

INTERNATIONAL ASSOCIATION FOR STATISTICAL EDUCATION

<http://www.cbs.nl/isi/iase.htm>

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1. Report from the IASE President



The past year has been a very successful one for the IASE. I would like to express my gratitude to all the 2001-2003 IASE Executive Committee members Dani Ben-Zvi, Carol Joyce Blumberg, Lisbeth Cordani, Gilberte Schuyten, Brian Phillips, Susan Starkings, and Chris Wild, and co-opted members: Gail Burrill, Delia North and M. Gabriella Ottaviani, as well to other IASE members who devoted so much time and effort to IASE activities.

The main event was our **ICOTS-6 Conference** in Cape Town, South Africa, this time celebrating 20 years of International Conferences on Teaching Statistics. The conference was a big success thanks to the excellent work by the International Programme Committee and in particular to the efforts by M. Gabriella Ottaviani, Brian Phillips, and Dani Ben-Zvi as well as by the efficient local organisation and warm hospitality by Jacky Galpin, Delia North, Linda Haines and their team. A main result is the **ICOTS-6 Proceedings CD Rom** edited by Brian Phillips and a **Teachers' Booklet** which are now available from the International Statistical Institute Permanent Office. A special report is included in this issue.

Our programme for the **54th Biennial Session of the International Statistical Institute (ISI)**, to be held in Berlin, Germany in August 2003, is now complete. Gilberte Schuyten <gilberte.schuyten@rug.ac.be>, our IASE representative on the ISI Programme Co-ordinating Committee for Berlin has organised a wide and varied list of topics for Invited Paper Meetings, both those organised by the IASE alone and in conjunction with other ISI Sections and Committees (see report in page 11). There is still time to propose contributed papers and we hope to have a great set of education papers in Berlin. Furthermore, we are organising an **IASE Satellite Conference** on Statistics Education and the Internet to be held at the Max-Planck Institute for Human Development, Berlin, Larry Weldon <weldon@sfu.ca> is Chair of the Scientific Committee and Joachim Engel <engel_joachim@ph-ludwigsburg.de> Chair of the Local Organising Committee. Guidelines and information are provided at the web page: <http://www.ph-ludwigsburg.de/iase/>. See page 11 for more details.

In 2004, **ICME-10** (the International Congress on Mathematical Education) will be held in Copenhagen, Denmark. Conversations are being held with Mogens Niss, chief organiser of ICME-10, to help in organising statistical education activities during the conference. Immediately after ICME-10, we will celebrate our next **IASE Round Table Conference** at Lund University, Sweden with Lena Zetterqvist <lena@maths.lth.se> and Ulla Holt as local organisers. The theme of the conference will be "*Curricular Development in Statistics Education*" and Gail Burrill <gburrill@nas.edu> will be the Conference Chair. We are starting to plan for the **55th Biennial Session of ISI**, to be held in 2005, Sydney, Australia and Chris Wild <c.wild@auckland.ac.nz> has agreed to represent the IASE on the ISI Programme Co-ordinating Committee. Chris is still looking for more themes and organisers for the IASE Invited Paper Meetings and would welcome any good ideas for new topics. We are glad to announce that the IASE Executive accepted the proposal made by the Brazilian Statistical Association, and supported by other statistical associations in the area, to hold **ICOTS-7** in 2006 in Brazil. The decision was first announced at the ICOTS-6 farewell dinner. Pedro Morettin <pam@ime.usp.br> is to be Chair of the Local Organising Committee and Lisbeth Cordani <lisbeth@maua.br> will act as the link between the IASE Executive and the local organisers. More details about these conferences are given on page 12.

For many years IASE members have been suggesting that we should create our own research journal, as a tool to nurture research in statistics education and as a vehicle of communication among members. We are glad to announce that after three years of publishing the *Statistical Education Research Newsletter (SERN)*, we finally were able to launch **Statistics Education Research (SERJ)** in May, 2002. (further information is given in page 12 and on the web page <http://fehps.une.edu.au/serj>). This is a new electronic journal, that focuses on research and that we hope will complement other prestigious statistics education journals, such as *Teaching Statistics* and the *Journal of Statistics Education*. We are grateful to the support and encouragement already received in these early stages and encourage you to contribute to this project. More details about other IASE publications are given throughout this issue.

The **World Numeracy Project** has been renamed as the **International Statistical Literacy Project (ISLP)** and is now under the auspices of the IASE. Carol Joyce Blumberg has spent a major portion of her sabbatical year working on the development of a working plan for the ISLP, based on the suggestions she received from IASE and ISI members (see the Report on page 13).

In 2001 we had an increase in the number of members, which are currently over 600, mainly due to the new people entering in December for ICOTS. As a consequence, the financial balance was positive in 2001 and we could offer support to ICOTS-6 and other statistics education conferences. We plan to continue our policy of collaboration with other associations and professional bodies interested in statistics education and extending our **National Correspondents Network** (see page 14 for a full list). We hope to continue receiving your help in all these tasks in the future, since it is only with the help of all members that IASE can continue to be a strong association.

2. The Sixth International Conference on Teaching Statistics



Developing a Statistically Literate Society
Cape Town, South Africa, 7 - 12 July, 2002
LOC Website: <http://icots.itikzn.co.za/>



IPC Executive in Cape Town

2.1. Report from the IPC Executive

ICOTS-6 held in Cape Town (South Africa) from 7 to 12 July 2002, was undoubtedly a great success, both from the organisational and the scientific point of view. The 472 attendants, in fact a large majority of the IASE membership, met for six days, during which they presented their papers. The superb accommodation of the Holiday Inn Cape Town, gave the delegates the possibility to exchange views and to dwell upon their past, present and future projects and activities in a pleasant place. All of this allowed participants the opportunity to strengthen old friendships and to start new ones. The atmosphere was of an active, scientific community open to new fellow members, happy to share their experiences, to receive information and input coming from different sources and suggesting new ideas and projects for the future. Preparing for this Conference has been a challenge, and has required a long period of work. The success of ICOTS-6 is based on a well organised team work. In September 1998, the IASE Executive Committee began the process by choosing the Conference theme "*Developing a Statistically Literate Society*" and appointing a team of people to act as the Executive Committee of the International Program Committee (IPC): M. Gabriella Ottaviani (Chair), Brian Phillips (International Organiser and Editor) and Dani Ben-Zvi (Scientific Secretary). After this a group of people were coopted as members of the International Programme Committee (IPC). Within the IPC, 11 topics were proposed with one, or sometimes two people appointed as Topic Convenors as indicated later in this report. In addition Linda Haines (South Africa) was included on the IPC as the Local Organising Committee (LOC) representative.

