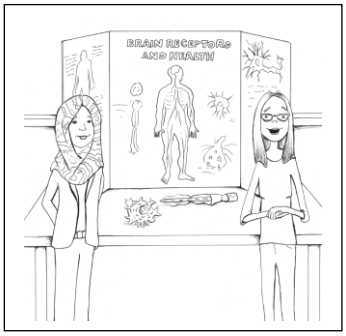
At the stand, we introduced teachers to the various PROFILES modules developed by ICASE and explained how the CPD programme was carried out at the ICASE Science and Technology Education centre based at University College Cork. This centre is part of the Eureka Centre for Inquiry Based Science Education in the College of Science, Engineering and Food Science (SEFS) which was set up with funding from the government of Ireland as well as funding from the university's own resources and from the pharmachemical industry in Ireland. Dr Conor O'Brien, President of the Irish Science Teachers' Association, and whose background is in the pharmachemical industry, was one of the visitors to the ICASE stand. He expressed great satisfaction at the close collaboration between industry and education in the development of teaching resources.

In order to help in the promotional work of ICASE, it would be very useful if pull-up banners summarising the work of ICASE could be designed and displayed at events and conferences. We invite you to send a small flag of your country and posters about your science education efforts related to communities and places of other educational potential such as zoos, museums, gardens, science centres for next year's display!



The *Super Cool Scientists* color book celebrates the stories of 22 dynamic women working in STEM careers. Each spread includes a biography of the scientist along with an illustration of the person to color. The book also includes a glossary and resource list for those readers interested in going a little deeper. *Super Cool Scientists* is a teaching tool that can be used to show young people the wide range of under the STEM umbrella and also to show them that those jobs are open to everyone. The book hosts a wide diversity of careers and also of individuals because representation matters.

Young people need to see people who look like them in STEM careers - with and without lab coats. Fields represented range from computer animation to primatology to industrial engineering. *Super Cool Scientists* is available for purchase on Amazon (https://www.amazon.com/Super-Cool-Scientists-Sara-MacSorley/dp/1534662235/ref=sr_1_1?ie=UTF8&qid=1490024471&sr=8-1&keywords=macsorley). Schools and educational organizations can reach out to author Sara MacSorley (saramacsorley@gmail.com) directly for bulk purchase orders of 100 books or more at a discounted price (mostly within the U.S. but also else where with shipping costs).



For partners connected with ICASE around the world, Sara will also send a digital PDF copy of the book for free if you mention this newsletter story in your email. You can also join the our online community by finding *Super Cool Scientists* on Facebook and Twitter (@SuperCoolSci) and by sharing your coloring pages using #supercoolscientists. Illustrations are by Sawsan Khuri, who works in bioinformatics and Mariam Mahmoud, who works in biotechnology.]

International Council of Associations for Science Education

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The ICASE Newsletter

January/February 2017

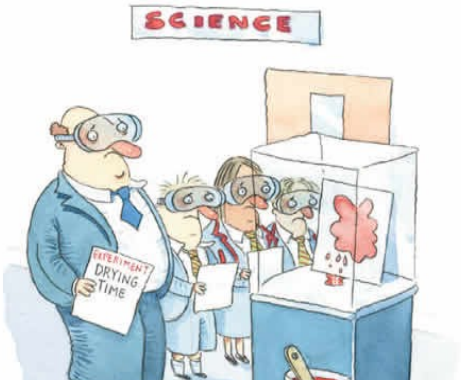
If You Require Students to have Practical Experience of Science in your Classrooms, You Need Safety!

By Bob Worley FRSC, MSc, BSc, PGCE

"Practical work is not necessary to pass our exam, so why do it!" "There is no budget!" "There is no laboratory!" "There are too many in the class." "The behaviour of students is bad." "The science teacher is not paid for all the extra work compared to the teacher of English." "The school is worried it might be sued if things go wrong." "I am worried I might be sued if things go wrong." "I am told I can do it all from the book or from a video." "Safety is a boring subject!" "It stops exciting experiments! It stops creativity!" "Safety increases bureaucracy! English teachers do not have to do it."

The "value of practical in education" is often discussed. One only has to insert that phrase into a web search engine to obtain many opinions. If practical work is required and the consensus appears to be that if properly targeted, it is beneficial to the learning of science, then the safety of the students and the teacher is vitally important.

In many countries, there is National Legislation on Safety. However, it is usually aimed at Heavy Industry, the Construction Industry, Mining, Manufacturing, Agriculture, Fishing, Hospitals, Higher Education, etc, where the majority of incidents take place.



Cartoon published by HSE to challenge comments that Health & Safety stops schools experiments from HSE website, see endnote ii.

Safety in Schools is usually never mentioned in National Law. In the UK, it was not necessary to have safety policies in place in schools until after 1974 when guidance to the Health & Safety at Work Act[1], was published which applied to all employers and employees.

