Supporting and promoting science education internationally

The ICASE Newsletter May 2010

Newsletter of the International Council of Associations for Science Education.

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1. ICASE News

World Conference 2010, June 28-July 2, 2010 (www.icase2010.org)
The submission of presentations and posters for the conference is closed and everyone has been notified as to whether their paper has been accepted (*if this is not the case, please contact Miia Rannikmae to make sure there has not been an oversite*). The synopsis of papers are now being organised into sessions and this data will appear on the conference website.

The Conference will also include:
A Primary Science Day covering presentations and workshops geared primarily at grades 1-6.
A Globe Project Day looking at innovations involved in the worldwide Globe project.
Special Symposium by an ICASE member organisation - CAST (China).
Special Symposium by an ICASE member organisation - STAN (Nigeria).
Special Symposium on PARSEL (An European funded project in which ICASE was a partner).

Further news
Any modifications to abstracts and synopsis for synopsis and posters should have been received by the conference organisers. The abstract will be included in the conference programme. The synopsis will be included on a CD for the conference (without modification). (*Please note - the full paper is not required unless you wish it to be considered for the conference book – see below*).

Conference book
Rather than proceedings, a conference book will be produced after the conference, including only selected papers. The papers will be selected (should authors so wish) based on evaluation by participants during the conference and following review by the editorial board. It is planned to externally publish the book under the title 'Innovations in Science and Technology Education.'

ICASE journal
Papers can also be considered for the ICASE online journal. In this case, participants will be asked to submit their paper separately (during or after the conference – deadline end of August 2010) and these will be refereed by the editorial board of the journal and published after modification (if this is appropriate). The ICASE online journal favours articles, based on research (original or literature-derived), which illustrates its effective applicability in practice at the primary, secondary or teacher education levels.

ICASE General Assembly, June 28 2010 (Tartu, Estonia)
ICASE is pleased to announce to all current and future **member organisations** that its General Assembly will be held immediately prior to the World Conference. All science teacher associations worldwide are urged to send a representative. The ICASE Executive Committee also announces that all member organisations are eligible to include items on the agenda for the General Assembly. Please contact the ICASE President on matters you would like to raise – jack@ut.ee.

ICASE is all too aware that many member organisations, especially those in developing countries, have little financial support and are unable to support the travel of its representative to the General Assembly. ICASE will do its best to ensure minimal accommodation costs for such delegates, as well as try to facilitate their involvement in the World conference and to provide a meaningful experience. Sponsorship for delegates to the ICASE General Assembly needs to come via the member organisations (*This has been the agreed mechanism by which member organisations have preferred to operate. Member organisations have not wished that the financial support for delegates comes from ICASE).*

If as a last resort, member organisations are not able to support their delegate to the ICASE General Assembly, ICASE permits written submissions on issues of concerns (which if submitted at least 1 month before the 28 June will feature in the General Assembly). The ICASE consititution also permits proxy votes on all voting matters raised by the ICASE Executive Committee or by member organisations. For more details on making submissions and ensuring proxy voting, please contact the ICASE President, Jack Holbrook, on jack@ut.ee.

Obtaining Visas for Estonia
Many delegates will not need a visa to visit Estonia. This applies to virtually all European countries (exceptions being Russia, Ukraine, Belarus and Moldova, and Balkan countries Albania, Macedonia -FYROM, Serbia and Bosnia).

Delegates from other countries below also do not need a visa
Country/State
Argentina, Australia, Brazil, Brunei
Canada, Chile, Costa Rica, El Salvador
Guatemala, Holy See, Honduras, Hong Kong SAR
Israel, Japan, Macao SAR, Malaysia, Mexico
New Zealand, Nicaragua, Panama, Paraguay
San Marino, Singapore, South Korea, USA, Uruguay, Venezuela
For others, a Schengen visa is required. Please make sure you apply for this in good time. A letter of invitation can be supplied by the conference organisers on request. For the invitation letter, please make sure you supply the relevant details required by the immigration office of the embassy to which you apply (most countries will not have an Estonia embassy and you may be required to apply to the embassy of the country of first entry into the Schengen region).

2. Science Activities

These following activities are from a collection built up by ICASE through its former primary science newsletter (STEP) and other sources. They are put forward to bring attention to small activities which can be carried out in the science classroom with minimal equipment.

A) STEP ACTIVITY

Water wheel

Challenge: How can you make a simple water wheel?

What you need
• bucket
• balloon
• water tap

What to do
Blow up a balloon and tie the neck so that it fits loosely in the bottom of the bucket. Place the bucket underneath a water tap. Turn the tap on so that water falls gently on one side of the balloon. What does the balloon do? Move the bucket so that the water falls on the other side of the balloon. What happens now?