After presenting an abstract of their topic, each convenor(s) proposed a number of session organisers, each of whom, in turn, presented an abstract of the session and put forward at least three invited paper authors. The International Programme Committee members have co-operated worldwide to gradually construct an interesting and useful program showing the best of the activities, studies and research in Statistics Education, in order to work towards "Developing a statistically literate society". Through the interest of their proposals and the quality of the authors they invited, they ensured the standard of ICOTS-6 to be very high. This activity required a continual effort for about four years, particularly of the Executive Committee, that had to plan and supervise all the process and to maintain contacts with the Local Organising Committee. Communications were kept and maintained by e-mail. Of enormous assistance were the IPC and the LOC Websites. A very special thanks goes to Dani and Dagan Ben-Zvi, for the wonderful IPC website at <http://www.beeri.org.il/icots6> which they designed and maintained in very trying circumstances. It constantly showed where the Conference preparations were at, what the next steps were and the corresponding deadlines. This site has unfortunately been terminated but post-conference information will be available at the IASE homepage: <http://www.cbs.nl/isi/iase.htm>. The LOC Website, designed and maintained by the University of Natal Public Section at the address: <http://icots.itikzn.co.za/> gave all important logistic local information and it proved to be most important in providing information in the unforeseeable relocation of the venue from Durban to Cape Town.

ICOTS-6 is the first ICOTS where a refereeing system has been proposed to the authors. This was due not only to the request coming from some colleagues who needed their papers refereed for funding purposes, but also from a scientific desire of the Exec and IPC who thought that time had come to improve the quality of the papers presented at the ICOTS Conferences. This, no doubt increased the task of the Exec, particularly of Brian Phillips who had to follow the refereeing process, but as Brian Phillips noticed, "The larger than expected response for authors to have their paper refereed was also most heartening". All papers whether refereed or not, underwent an editing process to ensure a quality product. The papers presented at this Conference were numerous, nearly 300 papers form the Proceedings of ICOTS-6. In fact the IPC Executive Committee decision to produce a CD of the ICOTS-6 Proceedings, rather than hard copy, was very well received, and the work done by Brian Phillips and his Editorial Board to edit the CD has been epic. In addition some 25 posters were on display throughout the conference.

There were several other scientific products of the Conference: the ICOTS-6 Abstract Book is a useful printed guide to the CD. It contains titles and authors of the plenary sessions as well as sessions, titles and authors of the invited and contributed topics. Besides this, it contains the abstracts of all papers listed and an e-mail list of ICOTS-6 authors and organisers. The ICOTS-6 Papers for School Teachers is a peculiarity of ICOTS-6 that put in evidence a further achievement of this successful Conference. In fact, following the suggestions of the IPC Executive Committee, the Local Organising Committee and in particular Jacky Galpin, Delia North and Jacky Scheiber, succeeded in organising a series of events to reach out to local school teachers (see report from local organisers). ICOTS-6 Papers for School Teachers

contains a collection of papers which were selected from all papers presented at the Conference by the ICOTS-6 Local Organising Committee as of special interest to South African Teachers. The 232 pages of the booklet contain the plenary sessions papers, the Statistics Literacy papers and 31 papers selected from the other sessions.

Many persons have committed themselves to design and organise this conference during the last four years, but no doubt all of this has been worthwhile. A conference like ICOTS only happens because of the commitment of a large number of people from around the world who are prepared to freely give much time and effort. We would like to pay tribute to the great support we received from so many people who helped in the making of the conference such a success. This includes three IASE Executives from 1997 to 2002, an International Program Committee of 18 people, many who also worked as Topic Convenors, a Local Organising committee of 11 people, 76 session organisers and a professional events organiser and staff, Sue Bumpsteed Conferences (Pty) Ltd, Lynn Selby, the AV Coordinator for her commitment to ensuring the audio visual aspects of the conference worked to perfection and Lynne du Toit of Safari Tours for making sure everyone got there safely and had a great social program. We greatly appreciated the excellent co-operation of well over 300 authors and give special thanks to more than 70 referees who so generously gave of their time and expertise to do such a professional job. We certainly could not have finished with such a quality product without the work of the sub-editors and the CD designers. Furthermore, we wish to thank the Local Organising Committee, especially Jacky Galpin, who were extremely helpful in getting the program together as well as the many other aspects of hosting the conference. We also express sincere thanks to the 18 sponsors for easing the financial and logistic problems of running such a conference. In closing, we are very happy to say that the many dramatic events which have occurred during the planning of this conference did not deter this brilliant and devoted group of statistics educators from providing all the valuable material and getting to Cape Town for this wonderful occasion. Any statistics educator who did not attend really missed out on a very special occasion.

We think that the IASE should be proud of this event that has contributed to better understand its task and its potentialities in divulging statistics, its teaching/learning, and its usefulness in everyday life. We will be willing to assist those who are now starting the long task of planning for ICOTS-7 in Brazil in 2006.

2.2. Report from the Local Organisers

A total of 472 delegates from 54 countries attended the Sixth International Conference on Teaching Statistics, held in Cape Town (South Africa) from 7 to 12 July 2002. The conference was a great success despite the relocation of the host city which was necessitated just four months prior to the event! The many months (actually years!) of hard work by both the LOC and IPC paid rich dividends as delegates found the conference organisation to be excellent – accommodation, transport, speakers audio-visual requirements, tours and social functions were of the highest standard. The conference



was supported by the City of Cape Town and the SA government, evident from the fact that, at the Mayoral reception on the Sunday night, the guest speakers were Tami Mseleku, Director General of Education and Alderman Danny de la Cruz, Speaker of the City of Cape Town, while the Master of Ceremonies was Pali Lehohla, the Statistician General of SA. In addition, the conference was opened by the Honorable Trevor Manuel, Minister of Finance of South Africa, after the flags of the countries of the participants were carried in, and the national anthem sung by a group of children, lead by the famous Cape Minstrels.