In countries where there is a federal legal structure, safety in schools may differ on crossing a county or state boundary. Some countries may just rely on civil action brought by the injured party.

In the UK, local government implements safety in their local schools. However, because the local governments are the employers of teachers etc, they cannot lead the prosecution in any court case so our UK Health & Safety Executive[ii] takes on investigations and legal prosecutions in very serious incidents. The HSE would also investigate incidents in State and Fee-Paying Independent schools. Civil actions brought the injured, may then follow after the investigation. No doubt the degree of enforcement differs considerably from country to country.

ICASE[iii] is an umbrella organization incorporating many science teacher organisations and other interested groups. ICASE can and should only offer advice in safety and examples of good practice which interested parties may implement all or just part of that advice. What is good and works in one country will not work in others.

In the title the word "Classrooms" is used; this is on purpose. Rules might dictate that hands-on science activities can only take place in a specially designed laboratory. Even in the UK, where about 50% of the science lesson time is hands-on, the number of laboratories per school is has been reduced in new buildings because they are so expensive to install. It means that teachers do not teach in the same room every lesson but need to move, depending on the nature of the lesson.

However, many countries do not have specifically built school laboratories. If a rule from Safety Law requires that practical science such has transferring chemicals or cutting a flower, may only take place in a specially-built laboratory, then that rule stops any practical work in a school taking place at all. Even a demonstration should not take place. This would certainly curtail any practical work.

There are some countries where the furnishing of laboratory is over-specified because the requirements for Industrial and University labs are transplanted to school buildings, taking no account of the level of work being carried out. This makes the building of a school laboratory even more expensive to install. We also have to be aware of the limited budget for school science equipment and materials. Over-elaborate Personal Protection Equipment (PPE) requirements can also wipe out the budget. I receive many phone calls at CLEAPSS from senior school managers initially insisting on gloves being worn for every lesson with chemicals (usually after some small incident or a complaint by parents). Buying gloves (disposable) on this scale would simply wipe out the science budget. There is also an environmental issue in the disposal of gloves. Eye protection though is another matter. Skin heals, eyes do not.

The main problem of safety in science educations comes as a result of the interpretation of the law, often by safety officers with no education training but specialising in safety in industry and other unrelated fields. My organisation has to contend with this on a regular basis. The advisers, in CLEAPSS[iv] and SSERC[v] (safety for schools in Scotland) which cover the UK are all teachers by training and experience. Some have had local management experience as well. Our safety education has been taken on *en passant* by asking for advice from our HSE. Mainly though, it is our experience of procedures in schools which is vitally important.

The answer to these problems is Risk Assessment which takes into account of the materials and equipment used, the products and disposal of materials, **the suitability of the room**, experience and training of the teacher and the experience, academic level, demeanour of the students.

This often requires a certain amount of time and creativity on the part of the teacher. One direction is to microscale activities. This is not new; it was pioneered by the UNESCO microscale kits[vi] and is a particular interest to myself[vii]. The issue then is that government examination and awarding bodies need to take on any changes to any procedure to improve safety when they specify practical work in schools. It is silly to include in the syllabus and ask questions on the preparation of chlorine which requires a fume hood or cupboard, if schools have no such facilities.

Should we encourage the investigation of bacteria if there are no means of safely destroying cultures after use? Why ask questions on the detection of radioactivity with Geiger Counters if radioactive materials banned by safety rules? Yes, students could memorise it from a book, watch videos or online teaching materials (if the internet is fast enough). The students may pass exams but will they be able to cope with the practical aspects of science in Industry or University as they will not have any skills in this area.

In the UK the law requires the school employer to ask for teachers to write risk assessments (RAs) on their activities. Science teachers have to demonstrate to senior management in schools that practical work can take place safely with regard to equipment, materials, room and teacher and student experience. Senior management is still responsible for safety as they should monitor the behaviour of the teacher. Our aim in CLEAPSS as consultants is to prevent all teachers reinventing the wheel and reduce the bureaucracy so that RAs are, on the whole, short statements inserted in the schemes of work. We do this via courses, newsletters and longer Guidance pamphlets.

The Association for Science Education[viii] in the UK also has a body called Safeguards[ix], which monitors safety, works closely with CLEAPSS and SSERC to ensure our practical work is safe. The members of CLEAPSS, SSERC and the ASE Safeguards are all teachers experienced in practical techniques from dealing bacterial growth, aseptic techniques, chemical demonstrations, making solutions, electrostatics and using radioactive materials in schools. In the United States if America there is the excellent Laboratory Safety Institute[x] lead by Jim Kaufmann. After several incidents the American Chemical Society ae getting more involved.

No doubt I have missed out the body which oversees school science safety in your country. I do apologise but it would be useful to build up a bank of organisations and people who could offer advice. So do contact me on bob.worley@cleapss.org.uk.