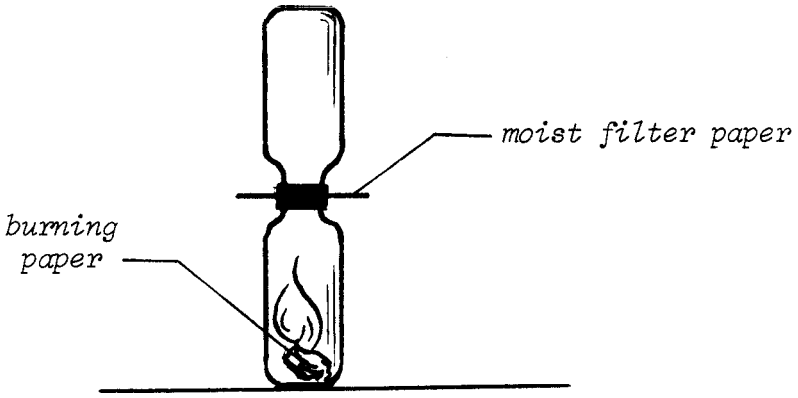
More to do
• What happens if the tap is turned on so that more water falls on the balloon. How does the speed or amount of water affect the balloon?
• Find out what energy changes are taking place as the water falls onto the balloon. making it turn like a wheel.
• Design and build other types of water wheels. How G1l1 you make a water wheel which will do some useful work?

B) ADDITIONAL SCIENCE ACTIVITY

TWO BOTTLES IN LOVE

Materials: 1. Two identical bottles with thick smooth rims (medicine bottle)

2. A piece of filter paper or blotting paper.



Procedure:

1. Soak the filter paper in water and place it over one of the bottles.
2. Twist a small piece of paper and make sure that it will fit through the mouth of the other bottle.
3. Burn this twisted piece of paper, put it in the open bottle and immediately cover this bottle with the filter-paper-covered bottle.
4. Press the top bottle for a few seconds longer on the lower one (until the flame of the burning paper is completely extinguished).
5. Now lift the two bottles up by holding on only to the top bottle.
6. Hold both bottles, invert the set, and let go of the lower bottle.

Questions:

1. What did the burning paper do to the air in the bottle?
2. Why did the filter paper have to be soaked in water?
3. Why did the two bottles stick to each other?
4. Would the bottles stick to each other without the filter paper? Why?
5. How long will the two bottles stick to each other?

Explanation:

The burning paper heated up the air in the open bottle, which caused the air to expand. Thus some of the air in this bottle escaped. By covering this bottle immediately with the other bottle, the escaped air was trapped outside. The air pressure outside the bottles is keeping the set pressed together. The moist filter paper functions as a seal between the two bottles making them almost airtight. Without this filter paper, the air would seep between the two bottles and the trick will not work. The two bottles will stick together as long as the pressure inside is lower than the atmospheric pressure. Slowly air will seep in through the filter paper and as soon as the air pressures inside and outside the bottles are equalized, the bottles come apart.

C) USING EXPERIMENTAL IDEAS IN SCIENCE TEACHING

This newsletter contains two experimental ideas. It is hoped that these are of interest.
But how to use these experiments in teaching ? Teachers need to be free to include experimentation as they feel best, but given below is ICASE thinking in putting forward the experiments in this newsletter. Teachers and science educators are welcome to comment.

1. Who does the experiment ?

Clearly these experiments can be undertaken as a teacher demonstration. However, the intention is that the students are involved, either working individually, or more likely, in small groups. The apparatus is kept as simple as possible and can often be brought from home, or made by the students themselves.

Why is student involvement preferred ? We note the old Confucius saying – I hear and I forget; I see and I remember; I do and I understand. The belief is that the more students are engaged, the more they learn. Teacher demonstrations, or large group experiments, limit student involvement and are thus not preferred.

2. Should instructions be given to students ?

The sections *'What to do'* and/or *'Procedure'* clearly spell out how to undertake the experiment. But it is not intended that the experiment must be used in this way. By following instructions, a *'cookbook,'* or *'follow a recipe'* situation is created. This highlights the **doing,** but **probably not** the understanding. Where instructions are provided, the student learning can be expected to be the explanation that follows. And the teacher is then focusing on students' explanatory skills. The questions have been added to the first experiment to encourage moves away from a 'cookbook' or 'do-and-forget' approach and towards a more exploratory approach. In the second experiment the questions seek understanding which can lead to modifications of the experiments for more novel effects. It will a pity if the teacher is the person who answers these questions. In fact it would be interesting to learn of situations where the students, themselves, are both asking and then answering the questions.