Most of the delegates had accommodation in the Holiday Inn Cape Town, Strand Street, the conference venue. This cut down on transport time and gave delegates more time to network and socialise. The delegates were well catered for on the social front – a mayoral reception on the Sunday night, a “happy hour” around the posters on Monday night, wine tasting around the posters on Tuesday night, local tours on Wednesday afternoon and the conference banquet on Thursday night ensured that delegates relaxed after the academic demands of the day. Delegates booked many pre- and post conference tours at the conference tour desk which was available throughout the conference. Visits to the various game parks in South Africa (particularly Kruger National Park) were the most popular choice, while a tour to a local township was a very popular choice for the Wednesday afternoon local tour.

A major local thrust for ICOTS6 was a series of events put in place to reach out to local school teachers. The South African Statistics Association (SASA), Association of Mathematics Educators of South Africa (AMESA), Statistics South Africa and the Department of Education united to present a wonderful program for local school teachers to become acquainted with basic statistics concepts (many local school teachers have had no previous statistics training) which will soon be part of the new school syllabus in South Africa.

On the Saturday a 1-day CensusAtSchool workshop was held in Durban (following on from the national mathematics school teachers conference). This workshop was repeated in Cape Town on Sunday. The attendees of this CensusAtSchool workshop consisted of some international ICOTS delegates, local school teachers from the Cape Town area and teachers, from each province in South Africa, selected by the Department of Education. These teachers include key mathematics co-ordinators from the 9 provinces of South Africa. Aspects of CensusAtSchool from other countries were also presented at both workshops, giving an international perspective to the data sets, which will be made available to all schools in South Africa.



Choir at ICOTS Opening

A local teacher session, running for the full duration of the conference, was organised by SASA and AMESA, and ensured that the teachers got sufficient training in statistics to be able to meet the demands of the statistics section of their new school syllabus (to be fully implemented in 2005). The local teacher session was split into two strands, Primary (grades 4, 5, 6) and Senior (grades 7, 8, 9). A workshop approach prevailed throughout and this ensured that the teachers would have adequate materials to use in the class room. Each teacher received a die, plastic cups and various coloured poker chips and in no time groups were merrily simulating their data and arguing the finer points of probability theory! Other sessions focused on using details of histograms, charts, plots and other aspects of the school syllabus, as



Presenters for Teachers Sessions

well as interpretation of newspaper articles and other material incorporating statistical concepts. The teachers were very excited to discover the relevance of statistics to all aspects of teaching at school, and in fact to all aspects of life. The local teacher session and the CensusAtSchool workshop was captured on video camera in order to be used in follow-up workshops to be held in the various provinces in South Africa. Presentation of these workshops was a requirement for funding received by many of the teachers who attended ICOTS6. Support from SASA and AMESA will assist these teachers in spreading knowledge gained at ICOTS6. ICOTS6 certainly gave local teachers the training to assist in creating a statistically literate society in South Africa!

2. 3. SUMMARIES OF TOPIC SESSIONS

Note: Complete data of authors, organisers and presenters as well as full papers, including those not presented orally, can be found in the **ICOTS-6 Proceedings CD**, which are available from the International Statistical Institute Permanent Office, P.O. Box 950, 2270 AZ Voorburg The Netherlands, Fax 31-70-3860025, E-mail: isi@cbs.nl.

TOPIC 1. STATISTICAL LITERACY. Convenors: Iddo Gal (Israel) and Brian Phillips (Australia)

Under this topic many questions were discussed involving statistical thinking which confront people when they are at work, handling household affairs, reading a newspaper or watching TV, or in leisure. The term "statistical literacy" does not have a single accepted meaning, but in general refers to people's ability and propensity to interpret, critically evaluate, and communicate about statistical information, data-related claims, or chance-related phenomena which they may encounter in diverse life contexts. In many societies or communities citizens are increasingly being expected (or declare their right) to be informed and act as critical consumers of statistical and probabilistic information. To that effect, presentations suggested some level of statistics literacy that may be desirable not only from all school or university graduates, but also of all adults, regardless of their educational and personal backgrounds.

Presentations at Session 1A: *Frameworks and Studies in Statistics Literacy*, organised by Iddo Gal (Israel) dealt with 'Three kinds of statistical literacy: what should we teach?', Milo Schield, 'Analysis of data from a nationwide psychological project involving coin-tossing predictions', David Green and 'Profile for statistical understanding', Chris Reading. Topics for presentations in Session 1B: *Statistics for the Citizen*, organised by Brian Phillips (Australia) run in two sessions, were 'What educated citizens should know about statistics and probability', Jessica Utts, 'Promoting statistics thinking amongst secondary school students in the national context', Philip J. Boland, 'Toward a statistically literate citizenry: what statistics everyone should know', Jerry L. Moreno, 'Experience of dealing with the media on congenital anomaly research', Beverley Botting, 'Dna "fingerprints" and their statistical analysis in human populations', A.Marie Phillips and 'Probability and game shows', Mike Fletcher. All the speakers gave very good presentations and these sessions proved very popular. Presenters also described some research-based findings or concerns based on classroom experiences regarding statistics literacy levels of learners or people in general, and suggested various

courses of action that educators can follow, either in terms of specific classroom activities or regarding the needed general approach to instruction and skill development.

TOPIC 2. STATISTICS EDUCATION AT THE SCHOOL LEVEL. Convenor: Jane Watson (Australia)

Topic 2 focused on statistics education at the school level and it was encouraging to observe that the response at ICOTS6 was the largest at any ICOTS thus far. Session 2A: *Statistics in Elementary School* was organised by Dave Pratt (UK). Grade 3 students were the recipients of 10 lessons on chance and data with an emphasis on variation in the report presented by Jane Watson. José Luis Cortina discussed three different ways that 12-year-old students make sense of the arithmetic mean as a ratio. Efthymia Papanistodemou discussed a case study of 6-8-year-old children working in a game-like environment to construct spatial representations of a sample space. Session 2B: *Innovative Ideas for Teaching Statistics in Secondary School* was organised by Gail Burrill (USA). James Nicholson outlined the pedagogical basis for a range of materials, including the use of technology. The relationship of statistics to the rest of the mathematics curriculum was the feature of Jeff Witmer's presentation. The perspective taken by Hanan Innabi reflected the importance of critical thinking throughout the school curriculum. Anthony Harradine, suggested ways of moving beyond the traditional methods of teaching the Normal Distribution and the Central Limit Theorem.