In taking over the Chair of the ICASE Safety Committee, I am very aware that countries should not preach to other countries that their system is the best and should be adopted. If hands-on science is can only be carried out in a classroom it would be foolish for ICASE to have lots of rules, about fume hoods or cupboards, or saying that lasers, spirit burners or tea-lights should be banned. I hope this is the start of a new regular column in the newsletter. I will also be working to produce a few essential statements. These may spread out into more precise documents as the new web page grows.

[i] https://en.wikipedia.org/wiki/Health_and_Safety_at_Work_etc._Act_1974
[ii] www.hse.gov.uk Also see http://www.hse.gov.uk/services/education/sensible-leadership/index.htm and http://www.hse.gov.uk/myth/nov09.htm for the cartoon.
[iii] http://www.icaseonline.net/
[iv] www.science.cleapss.org.uk
[v] www.sserc.org.uk
[vi] http://www.iocd.org/WhatWeDo/microscience.shtml for an overall view. Links in this site cover physics and biology.
[vii] www.microchemuk.weeby.com
[viii] www.ase.org.uk
[ix] https://www.ase.org.uk/resources/health-and-safety-resources/

Scientificliteracyblog.wordpress.com

By Sue Dale Tunnicliffe

One upon a time… and yet you want to know the follow-up. The stories fascinate, captivate children from their earliest year. Stories, in fact, are the most spontaneous way to talk about their own experiencies with a topic.

In this blog we hope to share with you some fictional storybooks based on scientific content and children's interpretations. In these storybooks, the animals speak, have feeling… but the animals share the same biological needs, they breath, they grow up (as in the book Fish is fish, L. Lionni); the children play with a cow (as in the book Barnabé et la vache qui marchait au plafond, Nicole Claveloux); the wolf falls into a well (as in the book Plouf!, Philippe Corentin)

We also propose you scientific learning situations through a story with young children. We consider that using a story with a science focus with young children is a very effective means of starting developing scientific literacy and involving their own imagination and experiences. Such an approach utilises both children's imagination and curiosity. It also presents the opportunity to initiate critical thinking, trigger investigation and inquiry, and to imagine outcomes.

Reading, talking, writing with everyday stories is therefore the important way to to develop the beginnings of a scientific literacy. We have identified 4 genre of illustrated books containing science concepts and information available to use with young learners.

1. Pure illustrated fictional story books written to enjoy a story which has some everyday science content but it was not the aim of the author to 'tell' about science which is often inaccurate, such as The Very Hungry Caterpillar by Eric Carle where the caterpillar turns into chrysalis but is incorrectly named a cocoon, and they don't eat cup cakes!
2. Story books that are intended to give a message such as "How do you lift a Lion" by Robert E.Wells
3. Highly illustrated books of science facts
4. Information books such as encyclopaedia which do contain illustrations but not a fictional narrative

We have found children's responses using their drawings elicit their interpretation of the story and biological understanding through drawings and the way in which experienced teachers use a narrative story highly illustrated to link the story with the experiences of the children and eliciting their relevant understanding as well as gently explaining basic biology.

We hope this blog will be useful for students in primary education, pre-service and in service teachers, researchers, parents, librarians, and other who work with young children.

For more information, follow **Scientificliteracyblog.wordpress.com**

News from UNESCO

The Microscience Programme: A STEM Education tool for sustainable development

The United Nations Educational, Scientific and Cultural Organization (UNESCO) Microscience Programme is a teacher training activity which offers the opportunity for low-cost, environmental-friendly, hands-on experimentation and knowledge-building in the basic and applied sciences in countries and regions lacking science facilities. In addition to the active learning methodology used for the training, the Microscience Programme is based on portative mini-laboratory – the micro kits – that can substitute a large-scale laboratory in poor, remote or rural areas, as they provide hundreds of different scientific experiments to support the teaching process. The Microscience Programme applies an inquiry-based science (active learning) approach enabling a shift from a teacher to a student-centered perspective, not only in technical and scientific terms, but also in terms of pedagogy and knowledge-building processes that are continuously improved based on experiences on the ground.

Information about the teaching and learning materials available for use at these workshops is available on the following UNESCO web pages:

http://www.unesco.org/new/en/natural-sciences/special-themes/science-education/basic sciences/microscience/
http://www.unesco.org/new/en/natural-sciences/special-themes/science-education/basic-sciences/microscience/unesco-teaching-and-learning-materials/

To initiate the implementation phase of the Micoscience Programme in a selected country, the International Basic Sciences Programme (IBSP) of UNESCO assists with the organization of 2-day training of trainers' workshops in view of creating a critical mass of micro-kit users and trainers able to train other science teachers and educators in the country or the region. This ensures the replicability on the ground, and therefore the sustainability of the

News from UNESCO, Cont.

programme. Usually, teacher training workshops are associated with a meeting with policy-makers to discuss the sustainability of the initiative and to explore ways for inclusion of hands-on learning in the existing curriculum. Each country should secure their own funding to conduct the training workshops and UNESCO will provide the microscience kits.

