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## International Association for Statistical Education



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### ICOTS-7: Working Cooperatively in Statistics Education

Salvador (Bahia), Brazil, July 2-7, 2006



**Local Organisers:**

Pedro Alberto Morettin (Chair),  
Lisbeth K. Cordani, Pedro Silva,  
Clélia Maria C. Tolo and Wilton de  
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**IPC Executive Committee:**

Carmen Batanero (Chair), Susan  
Starkings (Programme Chair),  
Allan Rossman and Beth Chance  
(Editors of Proceedings), John  
Harraway (Scientific Secretary) and  
Lisbeth Cordani (Local Organisers Representative).

The International Association for Statistical Education (IASSE) and the International Statistical Institute (ISI) are organizing the Seventh International Conference on Teaching Statistics (ICOTS-7), which will be hosted by the Brazilian Statistical Association (ABE) in Salvador (Bahia), Brazil, July 2-7, 2006.

The major aim of ICOTS-7 is to provide the opportunity for people from around the world who are involved in statistics education to exchange ideas and experiences, to discuss the latest developments in teaching statistics and to expand their network of statistical educators. The Conference theme emphasises the idea of cooperation, which is natural and beneficial for those involved in the different aspects of statistics education at all levels. Some examples are given below.

1. *Cooperative learning in statistics education.* Recent trends in educational psychology emphasise the role of student activity and social interaction in learning. These developments are particularly important in the case of statistics where students are taking a more active role in working on cooperative projects and studies.
2. *Cooperation between statistics teachers and researchers.* Real life applications generated by working with a researcher in another area help motivate the teaching of statistics. The subject is more enjoyable for students when a teacher can call

on such real applications. At the same time, teachers are an essential part of a research team in statistics education, since they collaborate both in collecting data from the students and in helping with the design and evaluation of action-research programmes.

3. *Cooperation between statistical agencies and statistics educators.* Statistical agencies need the cooperation of the population at large when collecting their data. They are also interested in improving the statistical literacy of their citizens. Consequently, the agencies are communicating statistical ideas to their populace as well as providing official data for research on different topics, including teaching. Statistical offices and educators collaborate in the development of teaching resources based on official data and set up workshops and conferences on the teaching of statistics.
4. *Interdisciplinary cooperation for research.* Interdisciplinary research is natural both in applied statistics and statistics education. Many central statistical concepts and procedures arose from research problems in other subjects. At the same time the researcher, whatever subject he or she is working in, benefits by having problems actually solved. Statistics education is based on many different disciplines, such as psychology, education, epistemology, statistics and sociology, which all contribute in their own unique way to the study and solution of teaching problems.
5. *International cooperation in statistics education.* Global communication and increasing interest and respect for complementarity in education are leading to an increasing number of successful international research or educational programmes at different levels: e.g., Large scale statistical literacy comparative studies; Regional, National or International funded projects; International statistical education centres; International training programmes or conferences in statistics education.
6. *Globalization and diversity in statistics education.* Cooperation requires both global and local approaches to research and teaching. There is a

contrast and a complementarity of global and local approaches in statistics education; e.g., large sample, quantitative studies versus qualitative and ethnographic research; the need to recognise global tendencies, and at the same time being sensitive to specific difficulties or talents of special and gifted students, minorities, etc.

A first planning meeting in Berlin and two meetings of Local Organisers with IASE representatives in Rio de Janeiro and São Paulo initiated planning for the Conference that is now advancing at a good pace. The Local Organisers designed a beautiful logo and the IPC web page, designed by John Shanks, is systematically updated as new information becomes available and can be accessed at <http://www.maths.otago.ac.nz/icots7>.

We all hope ICOTS-7 will continue the scientific quality and engagement of previous ICOTS and encourage you not to miss this event. More information is available from the IASE web page at <http://isi.cbs.nl/iase.htm> and from Carmen Batanero ([batanero@ugr.es](mailto:batanero@ugr.es)).

*Contributed by Carmen Batanero*

### **SRTL-4 Report**

The fourth research forum in a series of international research forums on Statistical Reasoning, Thinking and Literacy (SRTL) took place during winter at The University of Auckland in New Zealand. This particular gathering of researchers has played an important role in advancing our understanding of the richness and depth of reasoning about distribution, a key focus of statistics education.