In Session 2C: *Research on Teaching Statistics at the School Level*, organised by Pat Thompson (USA), Dani Ben-Zvi described grade 7 students' cooperative work on a data assessment task in a computer-assisted environment. Jinfa Cai compared inexperienced and experienced teachers' constructions of pedagogical representations for teaching the arithmetic average. Silio Rigatti Luchini presented the results of a study involving 145 teachers and over 2000 students aged 6-10 in five Italian provinces. Finally, Gail Burrill looked at the overall picture of the relationship of research to teaching at the school level, in particular in relation to the production of curriculum materials. Session 2D, *Innovative Statistics Curriculum Development and Research Projects at the School Level*, was organised by Dani Ben-Zvi (Israel). The CensusAtSchool project for students aged 7 to 16 was discussed by Doreen Conner. Annie Morin addressed the curriculum issues associated with statistics becoming a part of the mathematics curriculum at the school level, and the increasing availability of computers. Peter Holmes, reviewed the past 40 years of curriculum change with respect to school statistics. Delia North presented a plan to assist teachers who have little or no training in statistics. Gianfranco Galmacci and Anna Maria Milito, described the results of an Italian study of 6000 students at every school level and 338 teachers, comparing how different teaching approaches influenced the students' learning processes. Koeno Gravemeijer, presented an instructional design heuristic called "emergent modelling"

Session 2E, *Sociocultural Aspects of the Learning of Statistics at the School Level*, was organised by Paul Cobb (USA). Paul Cobb reported on a classroom design experiment where 12-year-old students developed identities as those who chose to engage in, saw value in, and viewed themselves as competent at developing data-based arguments. Collaborative work was the focus of the report by Carolina Carvalho. Celia Hoyles and Richard Noss described the findings of a study of the ways paediatric nurses think about the notions of average and variation.

TOPIC 3. STATISTICS EDUCATION AT THE POST-SECONDARY LEVEL. Convenors: Gilberte Schuyten (Belgium) and Allan J. Rossman (USA)

Sessions were categorised by type of course, student audience, pedagogical approach, and statistical topic. Session 3A *Statistics as a Service Subject in First Level Courses* was organised by Beth Chance (USA). Speakers in this session discussed recent innovations in statistics instruction aimed at making the course more relevant to a general audience. Session 3B, *Statistics as a Service Subject in Second Level Courses: Teaching Regression Models* was organised by Joachim Engel (Germany). Presentations dealt with 'Interpretation of regression output: diagnostics, graphs and the bottom line', 'Understanding regression', 'Accessible methodologies for estimating density functions' and 'Advanced topics for a first service course in statistics'. Session 3C. *Statistics for Future Statisticians* was organised by Ann Cannon (USA). Participants in the discussion have included industrial statisticians (end-users) as well as faculty from a broad range of post-secondary institutions. The results of the Undergraduate Statistics Education Initiative (USEI) in the United States and the status of majors (first degrees) and minors on other continents were discussed. Session 3D *Statistics and Research Designs: An Integrated Approach*, was organised by Glenys Bishop (Australia). Presentations dealt with 'Experimental research in a statistical concepts course', 'Teaching statistics and research methods in a virtual learning environment', 'Improvement of teaching and use of statistics in Africa's Sub-Saharan countries: the example of Benin' and 'Statistics made alive'.

Session 3E, *Statistics Learning with Cases/Projects*, was organised by Roxy Peck (USA). Presentations dealt with 'Case studies in the mathematical statistics course', 'Statistical investigations – Drawing it all together', 'Survey sampling: learning by doing. A twenty years graduate level teaching experience' and 'Projects for advanced undergraduates – Leaving the script behind'. Session 3F *Bayesian Statistics* was organised by Dalene Stangl (USA). Speakers discussed the ease and difficulty of teaching the Bayesian perspective and shared teaching resources with those interested in bringing Bayesian methods into their own courses. Session 3G *Nonparametric Methods*, organised by Noel Veraverbeke (Belgium). Presentations dealt with 'The teaching and practical implementation of the

nonparametric bootstrap', 'A short introduction to nonparametric curve estimation', 'Visual basic applications and spreadsheet for teaching estimation of nonparametric density and regression functions' and 'Tests for interaction in a two-way layout: Should they be included in a nonparametrics course?' Session 3H, *Teaching Consultancy Skills to Statistician* was organised by Gabriella M. Belli (USA). The perspectives represented what is being done in Africa, Asia, Europe, North America, and South America. Session 3I, *Statistics for Future Teachers* was organised by Graham Jones (USA) and Zakayo Msokwa (Tanzania). Speakers discussed innovative programs in statistics education for prospective teachers of elementary, middle and secondary school. Session 3J, *Statistics for Future Health Care Professionals*, organised by Tom Short (USA). Presentations dealt with 'Making statistics relevant for undergraduate nurses', 'From testing to decision-making: changing how we teach statistics to health care professionals', 'Usage of medical journal articles in biostatistical training for residents' and 'Intensive short-courses in biostatistics for fellows and physicians'.

Session 3K, *Sampling for Surveys* was organised by Alan H. Welsh (Australia). Presentations dealt with 'Training professionals in survey sampling', 'Use of mini-projects in the teaching of survey sampling', and 'Survey training for official statisticians in Brazil'. Session 3L, *Multivariate Statistics* was organised by John Harraway (New Zealand). Presentations dealt with 'Multivariate methods for ecology and environmental science', 'Hierarchical linear models for the analysis of longitudinal data with applications from HIV/AIDS program evaluation' and 'Making multivariate interesting and fun for students'. Session 3M, *Hypothesis testing* was organised by Alan McLean (Australia). The title of papers were: 'Hypothesis testing in psychology: throwing the baby out with the bath water?', 'Statisticacy: vocabulary and hypothesis testing', 'Hypothesis tests, confidence intervals, and common sense' and 'How significance tests should be presented to avoid the typical misinterpretations'. In Session 3N, *Teaching Categorical Data Analysis* was organised by Michael Campbell (UK) the following papers were presented: 'Teaching categorical data analysis', 'Teaching statisticians and applied researchers statistical methods for analysis of data from rating scales' and 'Teaching statistics on-line: our experiences and thoughts'. Session 3O *Statistics for the Actuarial Syllabus* was organised by Jacky Galpin (South Africa). Presentations dealt with 'Plan member risk and the defined contribution pension plan', 'Net value and ruin theory by spreadsheet', 'Teaching stochastic calculus to the 3rd year students' and 'Teaching statistics to the modern actuary'.