In this context, the International Basic Sciences Programme sees the opportunity to strengthen collaboration with the network of STEM teachers represented by ICASE to efficiently implant the Microscience experience globally, especially in developing countries. If you are interested in implementing the UNESCO Microscience Programme in your country, contact Dr. Jean-Paul Ngome Abiaga, International Basic Sciences Programme (IBSP), UNESCO, jj.ngome-abiaga@unesco.org.

UNESCO's International Conference of Non-governmental Organizations meets every two years to examine the state of cooperation between NGOs and UNESCO, to conduct collective consultations concerning the broad lines of UNESCO programmes and to facilitate cooperation between the organizations with shared interests. In December 2016, Dr. Teresa Kennedy was elected to join the NGO-Liaison Committee during the International Conference of NGOs at UNESCO Headquarters in Paris, France, where 10 new committee members were selected by 95 NGO representatives from around the world. Committee members represent Argentina, China, France, Mozambique, Switzerland, Tunisia, the United Kingdom and the United States. The committee will work to plan youth forums and International Days at UNESCO HQ.

Over the next two years, four forums will cover themes in the framework of UNESCO's Education Agenda 2030, the global education agenda which is part of the 17 United Nations Sustainable Development Goals.

http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/sdg4-education-2030

HSCI2017

International Conference on Hands-On Science - Portugal

The 14th annual **International Conference on Hands-On Science, HSCI2017**, will be held in Braga, at the Agrupamento de Escolas André Soares, Braga, Portugal, from July 10th to 14th 2017. This year the main moto of the conference is: *Growing with Science*.

The Conference will provide the ideal opportunity for presentation of work and in the widest range of perspectives related to Science Education. The Hands-on Science Network is open to all views and approaches on Science Education. However, we advocate an active learning of Sciences through an enlarged use of hands-on experiments in the classroom. The aim of the Conference is to promote friendly and broad exchange of experiences on good practices, syllabus and policy matters, social factors and the learning of science, and other issues related to Science Education and its development.

Proposals are invited for oral or poster presentations, workshops and group discussions, hands-on experiments demonstration sessions, Science Fair booths and exhibitions or science shows/performances.

Abstract submission continues until May 15th, 2017.

http://www.hsci.info/hsci2017/

IOSTE Hybrid Local Symposium JUSTE

Justice Underpinning Science and Technology Education

The IOSTE Hybrid Local Symposium will take place from Sunday, 26 March to Monday, 1 May 2017 (http://iostehybrid.wikispaces.com/). The Symposium is organised by John Oversby, on behalf of the West Europe Region of IOSTE, but is open to all, whether or not an IOSTE member, or whever you are. Hybrid means a combination of virtual and face to face events. Local refers to events in your area, whether Region, Country, Town & Village, School & University. The web site will have pages specifically devoted to your locality, integrated with international proceedings. In these ways we intend to make the symposium available to all, through its international virtual nature, with advantages of localism, where those whom you may meet face to face have power and responsibility for what happens. Submit papers on the theme to oversby61@gmail.com as soon as possible.

NSTA 2017 – Los Angeles, California USA

National Science Teachers Assocation Conference on Science Education

Among the efforts to connect science educators from various countries, NSTA holds international conferences during our national conferences. International activities are being planned for 2017 at NSTA's National Conference on Science Education in Los Angeles, March 30–April 2, 2017. Wednesday, March 29, 2017, has been designed as a special day dedicated to science education from an international perspective. The day will focus on Global Conversations in Science Education. Special ticketed events will be scheduled and will be open to all registered attendees of the NSTA National Conference on Science Education.

12th Annual NSTA Global Conversations in Science Education Conference

Enhancing Global Workforce Skills through Literacy, STEM, & Equity

Wednesday, March 29, 2017 Los Angeles, CA, USA

The Global Conversations Conference recognizes NSTA's increased emphasis on international collaboration in science education. There are numerous opportunities for international visitors to network together with science educators from various cultures, including those from North America. The **12th Annual NSTA Global Conversations in Science Education Conference** commences on the afternoon of 29 March 2017, with plenary talks by distinguished international scholars and includes round table discussions on specific topics relevant to the international science educator community, and poster presentations providing opportunities for networking and idea exchange. For more information, please visit
http://www.nsta.org/international/intlsciedday.aspx & http://www.nsta.org/conferences/national.aspx

Irish Science Teachers Association Annual Conference 2017
"Meitheal – Working Together"

"Meitheal - Working Together" is the tagline for this year's Irish Science Teachers' Association annual conference which will take place on **7th – 9th April 2017** in **Maynooth University.**

The conference consists of plenary and parallel sessions and lots of workshops for both primary and secondary school. It opens on Friday evening with the costume drama on the life and legacy of Robert Boyle.