The focus of SRTL-4 on reasoning about distribution emerged from the previous three SRTL Conferences. Distribution is a key concept in statistics, and yet statisticians and educators may not be aware of how difficult it is for students to develop a deep understanding of this concept. When students are given tasks involving comparing distributions or making inferences, they often fail to utilize relevant information contained in the underlying distributions. Curricular materials often focus on construction and identification of distributions, but not on what these distributions mean to students and how they interpret them.

The programme began with an overview talk by Chris Wild entitled: "A statistician's view on the concept of distribution". Eight presentations of SRTL-4 were thematically grouped into five clusters. A cluster included one or two ninety-minute research presentations to the entire group, small group discussions, and a whole group reflection on the cluster. All presenters showed a small subset of video segments of their research. Optional time was devoted to viewing and discussing the research video tapes from methodological and interpretive perspectives. In addition, three post-graduate students presented their current research findings in a poster session and a software developer discussed potential research questions to the entire group (see abstracts below). The programme ended with three discussants' reflecting on reasoning about distribution from research, curriculum, and technology viewpoints.

The research forum proved to be very productive in many ways. Several types of scientific publications will be produced

including a CD-ROM of the proceedings edited by Katie Makar, papers in refereed journals, and a special issue of *Statistics Education Research Journal* (SERJ) on reasoning about distribution co-edited by Maxine Pfannkuch and Chris Reading. An additional product of the meeting will be a new SRTL website hosted by the Department of Statistics, The University of Auckland, and will include a variety of resources. These will all serve as a rich resource for statistics educators and researchers. As a result of the success of this gathering, plans are already underway for the next gathering (SRTL-5) in 2007.

For further information, please visit the SRTL-4 website at <http://www.stat.auckland.ac.nz/srtl4/index.html> or contact the SRTL Co-chairs Joan Garfield ([jbg@umn.edu](mailto:jbg@umn.edu)) and Dani Ben-Zvi ([dbenzvi@univ.haifa.ac.il](mailto:dbenzvi@univ.haifa.ac.il)).

*Contributed by Maxine Pfannkuch*

### **International Statistical Literacy Project (ISLP) needs your help**

In order to make the web pages of the International Statistical Literacy Project (ISLP) more helpful for users, the ISLP Advisory Committee is conducting a short survey of the users of the ISLP web pages. The survey is anonymous and is at <http://course1.winona.edu/cblumberg/survey.htm>. It should take about 3 minutes to complete. We would appreciate the filling out of the survey by anybody who has ever looked at the ISLP web pages. Thank you in advance to all who fill out the survey form.

If you have not yet explored the web pages of the ISLP, you can begin to do so by going to <http://course1.winona.edu/cblumberg/islplist.htm>. Contact Carol Joyce Blumberg at [cblumberg@winona.edu](mailto:cblumberg@winona.edu) for further information.

*Contributed by Carol J. Blumberg*

### **Chance News**

*Chance News* reviews current issues in the news that use probability or statistical concepts. Its aim is to give the general public a better understanding of such news and to allow teachers of probability and statistics courses to live up their courses with current news. In the past, most of the articles in *Chance News* related to U.S chance news. We have changed *Chance News* to a *Chance Wiki* to make it a collaborative effort of its readers in the spirit of the very successful free encyclopedia Wikimedia. We hope, by doing this, to make the new *Chance Wiki* an *International Chance Wiki*. So, we encourage you to participate and to pass this information on to anyone who you think might like to contribute to this effort. You can view the *Chance Wiki* at <http://chance.dartmouth.edu/chancewiki/>.

*Contributed by Laurie Snell*

### **Third Radical Statistics critical essay 2006**

Speak your mind and win a prize! Submit an original essay, 3,000 words maximum, by 1 May 2006 that addresses a current social research/policy question, with critical use and interpretation of relevant data sources. First prize is £300 and second prize is £200. There are two categories of entry, Student or Open, awarded on the basis of readability, clear presentation of statistical material and convincing argument. Age and experience will be taken into account when judging. The judges are Simon Briscoe, Len Cook, Ruth Levitas,

Denise Lievesley and Susan Starkings.

The essay awarded first prize will be featured on the Radical Statistics website and published on 1 July 2006. More detailed information can be found on the website [www.radstats.org.uk](http://www.radstats.org.uk).