TOPIC 4. STATISTICS EDUCATION TRAINING AND THE WORKPLACE. Convenors: Carol Joyce Blumberg (USA) and René H.M. Smulders (The Netherlands)

Session 4A, *Making Statistical Consulting and Technical Co-operation More Effective* had papers by Koffi N'Guessan and by Carmen Arribas that described various training courses in French and Spanish, respectively. Session 4B: *The Role of National and International Statistics Organisations in Improving Statistical Knowledge in the Workplace* had papers by Bart Meganck on Eurostat's role in conversion to the Euro, by Madge Haven, Madhuri Mulekar and Carol Blumberg on the American Statistical Association's role in education, and by Daniel Berze giving a historical overview of ISI's role in statistics education. Session 4C: *Training of Official Statisticians* had papers describing training programs for official statisticians in the workplace in Malawi (Bradley Payne, Peter Holmes and Neville Davies) and Spain (Pilar Martín Guzman and Jose Luis Cervera) and for university students in the Ukraine (Ruslan Motoryn). Session 4D: *Distance Learning* had papers on distance learning programs in Slovenia (Lea Bregar, Irena Ograjenšek and Mojca Bavdaž Kveder), USA (W. Robert Stephenson) and Belgium & South Africa (Lea Vermeire, An Carbonez, Paul Darius and Jill Fresen). Session 4E-1: *The Use of Census Material in Statistics Teaching* had papers on the Children's Censuses in Italy (Cristiana Conti, Enzo Lombardo, and Maria-Gabriella Ottaviani) and New Zealand (Lesley Hooper). Session 4E-2: *The Interface Between Official Statistics and University Teaching* had papers by Enrica Aureli and Riccardo Russo on training geography students in Italy, by Patrick Murphy on an undergraduate course in Ireland on official statistics, and by Reija Helenius on Statistics Finland's training projects.

Session 4G: *Preparation and Training of Workers in the 21st Century* had papers by Luigi Biggeri and Alberto Zuliani on training public administration workers, by Beverley Carlson on how we should generate statistics on future training needs, by Steve Zayac on the training needs of industry, and by Lionel Pereira-Mendoza on preparing primary school teachers to teach statistics. Session 4H and 4F combined: *Educating Managers, Executives, Lawyers, Politicians, Government Officials and Other Decision Makers* had papers by Theodore Chadjipadelis on the needs of political scientists, by Corinne Hahn and Patrick Dassonville on training future managers, by Enrico Giovannini on OECD's "new vision" for its statistical activities and by Mary Gray on teaching statistics to lawyers. Session 4I: *Statistical Training and Education in Environmental Settings* had papers by John A. Harraway on whether studying statistics in secondary school in New Zealand effects students' performance in Biostatistics at the tertiary level, by Katarina Cobanovic on teaching agricultural statistics in Yugoslavia and by María Virginia López, María del Carmen Fabrizio, María Cristina Plencovich and Hernán Giorgini on a survey of Argentine universities with agriculture programs. Session 4J: *Practical Training in the Workplace for Tertiary and Postgraduate Students* had two presentations on internship programs in the USA by Katherine Taylor Halvorsen and by Lara Wolfson, and a paper by Nadezhda Tsankova on a management training institute in Bulgaria. Session 4K. *Training of Institutional Research Professionals* had papers by Gerald W. McLaughlin and Josetta S. McLaughlin and by Mary Ann Coughlin on training needs of institutional research professionals in the USA, by Linda Hewitt on the training needs in the Caribbean Community, and by Pieter J. Vermeulen of South Africa on how technology has effected the solutions to institutional research problems.

TOPIC 5. STATISTICS EDUCATION AND THE WIDER SOCIETY. Convenor: Helen MacGillivray (Australia)

The challenges of this for the professional societies, continuing professional development, statistics education and accreditation, formed the theme of session 5D, organised by Neville Davies (UK) with Derek Pike arguing on the importance of the continuing professional development to ensure maintenance of professional standards. Brian Phillips' paper on the roles of the IASE, the paper (Neville Hunt, Flavia Jolliffe, Neville Davies) on the role of the Royal Statistical Society in shaping statistics education in the UK and beyond, and Pali Lehohla's paper on a South African perspective on promoting statistical literacy. Mike Fuller's paper in Session 5F, organised by Gianfranco Galmacci (Italy), considered the extent to which statistics curricula can adapt to changing opportunities generated by ICT. Ewan Crawford and Adrian Bowman's paper gave valuable insights to the extent to which ICT can support resources, networking and information sharing in statistics education. The world of *Health and life sciences* was reflected in Session 5G, organised by Petter Laake, Norway. Bradley Payne, Nick Merryfield and David Griffiths reported on the first ever survey of the UK medical sales field force. Nibia Aires considered the advantages of teaching classic methods in the post-genomic era. Ivar Heuch discussed the balances required in statistics training that is taken into the practical challenges of epidemiological data, and Penelope Pekow reviewed experiences in teaching biostatistics within an exchange program between the Medical University of South Africa and the University of Massachusetts. In session 5A, organised by Brian Greer (Ireland), Jeff Evans discussed how tracing the development of concepts of affect and emotion is informative for research on teaching statistics. Michael Bulmer discussed the development of a computer-based version of concept maps in teaching statistics. Joachim Engel considered activities incorporating statistical concepts and mathematical foundations, and Jerry Moreno presented some insight into the NSF-funded project Data-Driven Mathematics,