Keynote Speakers:
Prof Donal O'Shea - Obesity & Diabetes
Prof Marie Cassidy – Forensic Science
Dr Mark O'Gríofa – Ocean exploration
Prof John Sweeney - Climate Change

Early bird booking and more info. on the **conference website** at **www.istaconference.com**
Hotel Bookings must be done directly by phoning the **Glen Royal Hotel**. Tel: 00 353 16 29 09 09
ISTA Package: Friday 7th April: €90 (single); €100 (double/twin) / Saturday 8th April: €100 (single); €110 (double/twin).

Association of Science Teachers of Jamaica

Don't miss the **Caribbean Science Education and Technology Conference** *Providing Quality Science Education: The Foundation for Creativity, Innovation and Sustainable Development.* The event is organized by the Ministry of Education Youth and Information (MoEYI) and the Association of Science Teachers of Jamaica. Kingston, Jamaica.

For more information see: astj.podserver.info/

Regional Highlight: Talking Science and the Story of Lady Tunnicliffe

Reprinted from The Sreepur Village Bangladesh Blog

If you think only an educated mother can teach her children about science you'll be astonished to learn that our mothers at The Sreepur Village, although formally uneducated, are providing their children with just that. Though most of them become literate after coming here, and can just about read and write when they arrive, The Sreepur Village, with support and encouragement from Lady Dr. Sue Tunnicliffe, has for the past 10 years successfully run a 'Talking Science' project to enable the learning and growth of the mothers and children in the community.

The CEY (Commonwealth Association of Science Technology and Mathematics Educators, CASTME, for Early Years) project is an initiative developed by Lady Tunnicliffe, of CASTME, one of the affiliates of the Commonwealth Foundation, and was an initiative to mark the Commonwealth Year of Science and Technology in 2010. Lady Tunnicliffe started this project, at the end of the last decade at Sreepur Village, when our Director, Pat Kerr, expressed her interest in developing a 'Talking Science' project among our mothers and children.

Early years science education is recognised as a significant foundation of a child's education. The children learn science in a fun way throughout their childhood. The fundamental goal, of the project at The Sreepur Village, was to introduce the mothers and children to science that applies to their everyday lives and it has been received very well by all.

Lady Tunnicliffe has been a best friend and supporter of The Sreepur Village since the start. In February, she kindly paid us a visit and attended many different classes with the mothers and children. Throughout her week-long stay in The Sreepur Village, she observed the mother's daily routines and the children's play times to find out the activities they perform which can be explained in scientific theory. She also spent time playing with children to understand them more closely. Her presence inspired our mothers and our school teachers as well as some visitors from the University of Dhaka, who expressed their interest in working with The Sreepur Village.

Regional Highlight cont.

Lady Tunnicliffe commented on her relationship with The Sreepur Village saying *"In the early 80s I was a middle school teacher, in charge of maths and science at a little school in Yorkshire. One day my husband came home and said we are going to visit Dhaka, Bangladesh, where one of our British Airways stewardesses runs an orphanage. I bought a booklet on Bangladesh, read it and raised some money from different primary and high schools. I packed all the stuff and embarked on my first trip to Dhaka with my two sons. In 2008, with the support of the Commonwealth Education Trust, especially CASTME, I started this project, as I believe learning starts with talking and listening. I interviewed Pat and asked to speak with the mothers about their everyday activities and how these related to science. I showed the mothers that even cooking rice and eggs is science. Using every day activities helped to explain how much they already knew about science and provided a platform for them, as parents and carers, to learn new ways to teach their children about science, through relating theories to what they are already doing. Even the children's sports activities were being explained in relation to science."*

'Talking Science' is a three-month programme. The mothers who attend the literacy programme do so to develop their comprehension skills. Some of our mothers have never been to school, but their children have. The mothers have life experience which can be related to scientific concepts such as cooking everyday foods and washing clothes. In The Sreepur Village, 'Talking Science' has provided a way for mothers to show children how and why something works the way it does and thus educating the children to scientific thinking, developing their awareness and understanding. Last year, in The Sreepur Village School, we celebrated two Science Fairs and all our students' presented different projects which everyone thoroughly enjoyed. Lady Tunnicliffe commented on the education of science, for the mothers and children in Bangladesh, and said, *'' it is important, especially in Bangladesh, to have science education in school but the number of girls receiving a scientific education is bleak."* However, as the country takes the spring forward to greater prosperity, Bangladesh will need more awareness of science and more women in science, so we are thankful to Sue for her outstanding support in bringing a science education and awareness to The Sreepur Village.

Regional Highlight: Creative and Innovative Little Scientists

Prof.Dr.Bulent Cavas – ICASE President-Elect
Dokuz Eylul University – Turkey

Dokuz Eylul University Buca Faculty of Education, Ege University Faculty of Education, Izmir Metropolitan Municipality and IZELMAN Company organized "***Creative and Innovative Little Scientists***" activity for 5-6 age students in Izmir-Turkey.