3. Inquiry learning

Can the experiments be used in an inquiry approach, whereby the students ***raise questions*** and **suggest the *purpose* and *procedure themselves* ?** This is very much an ICASE recommended approach. It means students put forward the investigatory question, plus the procedure to follow. It promotes science as the seeking of explanations to questions put forward rather than to a 'wondering why' approach, although perhaps this is appropriate for the younger students.

So what would be the investigatory questions for these experiments ?

This is a challenge left for you to consider.

3. Further Ideas for Greater Relevance of Science Teaching for the Enhancement of Scientific Literacy

Jack Holbrook, ICASE President

In the previous newsletter the questions posed were -

How is the scientific knowledge taught on a need-to-know basis ?

What teaching approach can be put forward to enhance scientific literacy ?

In a content-based approach to the teaching of science, the content is specified and the learning proceeds in a logical fashion based on the content. If desired, a concept map can be drawn and the conceptual development for the learning of science can relate to the content sequence being followed. This has been seen as a standard approach and in such a curriculum approach, the science to be taught comes first and the relationships of the science to society follow afterwards.

But what happens if the frame of reference for the teaching is a curriculum derived from the society and the teaching proceeds by relating to aspects of interest in the society which lend themselves to a scientific link ? Now, the science content is not specified first - the aspects of interest in the society fill that role. Furthermore, there is no specific science-organised content sequence. This is so whether it is a study geared to the ecosystem, a concern whether the advertising of a brand of soap is fair, making a decision about whether to ban plastic bags, or whether a timer used to determine how fast someone runs 100 metres can be produced by counting the movement of a swinging weight on the end of a piece of string. In selecting the society situations, relevance and student interest can be the major reason and although the specific scientific knowledge involved need not be a consideration, the choice needs to have a science content component which will becomes a focus as the topic is explored further.

To begin the teaching, the selected situation needs to appreciated and discussed. This component is initiated by the familiar scenario, mentioned in earlier newsletters. Deeper exploration of the situation can be expected to initiate questions and students begin to ask these related to a lack of scientific knowledge. In response, the knowledge needed can be obtained, at that particular point in time, using first-hand investigatory approaches, or through second sources such as textbooks, the internet or speaking to a knowledgeable person – perhaps the teacher. In this way, the knowledge can be said to be gained on a need-to-know basis. This does not have to follow any particular sequence, although the time taken to gain the knowledge will depend on the starting point. And the starting point will depend on the students' prior knowledge and their zone of proximal development (see earlier newsletters).

It could be argued that in such an approach, some components of scientific knowledge (which would be present in a content-based approach) will not be introduced at all. An example from a chemistry point of view could well be the periodic table, as this is unlikely to have much to do with everyday life. But so what ! If this knowledge is not needed in considering everyday life (for the areas, the variety and the depth for aspects chosen) which are chosen for study, why is such knowledge needed ? This is surely irrelevant and unnecessary, until and unless a situation is studied where it does play a part. Just because it is traditional to include, or previously included because it provides a scientific background that some would like to call 'basic'', is no longer good enough. To include such knowledge in the teaching simply promotes an image of school science which is irrelevant, abstract and thus unnecessary – the very aspect, in popularising science in school that science teaching is trying to avoid.

The goal of school science, as mentioned in the last newsletter, could well be expressed as gaining scientific literacy. We now have a situation where the learning for scientific literacy relates to aspects of life within a society. And as aspects of society can vary across regions, cultures, etc, so the science knowledge included on a need-to-know basis can vary. Some traditional aspects (dare I call these 19th Century science) may not be included at all. A need-to-know approach implies that the previously identified, content-based basic scientific knowledge taken as important could be transient, dependent on the situation and hence not really basic at all. In fact, it might be fair to say that there is no such things as basic science knowledge ! In putting forward such a position, there is no intention to imply science is unimportant, or that scientific knowledge is not an important part of learning at school. It merely attempts to recognise that a person living in a jungle and an eskimo in snow bound surroundings face different impacts on the society situations and hence will need different knowledge, including science knowledge, to cope, to develop and thus build up a context-based scientific literacy. It suggests that scientific literacy has little to do with the gaining of specific knowledge, identifies as general, or basic and the building up of generalised concepts. More important, it suggests that the definition of scientific literacy is not based merely on the acquisition of some unified knowledge as given in many science textbooks. The textbook knowledge may be important and valuable to the student, given the learning situation imposed, but the acquisition of this knowledge, even if acquired in totality, does not equate with being scientifically literate. Not until the knowledge can be utilised, and utilised in a meaningful context (as determined by a consensual view by others) that scientific literacy can be claimed.