The papers in Session 5B, organised by David Griffiths (Australia), illustrated the question of whether statistics education is a discipline in itself. Nye John and David Johnson's paper on teaching managers to think statistically, Dennis Pearl's paper on using health science examples to create statistical understanding and Brian Greer's paper on teaching the essential rationale of statistical methods in psychology, lead to a lively discussion. Session 5C, organised by Eric Sowe (Australia), considered the business and government sectors. Richard Madden's paper used examples from official statistical agencies to draw some important messages in practical and ethical issues. Jonathan Cryer reviewed the effects of the 17 annual US Conferences to date on Making Statistics More Effective in Schools and Business, and Gerald Goodall and Derek Pike focussed on defining relevant continuing professional development objectives and materials in the diverse areas of business and government. All speakers in Session 5D, organised by Helen MacGillivray (Australia), emphasised the importance of statistics in the engineering world. Richard Wilson's and Stephen Vardeman's papers focussed on the need to connect with engineering environments. The student perspective from James Moody, emphasized the dual needs of general and specific statistical underpinning for engineering students, and Neil Diamond discussed how to distil valuable teaching tools from real and sometimes complex consulting problems. Session 5H, organised by Jacky Galpin (South Africa), after hearing from Eric Sowe on educating statisticians to enhance their future clients' statistical understanding, from Jacky Galpin and from Swapna Mukhopadhyay on connecting with socially issues, incorporated a most interesting panel discussion.

TOPIC 6. RESEARCH IN STATISTICS EDUCATION. Convenors: Joan B. Garfield (USA) and Carmen Batanero (Spain)

Session 6A, *Developing Statistics Education Research* was organised by Mike Shaughnessy (USA). Presentations dealt with 'Creating cognitive conflict in a controlled research setting: sampling' (Jane Watson), 'Students' individual and collective statistical thinking' (Edward Mooney and Cynthia Langrall), 'Assessing and tracing the development of Basotho elementary students' growth in probabilistic thinking' (Victor Polaki), 'Framework for teacher knowledge and understanding about probability' (Tova Kvatinsky), and 'Students' understanding of variability in a probability environment' (Mike Shaughnessy). Session 6B, *Theoretical Models of Statistical Knowledge, Thinking, Reasoning and Learning* was organised by Maxine Pfannkuch (NZ) and Chris Wild (NZ) and included the following presentations: 'Studying the median: a framework to analyse instructional processes in statistics education' (Juan Godino), 'The development of a framework characterizing middle school students' statistical thinking' (Cynthia Langrall and Edward S. Mooney), 'How students experience learning statistics and teaching' (Peter Petocz, Anna Reid) and 'Statistical thinking models' (Chris Wild). Session 6C, *Technology and Research in Teaching and Learning Statistics* was organised by Erica Morris (UK) and chaired by Juan Godino (Spain). Presentations dealt with 'The role of computer based technology in developing understanding of the concept of sampling distribution' (Kay Lipson), 'The statistical re-education of Psychology' (Geoff Cumming), and 'Comparison of multimedia educational materials used in an introductory statistical methods course' (Richard Alldredge). In Session 6E, *Teachers' Training, Conceptions and Beliefs*, organised by Lisbeth Cordani (Brazil), papers on 'Probability and statistics in elementary school: a research of teachers' training', (Celi Espansadin), 'Teacher's training in a statistics teaching experiment' (Linda Gattuso) and 'Investigating the 'data sense' of preservice teachers' (Tim Burgess) were presented.

Session 6F, *Research into Teaching and Learning Statistics at Tertiary Levels* was organised by Flavia Jolliffe (UK) Presentations dealt with 'Modelling students' learning of introductory statistics' (Dirk Tempelaar), 'Choosing to study

independently - when is it a bad idea?' (Glenda Francis), 'Evaluating the impact of multimedia lectures on student learning and attitudes' (Sterling C. Hilton), and 'Investigating patterns of interview conversations among lecturers in the Malaysian institutes of higher learning on the teaching of statistics at the introductory level' (Zamalia Mahmud). Session 6G, *Research into Teaching and Learning Probability* was organised by Antonio Estepa (Spain). Presentations dealt with 'Teaching probability and statistics to 10 years old children' (Marie Berrondo), 'On the use of paradoxes in the teaching of probability' (Talma Leviatan) and "Misconceptions in probability" (Lin Ju and Lionel Pereira-Mendoza). Session 6H, *Round Table Discussion: Major Problems and Directions in Statistics Education* was organised Joan Garfield (USA) and Carmen Batanero (Spain) and chaired by Lisbeth Cordani (Brazil). Different graduate training programs for statistics education research were presented by Mike Shaughnessy and Carmen Batanero and debated by Gabriella Ottaviani.

TOPIC 7. TECHNOLOGY IN STATISTICS EDUCATION. Convenor: Laurence Weldon (Canada)

Session 7A, *Java-Based Instructional Packages* was organised by Doug Stirling (New Zealand). Presentations dealt with 'Java applets and multimedia catalogues for statistics education', 'Applets for experimenting with statistical concepts' and 'Interactive content in web pages to teach statistics'. Session 7B, *Computer-Based Demonstrations of Statistical Phenomena*, was organised by Andrej Blejec (Slovenia). Presentations were: 'Computer modules for teaching statistical concepts', 'Teaching statistical concepts with simulated data' and 'Hands-on survey research in a virtual environment'. Sessions 7C, *Using Technology for Statistics Education in Engineering*, was organised by David Bacon (Canada) and there were discussions about 'Learning statistics in an engineering curriculum', 'Technology, statistical thinking and engineering students and 'Teaching experimental design to engineers: some experiences and advice'.

Session 7D, *Using Graphics Calculators in Statistics Education*, was organised by Kay Lipson (Australia) and included the following papers: 'Simulation as a tool to develop statistical understanding', 'Simulating experiments with the graphic calculator TI 83plus' and 'Teaching statistics with TI 83'. Session 7E, *Statistics Education and the Internet*, was organised by Joe Wisenbaker (USA). Presentations dealt with 'St@tnet, an internet based software for teaching introductory statistics', 'News - groups and teaching statistics. Are they useful?' and 'A personal journey toward a virtual introductory statistics course: not (quite) ready for prime time'. Session 7F, *Research-Based Design and Use of Software for Teaching Statistical Concepts* was organised by Cliff Konold (USA) and Bill Finzer (USA). Papers were 'Route-type and landscape-type software for learning statistical data analysis', 'Technology, statistics, and subtleties of measurement: bridging the gap between science and mathematics' and 'The Fathom experience—is research-based development of a commercial statistics learning environment possible? Session 7G, *Software Tools Designed for Statistics Education* was organised by Rodney Carr (Australia). Presentations were: 'Using Excel to teach statistics in New Zealand secondary schools', 'A data analysis tool that organizes analysis by variable types', 'Using Fathom to promote interactive explorations of statistical concepts' and 'Live figures: interactive diagrams for statistical understanding'.