The activity included 16 different science experiments from the field of Physics, Chemistry, Biology, Astronomy and Geology.

More than 40 University students, from Faculties of Education from two Universities, having "Society Service Implementations" course attended to this activity to meet kindergarten students with science and technology based funny and interesting experiments.

Dokuz Eylul University Buca Faculty of Education, Ege University Faculty of Education, Izmir Metropolitan Municipality and IZELMAN Company would like to extend and implement this activity with other ICASE member STA organizations.
For further information and collaboration, please contact with Prof.Dr.Bulent Cavas, bulentcavas@gmail.com

For more photos and videos: https://goo.gl/WNhh9f

ICASE Journal - Science Education International

The ICASE quarterly journal is now about to enter its 26th year. From humble beginnings in 1990 when it was created to serve as the dissemination channel for ICASE, the journal has now grown to be a major English language international science education journal, receiving articles from science educators around the world. Thanks to its team of volunteers, the journal follows a strict review process to ensure the research and philosophical articles meet the ICASE criteria as relating to primary or secondary science education, or to pre-service teacher education at the tertiary level. Since 2008, the journal is available as open access, online only, although limited copies of occasional issues are published and distributed to interested science educators.

THE ICASE JOURNAL IS A MAJOR DISSEMINATION CHANNEL FOR ICASE MEMBER ORGANISATIONS AND THEIR MEMBERS. AS SUCH, ICASE GIVES PRIORITY TO ARTICLES SUBMITTED VIA ICASE MEMBER ORGANISATIONS AND IS VERY WILLING TO ASSIST MEMBER ORGANISATIONS IN PREPARING ARTICLES FOR THE JOURNAL (especially with respect to written English).

A major attraction of SEI is that there is no payment for those wishing to publish in the journal. And ICASE welcomes submissions by teachers, higher degree students or science educators in general from around the world. ICASE will do its best to assist authors whose native language is not English.

Before making a submission, please consult the Author's Manual for SEI located at www.icaseonline.net/seiweb for information related to the following topics:

(a) Copyright (b) Plagiarism (c) Language
(d) Material submission (e) Formatting (f) Artwork & Photos
(g) The Review Process (h) Non-native English authors

And we very much appreciate referencing articles previously published in SEI in your submissions.

ICASE also welcomes new reviewers. If you are interested please contact Dr. Baohui Zhang, Chair, ICASE Research and Publications Standing Committee at baohui.zhang@snnu.edu.cn.

Please refer to www.icaseonline.net/seiweb for the full articles.

Science Education International is now indexed in

- AE Global Index Master Journals List 2015
  http://aeglobalindex.com/?page_id=264
- European Reference Index for the Humanities and Social Sciences (ERIH Plus)
  https://dbh.nsd.uib.no/publiseringskanaler/erihplus/periodical/info.action?id=480336

In addition to 6 international indexes, including ERIC, The Asian Education Index, Education Research Complete Database, Index Copernicus Journals Master List, DOAJ Directory of Open Access Journals, and The Education Research Global Observatory.

Science Education International, Official Journal of ICASE

Guest Editor
Dr. Steven Sexton
College of Education, University of Otago, New Zealand

Volume 28, Issue 2 to be published in June is a Special issue of the Science Education International journal based on papers presented at the World STE2016 5th World Conference on Science and Technology Education, Antalya, Turkey, 1st – 5th November 2016. This edition anticipates representing the wide range of papers presented to include the early childhood, primary, secondary and tertiary communities. Invited authors are from the United Kingdom, Greece, Turkey, Nigeria, Bangladesh, Japan, and New Zealand. Their papers will report on a range of topics such as natural history dioramas, entrepreneurial skills, scientific literacy, gender equity and professional development for teachers. These papers' methodology range from small-scale to large-scale studies using quantitative, qualitative or mixed-method methodologies.

Starting in March, the Science Educational Journal will implement the Open Journal System (OJS). OJS is an open source solution to managing and publishing scholarly journals online. It was designed to improve the efficiency of the editorial processes. For many this will be very similar to other online journal submissions.

Authors are able to submit manuscripts to the journal directly through the journal's website. The Author is asked to upload a submission file and to provide metadata or indexing information. (The metadata improves the search capacity for research online and for the journal.) The Author can upload Supplementary Files, in the form of data sets, research instruments, or source texts that will enrich the item, as well as contribute to more open and robust forms of research and scholarship. The Author is able to track the submission through the review and editorial process — as well as participate in the copyediting and proofreading of submissions accepted for publication — by logging in to the journal's website.

To track your submission's progress through the review and editorial process, you will need to log into the journal web site and choose your role as Author. Click on the linked title to go a particular submission record.

From the resulting 'Summary' page, you will see links to Summary, Review, and Editing pages. Each of these pages will provide details about your submission.