The teaching approach for developing scientific literacy is definitely seen as being student-centred. The student has to utilise acquired knowledge and skills in new situations. This implies the transference of knowledge and skills and hence the teaching approach needs to focus on this. This goes further than the student being able to solve end-of-chapter exercises, write chemical equations, or undertake calculations. It implies being involved in identifying a problem, issue, or concern which lends itself, in whole or in part, to scientific investigation. It implies being able to explore the situation and to transfer previously acquired knowledge and skills to tackle the situation and through gaining new knowledge and skills, formulate a solution, make a decision or provide input to a further problem, or issue. This is basically the meaning of scientific inquiry, although the degree to which the student is supported or guided by the teacher has not been mentioned. The support, when students begin such transference of knowledge and skills, will most probably need to be large. Students will not have a wide range of supporting experiences, but as the students appreciate their role and strive to solve problems or reflect on decision needed, their degree of support can be gradually be reduced.

Based on the comments made about science education, science teaching and the goal of scientific literacy, it is time to reflect on how all this can be put together and examples of teaching modules can be put forward. It must be stressed that the modules by themselves cannot meet the goals of interesting, relevant and meaningful learning. The teaching relies much more heavily on the intentions, aspirations and approaches handled by the teacher. At best the modules can offer support to the width of science teaching that is surely needed for scientific literacy and help guide the teacher away from seeing themselves as the centre of attention and the fountain of knowledge.

The question that can this be put forward for consideration are

> What is a possible structure for a module promoting scientific literacy?

4. SAFE SCI Be Protected

Article provided by Dr. Ken Roy – Director of Environmental Health & Safety, Glastonbury (CT), an authorized OSHA instructor and science safety consultant. Email: Royk@glastonburyus.org

PORTABLE EXTINGUISHERS: Safety on Fire!

The 2003 edition of the International Fire Code was developed to be fully compatible with all appropriate International Codes or I-Codes published by the International Code Council or ICC. The fire code was originally developed to protect public health, safety and welfare. Included in the 2003 IFC edition, under section 906, are Portable Fire Extinguishers. The code states that even with quick-response sprinklers, fire extinguishers shall be required only in special-hazard areas. Included in those listed areas are academic science laboratories. The point is that, even with a sprinkler system, those areas housing hazardous flammable substances should still have portable fire extinguishers. Every school science laboratory has or should have them. Equally important is the need to know when, what type and how to use them. If the employer has the expectation that designated employees, such as science teachers, will use fire extinguishers, the standard operating procedures in the department's safety plan needs to include annual fire extinguisher training.

I. FIRE EXTINGUISHER SPECIFICATIONS!

The IFC has specifications relative to fire extinguisher location and storage.
Section 906.5, titled *conspicuous location,* notes that extinguishers must be placed in a conspicuous location where they are readily accessible and immediately available for use. Readily accessible means they are not to be obstructed and are in view. Signage is required, especially in places where visual obstruction cannot be avoided.

Section 906.7, titled *hangers and brackets,* states that those extinguishers not housed in cabinets must be installed on hangers, or brackets which are securely anchored to the mounting surface, based on the manufacturer's instructions. In the case of cabinet use in school science laboratories, they are not to be locked.

Section 906.9, titled *height above floor,* prescribes distances above the floor is based on the weight of the extinguisher. For example, an extinguisher 18kg or less is to be installed so that the top of the extinguisher is not more than 1520 mm above the floor. Those with a gross weight exceeding 18 kg are to be installed with their top not more than 1070 mm above the floor. The clearance between the floor and the bottom of the installed hand-held extinguisher shall not be less than 100 mm.

II. SHOULD I STAY OR SHOULD I GO? – USE OF EXTINGUISHERS!

Before an employee decides to fight a fire, consideration needs to be given to the following items: size of the fire, route of escape, level of heat, amount of smoke and fumes. Remember that buildings can be replaced, employees cannot. If you are unsure, let the fire department extinguish the fire. But above all, as as the major priority, make sure the students are safe

III. SOUND THE ALARM!

If the fire is very small, chances are it can be handled in a few moments. In any other situation, someone needs to start evacuating the science laboratory or classroom, and calling the fire

department for back up. The point is to know the standard operating procedure for your facility. Also, how can the office be contacted? Is there a fire pull box in the area?

IV. KNOW YOUR ABC's!

Use of an inappropriate type of extinguisher can make a fire worst in some instances. There are four basic classes of fires and extinguishers for science laboratories:

Type A: (Think Ashes!) This is for ordinary combustibles such as wood, paper, plastics, etc.
Type B: (Think Barrels!) This is for flammable liquids such as oils, greases, oil-based paints, some plastics, etc.
Type C: (Think Current!) This is for electrical equipment such as wires, circuit breaker panels, appliances, computers, etc.
Type D: This is for combustible metals such as magnesium, potassium, sodium and lithium.