TOPIC 8. OTHER DETERMINANTS AND DEVELOPMENTS IN STATISTICS EDUCATION. Convenor: Philip J. Boland (Ireland)

Robert Delmas (USA) organised a Session (8A) on *Learning Factors in Statistics Education*, although he was not able to actually attend the conference himself. In the session, Carl Lee made an interesting presentation on the issue of motivation and expectations in introductory statistics courses, while Verena Nolan discussed the influence of attitude, knowledge of English and mathematical ability in a course on quantitative techniques. Kay McClain (USA) organised and spoke Session (8B) on *Data Analysis and Statistical Learning*. Kay provided an analysis of a teacher development experiment, in which she concluded that the learning trajectory for the teacher's activity paralleled that of the students. Cliff Konold made an excellent presentation on how students use a "modal clump" in trying to express both the average and spread of a set of data. Katie Makar discussed the statistical thinking of teachers in analysing their own students' data.

Jerry Moreno (USA) chaired and organised Session (8E) on *Projects and Poster Competitions in Statistics Education*. A most interesting selection of posters from the American Statistical Association's annual poster competition was given by Linda Quinn. Loi Soh Loi discussed the impact of final year projects in a Singapore university business school. Saleha Naghmi Habibullah spoke on her experience over many years in organising (national and international) statistical competitions and exhibitions in Pakistan. Susan Starkings gave a very nice presentation on the use of statistical projects as part of the secondary school curriculum in the UK. Given the need to convey the importance of statistics to the general public, it was very appropriate to have Shen Shir Ming (China) organised a session (8F) on *The Mass Media and Statistics*. Martin Podehl gave a fascinating presentation on the efforts of the National Statistical Office of Canada to co-ordinate with the news media on informing the public about social and economic issues. Yuen Ying Chan spoke on the role of statistics in journalism education. Mbulaheni Nthangeni (South Africa) organised a session (8G) on *Teaching Statistics to Second-Language Students*, where Renette Bignaut and I. M. Vente gave a paper on 'statistics teaching enhanced by team work'.

TOPIC 9. AN INTERNATIONAL PERSPECTIVE FOR STATISTICS EDUCATION. Convenor: Vitalis Muba (Tanzania)

Session 9b, *Statistics Education in African Countries*, was organised by Fayez Mina (Egypt). Reda Mosad El-Said Asar presented 'An experimental approach for teaching statistics in the Egyptian schools', John W. Odhiambo spoke about the 'Teaching of statistics in Kenya'. Jules J.S. de Tibeiro presented the paper: 'Is it reasonable to teach statistics without probability or probability without statistics?' and Fayez M. Mina discussed 'Some features of future statistics education'. In Session 9B, *Statistics Education in Spanish-speaking Countries*, organised by Teresita Teran (Argentina), Antonio Estepa summarised the state of stochastic education in the Ibero-American countries. The following papers were presented in Session 9C, *Statistics Education in Asia*, organised by Ann-Lee Wang (Malaysia): Louisa Lam talked about the changes in the statistics syllabus and the way it is taught in schools in Hong Kong. She also discussed the implication of the way statistics is taught in schools. R. P. Suresh explained the academic background of students taking the Post-Graduate Diploma in Management in the Indian Institute of Management Kozhikode. He gave an illustration of how case studies may be used to teach probability concepts to these students. Y. Zhang gave a review of the development of statistical education at the tertiary level in China. The number of students taking the various types of statistics courses were touched on. He concluded by saying that statistical education is expanding in China.

CONTRIBUTED PAPERS. Convenors: Susan Starkings (UK)

Over 50 interesting papers were submitted to the contributed paper section of the ICOTS 6 conference held in South Africa. The papers were grouped under the following headings: Teaching and learning Statistics Using Electronic Media; Concepts in Teaching Statistics; Assessment in Statistics; Statistics Education for Teachers; Teaching Statistics at University; Research into Teaching and Learning Statistics; Teaching School Children Statistics. It is evident from the contributed sessions that authors have a great deal of knowledge and expertise in the area of statistical education. The diversification, of the papers presented, and the imaginative ways in which the authors have constructed these papers is commendable. Some interesting discussions should emerge as result of the papers presented. The papers submitted advocated the teaching of statistics as a practical application that linked statistics to a student's everyday life. This entailed students collecting and generating data relevant to their daily interests and experiences and then using these data to construct and test hypothesis. Several authors provided research evidence to support new methods of teaching the subject. The use of technology now plays a prominent role, in the papers submitted, with interesting and novel ways of using this technology to enhance learning being demonstrated. Numerous practical examples were elucidated for every level of statistics being taught in educational establishments. The common themes that emerged, from these papers, were the use of topical and relevant examples; that technology should be used as a tool for data analysis, and that the use of various instructional techniques is beneficial to both teachers and students alike. To sum up, contributors agreed that the learning of statistics should be achieved through doing real life practical problems that bring theory into practice.

POSTERS. Convenor: Andrew Dale (South Africa)

A total of 25 posters were on show during the conference – amongst them three posters by South African school children. The children presented their posters on the Tuesday and thoroughly enjoyed the excitement of discussing their posters with the many interested delegates. The posters presented by the children were the winning entries in local statistics poster competitions run at a few schools.



IASE Exec

3. IASE Satellite Conference on Statistics Education and the Internet



This conference is being organised by the IASE in cooperation with the German Statistical Society, the Section on Stochastics of the German Mathematics Education Association, the Max-Planck-Institute for Human Development, and the Probability and Statistics Interest Group of the German Mathematical Association. It will immediately precede the ISI session in Berlin and will be held the 11-12 August 2003 at the Max-Planck Institute for Human Development, Berlin. The aim is to discuss the implications of the Internet for teaching and learning statistics: web based teaching, learning, materials and resources. An electronic proceedings and a limited number of printed copies of the set of papers presented will be produced after the conference. This meeting is intended to be of interest to a wide cross section of society including teachers, educational administrators, and researchers in statistical education. There will be a number of invited speakers, as well as the opportunity for others to give contributed presentations. The presentations are

planned to include discussions of the main effects and challenges that the Internet is posing to statistics education. In addition to research reports, there will also be non-technical presentations, suitable for teachers who would like to learn how to make better use of Internet resources in their everyday work in the classroom.