Please refer to www.icaseonline.net/seiweb for the full articles.

CONGRATULATIONS TO OUR NEW OFFICERS ON THE ICASE MANAGEMENT COMMITTEE in 2017!

President Elect: **Dr. Baohui Zhang, The National Association for Science Education, The Chinese Society of Education (CNASE)**

Dr. Zhang is a professor at Shaanxi Normal University in Xi'an, China, and serves Deputy Secretary-General of CNASE (2013-2017). In addition to his involvement in ICASE as the chair of Research and Publication of the International Council of Associations for Science Education (ICASE) and editor of *Science Education International* (SEI) from 2014-2018, Dr. Zhang's ties to science education leadership also include serving as Co-Chair of the JRST Award Selection Committee of NARST (2011-2012); as an executive committee member of the East Asia Association of Science Education (EASE) (2015-2018); and executive board member of the Chinese Society for Inquiry Learning (2014-2017). In China, he is a member of the Steering Committee for Professional Teaching of Educational Technology in Colleges and Universities of the Ministry of Education (2013-2017) and also serves as a vice-president of the Chinese Learning Sciences Association, a branch of the China Higher Education Association (2013-2017).

Secretary: **Dr.Yasemin Özdem-Yilmaz, FENÖDER – Science Teacher's Association of Turkey**

Ms. Özdem-Yılmaz currently works as an Assistant Professor at Gaziosmanpasa University, Turkey. She served as the Assistant Editor of Science Education International, the ICASE Journal, from 2013-2016. She also serves as the International Relationships Coordinator in Science Education Research Association (FEAD). She worked as a science teacher in elementary and junior high schools for 5 years in Turkey and in USA. She has also a teaching background as a research and teaching assistant in teacher education program at a prestigious university in Turkey for 7 years. She has been awarded European Science Education Research Association's (ESERA) fund for Ph.D. candidates to enable early career researchers to visit more experienced researchers in other countries. Her research interests are inquiry and argumentation-based science teaching, science teacher professional development around these constructs and recently learning opportunities in science centers. She has been involved in national and international science education research and projects around the topics of Inquiry-based Science Education and Science Centers and Museums. In 2015, Yasemin traveled to the Great Lakes Science Center as a post-doctoral researcher and after this invaluable experience, she began to collaborate with science centers in professional development of science teachers and science center staff in informal science learning environments.

Treasurer: **Ms. Mary Mullaghy, Irish Science Teachers Association (ISTA)**

Ms. Mullaghy currently coordinates the Postgraduate Masters in Science Education at Trinity College Dublin. She is also undertaking Irish Research Council funded research on the factors impacting student career choices using Student Research Advisory Groups. She has an MSc in Chemistry and Higher Diploma in Education. Her interests include ICT and new modalities of Teaching, Learning and Assessing. She has worked as a science teacher for 25 years in secondary schools in Ireland, and is involved in the Professional Development of Secondary Teachers, acting as a Facilitator in Chemistry and marking for the State Examinations Commission. She has been involved in national and international science education projects. She participated as a Science Teacher Assistant Researcher, collaborated with the Centre for Research on Adaptive Nanostructures and Nanodevices (TCD) to develop 'Nano in My Life' pack for Transition Year students, and with Systems Biology Ireland (UCD) and Biomedical Diagnostics Institute (DCU) on a project called 'Amgen Science to Transform Classrooms'. She serves on the SciFest Board and the Science Gallery Education Committee and has acted as an Ambassador for SCIENTIX in Ireland. Mary was a National Chairperson of the Irish Science Teachers' Association (2002-2014), and is currently a member of the executive acting as the Association's website administrator and an Assistant Editor of SCIENCE, the ISTA Journal for teachers in Ireland. She also coordinates the National ISTA Senior Science Quiz annually and was awarded Pharmachemical Ireland Science Educator of the Year 2012.

Dr. Baohui Zhang

Dr.Yasemin Özdem-Yilmaz

Ms. Mary Mullaghy

CONGRATULATIONS TO OUR NEW OFFICERS JOINING THE ICASE EXECUTIVE COMMITTEE in 2017!

Africa Region: Mr. David Itamah, Science Teachers Association of Nigeria (STAN)

Mr. David Itamah is a Director of Education. At various times he has served in Nigeria's National Teachers Institute in Kaduna and Nigeria's Universal Basic Education Commission in Abuja. He was President of the Science Teachers Association of Nigeria (STAN) for 2000 – 2002. Mr. Itamah has represented the Association nationally and internationally at professional meetings including the ICASE World Conferences on Science and Technology Education in Tartu, Estonia in 2010 and Kuching, Malaysia in 2013. For his meritorious services to STAN, Mr. Itamah has been honoured with the Fellow of STAN and the Science Education Awards. He is currently the Chair of the STAN Board of Trustees and in that role doubles as Chair of the Board of Directors of The STAN Place Ltd, the official publishers of STAN books.