The combination ABC fire extinguishers are a good choice for science laboratories. They can be used to extinguish the first three types of fires noted. Again, use judgement. A Type A water based extinguisher used on an electrical fire could severely shock the user! Know your ABC's! If combustible metals are used, a Type D extinguisher is required. Type D extinguisher powders are also available when using small quantities of combustible metals.

V. PASS IT ON PLEASE!

An easy way to remember the plan of attack in fighting a fire is the acronym PASS.

P: Pull the pin on the extinguisher.
A: Aim the extinguisher low at the base of the flame. A distance of approximately 2-3 metres is preferable.
S: Squeeze the trigger. Remember the extinguisher will provide approximately between 5-25 seconds of action, depending on its size.
S: Sweep from side-to-side. Remember to try to push back the fire in an organized pattern.

VI. JUST WHEN YOU THINK IT IS OVER!

Make sure the fire is out. A smouldering fire can burst into flames. Also, it is critical to replace the fire extinguisher as soon as possible. It can happen again! Local fire departments are dedicated to helping make places safe from fires. They can be of invaluable assistance in training employees and writing standard operating procedures.

Science teachers should check with their local fire departments to determine if they are operating under an adopted International Fire Code. In science laboratories where flammable substances are used – fire protection, including access to portable fire extinguishers and teacher training are critical in saving both teacher and student lives!

INTERNET REFERENCE:
International Fire Code:
http://www2.rigov.org/pdf/inspections/2003InternationCodes/2003InternationalFireCode.pdf

5. Popularity and Relevance of Science Education for Scientific Literacy (PARSEL)

Jack Holbrook
President, ICASE and Visiting Professor in Science Education, University of Tartu

PARSEL developed under a European Commission, FP6 Science and Society banner, is an approach, using teaching/learning modules, promoting greater popularity and relevance of science education. The modules cover a series of lessons at the secondary level (grades 7 upwards) and are designed for use within science, or biology, or chemistry, or physics classes. An objective of PARSEL is to develop, test and disseminate pan-European science education modules which can be used to enhance scientific literacy. As the ultimate goal of this approach is to enhance students' scientific literacy for life within a European Union society, the modules are geared also to promoting learning for responsible citizenry. This is indicated by stating specific learning objectives/competencies aligned with the attainment of educational goals within science teaching through an appropriate context.

PARSEL also provides the motive for students to meet their needs through designing the modules based on a three-stage model in such a way that the learning is interesting, promotes extrinsic motivation and is hence favoured by students (it is popular). So as to also promote students' intrinsic motivation, the title and focus of the modules are given a society orientation, using words/situations/graphics familiar to students. Student ownership is promoted and enhanced through strong student participation in the learning.

PARSEL also stresses a number of teacher actions to appropriately guide student activities, such as strongly encouraging teacher ownership of the philosophy, promoting students' higher order cognitive skills and acquisition of an image of the nature of science. Reflection on teacher actions are encouraged and the involvement of formative assessment approaches are included in modules which relate to the student learning outcomes/competencies and involve the teacher in observation, oral questioning, and/or marking of written work.

Why PARSEL ?
Many studies have pointed out that school science at the primary level (grade 1-6) is interesting and enjoyable for students (see review by Osborne, 2003). Students at this age like to interact with practical ideas, make things and utilised these in a variety of settings. As expected, based on psychological considerations, there is little by way of abstract thinking and the science is more related to exploring than drawing analytical inferences.

This situation, however, starts to change at the secondary level. Not only does science move more into abstract learning, but it also coincides with adolescent developments and, with this, students' interests outside the school become a greater focus of attention. Student interest in school science is also affected by its perceived relevance, especially where curricula are 'watered-down' versions designed for preparation for advanced studies (Millar, 2008).

The PARSEL project is an attempt to meet the challenge of putting forward teaching approaches to tackle the issue of a lack of popularity and relevance of school science at the secondary, and especially at the junior secondary, level. In so doing, the PARSEL partners recognise that for some students science is already interesting and relevant (often the more able) and see science careers as attractive. However, this is not the case for the majority of students (Schreiner & Sjoberg, 2004). This concern is also expressed by the European Commission through its

recognition that Europe needed more scientists and that a lack of interest in school science is seen as detrimental to such a development (EC, 2004). Nevertheless, the PARSEL partners do not so much focus on making school science a springboard for further studies in science (the old traditional view – Fensham 2008), but see the learning of science as essential for life in general and of importance for all careers.