Applications are encouraged well before the deadline. Send your essay by e-mail, labelled 'Radstats Critical Essay', include your full name, address, age and number of years for which you have been engaged in social research, statistics, or the social sciences to [janet.rmshapiro@btopenworld.com](mailto:janet.rmshapiro@btopenworld.com).

*Contributed by Susan Starkings*

### Teaching Statistics Trust grants offer

In addition to publishing *Teaching Statistics*, the Teaching Statistics Trust has many other facets. It is very keen to support statistics teaching in general, and is embarking on a new initiative to help and encourage statistics teachers in schools. It wants to encourage school teachers to develop and share their good ideas. So, it is offering small development grants of £50 for any article by a practising school teacher that is accepted for publication in *Teaching Statistics* from now to the end of 2006. "Accepted for publication" does not mean actually published - the lead times mean that this might be somewhat later - but the article must have been refereed, any comments attended to, and a final draft accepted by the Editor. "Schools" include colleges provided a substantial amount of the work is at what would normally be thought of as school level, i.e. up to about age 18. And anywhere in the world. The Trust is also sponsoring an additional prize, as well as the annual C. Oswald George Prize, which will be an award of £100 for the best article in the journal by a practising school teacher in 2006 (volume 28) and in 2007 (volume 29). Each year's winner will be determined by the Editorial Board. For details of how to submit your article, and further information about *Teaching Statistics*, please visit [www.blackwellpublishing.com/test](http://www.blackwellpublishing.com/test).

*Contributed by Gerald Goodall*

### First Announcement of the Joint ICMI/IASE Study "Statistics Education in School Mathematics: Challenges for Teaching and Teacher Education"

In the past three decades, a statistics education research community has developed, linking people from various backgrounds (statisticians involved in teaching statistics in service courses at universities, mathematics educators, and psychologists), leading to the creation of the International Association for Statistical Education (IASE, <http://www.stat.auckland.ac.nz/~iase/>) in 1991, with over 500 members at the time and to the publication of a research journal SERJ in 2002, a peer-reviewed electronic journal of IASE (<http://www.stat.auckland.ac.nz/~iase/publications>) and the International Statistical Institute (ISI, <http://isi.cbs.nl/>).

Also since the mid-80's, the International Commission on Mathematics Instruction (ICMI, <http://www.mathunion.org/Organization/ICMI/>) has found it important to involve itself directly in the identification and investigation of issues or topics of particular significance to the theory or practice of contemporary mathematics education, and to invest an effort in mounting specific ICMI studies on these themes. In the past few years, ICMI became increasingly

interested in organising a Study focussed on the teaching of Statistics. Research in statistics education is scarce as compared with other areas within the mathematics education community, while, at the same time, the teaching of statistics at school level is carried out as a part of the mathematics curriculum and is receiving increasing attention in new curricula around the world.

Conversations between ICMI and IASE made clear the common interest in organising a joint Study related to current problems in teaching of statistics within school mathematics. It was recognized that, in spite of recommendations to increase the presence of statistics teaching at school level, students enter university with a poor level in statistics. This impedes their progress in learning very basic inferential statistics at university, and is causing a general misuse and misunderstanding of statistics by researchers and professionals.

The above facts led the ICMI Executive Committee to invite the IASE to cooperate in a joint ICMI/IASE Study focussed on statistics. This invitation was accepted by the IASE, who proposed to merge the Study Conference with IASE's next Round Table Conference to be held in 2008 in Monterrey, Mexico.

Carmen Batanero (past IASE President 2001-2003) will act as Chair of the International Programme Committee of the joint Study, whose composition is given below.

The first meeting of the ICMI/IASE Study IPC is planned at ICOTS-7 (July 2006, Brazil <http://www.maths.otago.ac.nz/icots7>), where over 400 statistics educators are expected. The second ICMI/IASE Study IPC meeting is planned at 56<sup>th</sup> ISI Session (August 2007, Lisboa, <http://www.isi2007.com.pt>).

The ICMI/IASE Study Conference will be hosted by the Monterrey Technological Institute in July 2008 (Monterrey, Mexico).

The IASE is convinced that the engagement of both organizations to work together on the issue of statistics education in school mathematics will contribute to the advancement of preparation of youngsters to become statistical and mathematical literate citizens.

Joint ICMI/IASE Study International Programme Committee:

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