Australia/Pacific Region: Dr. Leah Moore, Australian Science Education Research Association (ASERA)

Associate Professor Leah Moore is a specialist in science education with an emphasis on the teaching and learning experiences of early childhood and primary science pre-service teachers, and delivery of high quality STEM education with a particular strength in Earth and environmental science. She teaches in these areas in Education at the University of Canberra, Australia, and also teaches science communication, physics and geology in the Science part of her Faculty. Leah is the Assistant Academic Program Director in Science with oversight of tertiary teaching and learning in Science at UC. Leah is a the Australasian Science Education Research Association (ASERA), a committee member of the Australian Universities Geoscience Educators Network (AUGEN), president of the Australian Regolith Geoscientists Association (ARGA), a life member of the American Geophysical Union (AGU), and a life member of the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI). Leah is the recipient of a number of grants and awards most recently for Innovative and Creative Teaching, for Creating Innovative Partnerships and for Excellence in Graduate Supervision.

Latin America Region: Dr. Cesar Mora, Latin American Science Education Research Association (LASERA)

Dr. Mora is a professor of science education at the Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada Unidad Legaria del Instituto Politécnico Nacional (CICATA-IPN), México, and serves as the current President of LASERA. Additional ties to science education leadership include serving as the Editor-In-Chief of the Latin American Journal of Science Education (2013-2016); Elected President, President and Past President of the AAPT Mexican Section (2009-2012); Associated Member of the International Commission of Physics Education (ICPE-IUPAP) (2006-2012); and Executive Secretary, Vice President and President of the Latin American Physics Education Network (LAPEN) (2003-2013), and President of the Inter American Committee of Physics Education (2012-2016).

North America Region: Dr. Jim McDonald, Council for Elementary Science International (CESI)

Dr. McDonald is a professor of science education in the department of Teacher Education and Professional Development at Central Michigan University. He currently serves as CESI President and also served as President of the Michigan Science Education Leadership Association; President of Council of Elementary Science International; Director Central Michigan GEMS Education Center at Central Michigan University; NSTA Research in Science Education Committee; NSELA Professional Development Committee; and NGSS@NSTA Curator.

Standing Committee Members are currently being appointed. More news will be shared soon!

International Council of Associations for Science Education

Supporting and promoting science education internationally
The ICASE Newsletter

January/February 2017

ICASE Executive Committee 2014-2017

ICASE membership spans the world led by an Executive Committee, with a Management Committee (President, President-Elect, Immediate Past President, Secretary, and Treasurer) responsible for the day-to-day administration and working closely with Regional Representatives and Chairs of Standing Committees. Presidential terms are noted below.

President (2014-2017)
Dr. Teresa Kennedy, Assistant Vice President for Intl. Programs and Professor, STEM Education
University of Texas at Tyler
Tyler, Texas, USA
E-mail: tkennedy45@gmail.com
Also Membership Chair

Immediate Past President (Presidential Term: 2011-2014)
Dr. Ben Akpan
Executive Director of the Science Teachers Association of Nigeria (STAN)
Abuja, Nigeria
E-mail: ben.b.akpan@gmail.com
Also World Conference Chair

President-Elect (2014-2017)
Dr. Bulent Cavas
Associate Professor Department of Science Education Dokuz Eylul University
Izmir, Turkey
E-mail: bulentcavas@gmail.com
Also Webmaster/Web Communications

Treasurer
Ms. Mary Mullaghy
Associate Professor, Trinity College
Dublin, Ireland
E-mail: mmullaghy@gmail.com

Secretary
Ms. Yasemin Özdem-Yilmaz
Assistant Professor, Gaziosmanpasa University, Turkey
E-mail: yasemin.ozdem@hotmail.com

ICASE Newsletter:
http://www.icaseonline.net/news.html

ICASE Website:
http://www.icaseonline.net/
The ICASE Constitution, Strategic Plan and World Conferneence Declarations can be viewed at:
http://www.icaseonline.net/const.html

Regional Representatives (2013-2016)

Regional Representative for Africa
Dr. Mamman Wasugu
Provost (President), Federal College of Education, Katsina State University, Katsina, Nigeria
Senate Chair, Usmanu Danfodiyo University, Sokoto, Nigeria
Professor of Science Education
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Regional Representative for Latin America
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Faculty Member, Universidade Federal do Paraná, Setor de Educação, Departamento de Teoria e Prática de Ensino (DTPEN)
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Regional Representative for Australia/Pacific
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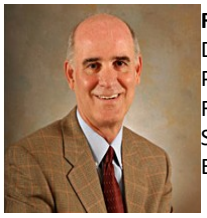

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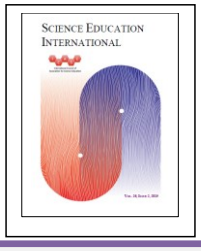

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