Because of the diversity of systems within Europe, any project determining its impact on raising the popularity of science and science teaching and promoting greater student interest in science across Europe requires a wider approach than is reasonably possible within one country. An added value of this project is thus the coordinating and collating of exemplars of good practice from a range of countries. This is aided by creating a formulation of the varied factors that leads to exemplar teaching/learning materials in general and which guides the orientation of science teaching towards the promotion of scientific and technological literacy.

By careful translation and the testing of selected materials and resources, an additional added value within a country is the greater diversity of materials available. Through strong dissemination within the country, stakeholders can become more aware of a wider range of exemplary type materials and of the potential of such materials for tackling the problem of a lack of popularity of science. The compilation of the exemplar materials from a range of countries simultaneously takes note of research and curriculum developments within these countries, at least at the project level, and the application of the research to the classroom. But the project compilation of materials intends to build on this and tries to go beyond that which is possible at the national level.

The PARSEL goal

By way of an end piece, Is tate the PARSEL mission

> *'Using the expertise of teachers, the PARSEL intention was to promote teaching/ learning modules that were popular and relevant to students, as well as enhancing scientific literacy and allowing students to see scientific careers in a more favourable light.*'

The modules can be found on the website - www.parsel.eu

ICASE was a partner in this project, together with The Leibniz Institute for Science Education (IPN) - Germany, Frei Universitat Berlin - Germany, Weizmann Institute of Science - Israel, University of Tartu - Estonia, University of Southern Denmark, University of Ioannina - Greece, University of Lisbon - Portugal and Lund University - Sweden.

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6. Calendar of Events

20th International Symposium on Chemistry and Science Education "Contemporary Science Education – Implications from Science Education Research about Orientations, Strategies and Assessment" will be held May 27-29, 2010 at the University of Bremen
(Building of the Department of Chemistry and Biology, Leobener Str. NW2, 28359 Bremen, Germany).

This Symposium continues a long tradition stretching back to 1981. In the past, symposia repeatedly raised the question of how science education research can help to improve chemistry and science teaching and learning. But the question of how to promote successful science learning automatically implies a further question: Which are the objectives to be reached? Is science teaching primarily aimed at learning the content and theories of science? The 2010 symposium simultaneously maintains and further develops the topics of the past symposia from 2002-2008, in which we discussed the orientations and methodology of science education research, questions of teacher education and successful science learning. In one way or another, all symposia touched upon the question of valuable orientations in chemistry and science education.
Main questions will include:
- How and where do we see the balance between the learning of science facts and theories vs. more general education objectives derived from educational theory?
- What conclusions must we draw when more deeply reconsidering the essential elements of the scientific literacy debate, activity theory and the German concept of "*Allgemeinbildung"?*
- Which answers can be obtained from general and science education research when considering different approaches towards science teaching?
- Which issues and strategies obtained from science education research can be seen as valuable tools to apply to chemistry and science teaching?
- What is state-of-the-art in context-based and/or STS-oriented science curriculum development and what do we know about the effects of these respective approaches?
- What do we know from research about attitudes, motivation and PCK of practicing teachers concerning different approaches towards chemistry and science teaching?
- Which research-based strategies do we have for implementing changes and for teacher education towards modern approaches to chemistry and science teaching?

The conference language will be English and the conference will be chaired by
Prof. Dr. Ingo Eilks, Institute for Science Education (IDN), Didactics of Chemistry, University of Bremen *ingo.eilks@uni-dortmund.de*
Prof. Dr. Bernd Ralle, Department of Chemistry, Didactics of Chemistry I, Dortmund University of Technology, *bernd.ralle@uni-dortmund.de*

Further information
The final program with abstracts, information on travelling and accommodation will be published on the web at *http://www.chemie.uni-bremen.de/eilks/symp2010/index.html* by January 2010.

Conference fees and registration
There is no conference fee. Costs for travelling, accommodation and social events are covered by the participants. All information and the registration form will be published on the web accompanying the final program in January 2010.

The XIV IOSTE International Symposium on Socio-cultural and human values in science and technology education will be held June, 13th to 18th, 2010 in Bled, Slovenia and hosted by the University of Ljubljana, Slovenia. Details on submitting papers and other information please see the conference website - http://www.ioste14.org. For additional information, contact Dr. Slavko Dolinšek, Director of the Institute for Innovation and Development, University of Ljubljana, Slovenia E-mail: dolinsek.slavko@fs.uni-lj.si

ICASE World Conference, 28th June – 2nd July, 2010, Tartu, Estonia

The 3rd ICASE World Science and Technology Education Conference will be held at the University of Tartu. All science educators, including science teachers, are cordially invited to participate. Conference theme **- Innovation in science and technology education: research, policy, practice.** *[See website for more details on programme, registration and accommodation - www.icase2010.org]* Following the conference, tours are being arranged to St.Petersburg, Russia; Riga, Latvia, and Vilnius, Lithuania.

Associated with this conference will be the ICASE General Assembly to which all ICASE member organisations are kindly asked to send a representative. The ICASE General Assembly will be held on the 28th June and this important meeting will plan the work and direction for ICASE over the coming 3 years. For further details on the General Assembly please contact the ICASE President - jack @ut.ee

10th ECRICE and 4th DidSci conference, Krakow, Poland, July 4 – 9, 2010

The organizing committee cordially invites you to attend and participate in the 10th European Conference on Research in Chemistry Education (ECRICE) and 4th International Conference Research in Didactics of the Sciences (DidSci). Based on a long tradition, ECRICE is organized under the auspices of EuCheMS (formerly FECS), in relation to the activity of the Division of Chemical Education. This meeting follows successful conferences held in Istanbul (2008), Budapest (2006), Ljubljana (2004), Aveiro (2001) etc. This Conference is an opportunity to exchange experiences on research in chemical education (ECRICE) and research & practice in natural science education (DisSci) carried out at every education level from primary school to graduate studies. The aim of the conference is to familiarize participants with the most recent achievements in the various scientific centres. The programme will feature a wide variety of plenary, invited and contributed lectures, as well as poster sessions. For more details please see the website - http://ecrice2010.ap.krakow.pl/

Abstracts of oral contributions and posters will be peer reviewed. The language of ECRICE will be English, whereas the language of the DidSci component of the conference will be English, Polish, Czech, and Slovak. For more information contact: Iwona Maciejowska ECRICE 2010 secretary at e-mail address: ecrice2010@ap.krakow.pl or Małgorzata Nodzynska DIDSCI 2010 secretary at e-mail address: didsci2010@ap.krakow.pl

21st International Conference on Chemical Education (ICCE), Taiwan, August 8-13 2010.

The theme of the 21st ICCE is Chemistry Education and Sustainability in the Global Age. The deadline for proposals is March 31, 2010. For further details contact :

http://icce2010.gise.ntnu.edu.tw

GeoSciEd VI: Geoscience Education - Developing the World, Johannnesburg, South Africa, August 29 - September 3, 2010 **Abstract Submission Deadline: 31 March 2010**

Abstracts are now being accepted for the sixth IGEO conference "Geoscience Education – Developing the World" in Johannesburg, South Africa on August 29 to September 3, 2010. Oral, poster, and workshop presentations on all aspects of geoscience education are welcome. Presentations from the broader science education research community with relevance to geoscience education are also encouraged.

The International Geosciences Education Organisation (IGEO), an affiliate to the IUGS (International Union of Geological Sciences), is dedicated to developing the field of geoscience education and to promoting strong earth and environmental science education throughout the world. The IGEO conference, held every four years, is a forum for geoscience educators at all levels (preK-adult) and disciplines (earth, atmosphere, ocean, space) in both informal and formal contexts to collaborate and discuss best practices in teaching and learning, geoscience education research, and curriculum and technology development.

GeoSciEd VI will feature an array of outstanding field trips that showcase South Africa's world-famous geoscience sites, including Tswaing Meteorite Crater, the Cradle of Humankind, the Witwatersrand Goldfield, the South African Large Telescope, Simangaliso Wetland Park, and Kruger National Park.

For more information and to submit an abstract, please see the conference website at http://web.wits.ac.za/NewsRoom/Conferences/GeoSciEd

Participants are encouraged to secure accommodation and register as soon as possible. Registration (ZAR 5000 early bird) includes all sessions; mid-conference field trip; daily lunch, supper and teas; transport to venues from hotels, and evening social events.
Enquiries can be sent to: Dr. Ian McKay (witsgeoutreach@gmail.com) or Prof Gillian Drennan (Gillian.Drennan@wits.ac.za)

The IVLA2010 conference will be held in Cyprus September 23- October 3, 2010

A Warm Welcome to IVLA 2010

Welcome to the website of the 42nd Annual Conference of the International Visual Literacy Association (IVLA). IVLA 2010 will be hosted by the University of Cyprus in Cyprus from September 29th to October 3rd, 2010. The conference venue will be the **Atlantica-Miramare** hotel in **Limassol**, Cyprus.

IVLA is an international, eclectic and non-profit organization of researchers, educators, designers, media specialists, and artists working toward a fuller understanding of the way we derive meaning from what we see and the way we interact with our visual environment. We invite you with pleasure to participate in the conference and celebrate with us the legacy of IVLA and its welcoming circle of friends and community of exceptional professionals.

IVLA 2010 will take place in Cyprus for the first time. Cyprus is the third- largest island in the Mediterranean and is a country of cultural richness and diversity, since it lies at the crossroads of three continents where East meets West. It is known for its welcoming sun, the inviting beaches and the breathtaking mountain trails located in Troodos Mountains. The island is also famous for its exceptional Mediterranean cuisine and its long tradition in wine making. Cyprus' long history has brought innumerable findings over the years resulting in a variety of priceless collection of

artifacts displayed in various archaeological museums and spectacular monuments, hosting among others, the prehistoric Choirokoitia settlement, Roman villas, tombs and theaters, and churches constructed and painted during the Byzantine years. Limassol, the host city for IVLA 2010, is the second largest city in Cyprus after Nicosia - the capital of Cyprus. Limassol is a famous tourist destination throughout the year and is the biggest port in the Mediterranean transit trade. Limassol is well-known for its long cultural tradition, and a wide spectrum of activities and a number of museums and archaeological sites are available to the interested visitor.

We are excited to be hosting IVLA 2010 and we do look forward to meeting you all in Limassol for a productive and fruitful conference. We will do our best to enjoy your stay in the island!

Deadline for Proposal Submission: May 30th, 2010.
For more information please contact us at:
Email: ivla10@ucy.ac.cy/
http://www.valanides.org/ivla
Fax: +357-22894487 (c/o Nicos Valanides)
Address: Nicos Valanides, Department of Education, University of Cyprus, P.O.Box 20537, CY-1678, Nicosia, CYPRUS, Tel: +357-22892937 (office)/ +357-99-442388 (mobile)

The 23rd Asian Association for Biology Education will be held in Singapore, from 18-20 Oct, 2010, at the National Institute of Education, Singapore. The theme of the conference is: **Biology Education for Social and Sustainable Development**. The 3-day conference will have 6 plenary speakers, oral and poster presentations, country reports, a workshop on Problem Based Learning in Biology, and mid-and post-conference tours.

The conference is jointly organized by, the National Institute of Education, the Asian Association for Biology Education, Singapore Institute of Biology, and Science Teachers Association for Singapore.

The website for the conference is http://www.nsse.nie.edu.sg/aabe2010/

In preparation

ICASE Asian symposium, Guilin, China

ICASE African symposium in Namibia (2012)

ICASE seminar in conjunction with RECSAM, Malaysia

7. ICASE Executive Committee 2008-2011

Based on the ICASE constitution, the ICASE Management committee as well as Regional Representatives are elected by member organisations. These elected members, in turn, nominate chairs of relevant standing committees. Together these persons form the ICASE Executive Committee and are the persons who make decisions on behalf of the ICASE Governing Body. The ICASE Governing Body is the **ICASE member organisations**.

The Executive Committee **(the decision making body working under the Governing Body)**

President
Prof Jack Holbrook
E-mail jack@ut.ee

Past President
Dr Janchai Yingprayoon
E-mail janchai@loxinfo.co.th

Secretary
Prof Miia Rannikmae
E-mail miia@ut.ee

Treasurer
Peter Russo
E-mail ceo@asta.edu.au

Regional Representative for Africa
Dr Ben Akpan
Executive Director of STAN, Nigeria
E-mail: ben.akpan@stanonline.org
(Member Organisation – Science Teachers Association of Nigeria)

Regional Representative for Asia
Dr Azian Abdullah
Director, RECSAM, Malaysia
E-mail: azian@recsam.edu.my
(Member Organisation – RECSAM)

Regional Representative for Australia/Pacific
Dr Beverley Cooper
E-mail: bcooper@waikato.ac.nz
(Member Organisation – NZASE, New Zealand)

Regional Representative for Europe
Dr Declan Kennedy
E-mail: d.kennedy@ucc.ie
(Member Organisation – Irish Science Teachers Association (ISTA)

Regional Representative for Latin America
Gabriela Inigo
E-mail: gabrela_inigo@hotmail.com
(Member Organisation – Albert Einstein Club, Mar del Plata, Argentina)

Regional Representative for North America
Prof Norman Lederman
E-mail: ledermann@iit.edu
(Member Organisation - Council of Elementary Science International - CESI)

Chairs of Standing Committees
Safety in Science Education
Dr James Kaufman
E-mail: jim@labsafetyinstitute.org

World Conferences
Dr Robin Groves
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Pre-secondary and Informal Science Education
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