Topics: Possible topics include: Overview of Internet resources for statistics education; Use of Internet in statistics classes and in assessment; Training teachers to teach statistics with Internet resources; Research on how students learn or about what they learn in teaching environments based on the web; Challenges for statistics education at the Internet age, and Adding socialisation and verbalisation to online statistics education

Scientific Committee: Larry Weldon <weldon@sfu.ca>, Canada (Chair); Joachim Engel <engel_joachim@ph-ludwigsburg.de>, Germany, Brian Phillips <BPhillips@groupwise.swin.edu.au>, Australia, Carmen Batanero, Spain <batanero@ugr.es> and Gilberte Schuyten, Belgium <gilberte.schuyten@rug.ac.be>.

Local Committee: Joachim Engel, German IASE National Correspondent (Chair), Rolf Biehler, University of Kassel <biehler@mathematik.uni-kassel.de>, and Laura Martignon, Max-Planck Institute, Berlin <lauram@mpib-berlin.mpg.de>

More information from: Larry Weldon <weldon@sfu.ca> or Joachim Engel <engel_joachim@ph-ludwigsburg.de>

Web page: <http://www.ph-ludwigsburg.de/iase/>

4. IASE Activities at the 54th Session of the International Statistical Institute (ISI)

Following a well-established tradition, the Federal Republic of Germany, hosting the 54th ISI Session in 2003, would like to cordially invite those interested to come to its capital Berlin in 2003. **More information** is available from the conference web site <http://www.isi-2003.de/>. Any person participating in the ISI Session may present one Contributed Paper. See http://www.isi-2003.de/pages/contributed_paper_meetings.htm. The following Invited Paper Meetings will be organised by the IASE alone, or jointly organised with ISI, ISI sections or sister societies. Gilberte Schuyten <gilberte.schuyten@rug.ac.be> is co-ordinating our section of the programme. All invited paper sessions are now complete.

Alone IASE Invited Papers Meetings

- *IPM44 Teaching probability with a modelling approach.* Michel Henry, <henry@math.univ-fcomte.fr>
- *IPM45 Statistics training for consultant or collaborator.* Gabriella Belli, <gbelli@vt.edu>
- *IPM46 International co-operation in research in statistics education.* Lisbeth Cordani, <lisbeth@maua.br>
- *IPM47 Mathematics teachers teaching statistics.* Susan Starkings, <starkisa@sbu.ac.uk>
- *IPM48 Statistics education for media reports.* Maxine Pfannkuch, <pfannkuc@math.auckland.ac.nz>
- *IPM49 Teaching and learning approaches aimed at developing statistical reasoning, thinking or literacy.* Joan Garfield and Dani Ben-Zvi, <jbg@tc.umn.edu>, <dani.ben-zvi@weizmann.ac.il>
- *IPM50 Statistics teaching in the Internet age.* Wolfgang Haerdle, <haerdle@wivi.hu-berlin.de>

Joint IASE with other ISI Sections/ Committees and Guest Societies

- *IPM68. Assessment of literacy, numeracy and other life skills (proposed by the International Statistical Institute).* Organiser: Denise Lievesley, <d.lievesley@unesco.org>
- *IPM69. Impact of developments in information systems on statistics education (joint session with the International Association for Statistical Computing).* Organiser IASE: Annie Morin (France), <Annie.Morin@irisa.fr>. Co-organiser IASC: Albert Prat <albert.prat@upc.es>
- *IPM70. Teaching biostatistics (joint with the Biometrics Society).* Organiser IASE: Elisabeth Svensson (Sweden) <elisabeth.svensson@esa.oru.se>. Co-organiser Biometrics: Els Goetghebeur <els.goetghebeur@rug.ac.be>
- *IPM71. Educational implications of statistical method and modelling developments in psychometry: Is tradition stronger than statistical relevance? (joint with the European Mathematical Psychology Group).* Organiser IASE: Helena Bacelar (Portugal), <hbacelar@fc.ul.pt>. Co-organiser EMG: Francesca Cristante <cristante@psico.unipd.it>

5. IASE 2004 Research Round Table on Curricular Development in Statistics Education

The goal of the Round Table Conferences is to bring together a small number of experts, representing as many different countries as possible, to discuss one another's views and approaches on a given topic area. The Round Table Conferences provide opportunities for developing better mutual understanding of common problems, and for making recommendations concerning the topic area under discussion. A main outcome is a monograph containing a set of

papers, which have been prepared for, and discussed during, the conference. This monograph presents a global overview of the conference subject, to serve as starting point for further research on the selected theme. The topic for the IASE Round Table Conference in 2004 will be *Curricular Development in Statistics Education*. The need for processing the increasing amount of data people receive in the course of their work and lives has made it imperative that students leave elementary and secondary schools prepared to make reasoned decisions based on sound statistical thinking. Countries and communities have approached this problem in different ways. The Round Table will provide the opportunity for sharing what works and to highlight the challenges and potential solutions researchers have faced as they design and implement curricula to produce statistically literate citizens.

The Round Table will be held in Lund, Sweden, and the dates will be coordinated with those of the Tenth International Congress on Mathematical Education, which will take place in Copenhagen, Denmark 4-11 July 2004. Lena Zetterqvist <lena@maths.lth.se> and Ulla Holt will be local organisers. **Those interested** can contact Gail Burrill, Division of Science and Mathematics Education, College of Natural Science, Michigan State University, 116 North Kedzie, East Lansing MI 48824, USA, E-mail: burrill@msu.edu.

6. The 10th International Congress on Mathematics Education, July 4-11, 2004, Copenhagen

The congress will take place July 4-11 2004. The venue will be the Technical University of Denmark, located in a northern suburb of Copenhagen. The IASE will be collaborating in the organisation of specific statistics education activities in the conference. Chair International Programme Committee: Mogens Niss <ICME10-IPC@ruc.dk>. Chair Local Organising Committee Morten Blomhøj <ICME10-LOC@ruc.dk>. Conference web page: <http://www.icme-10.dk/>

7. IASE Activities at the 55th Session of the ISI, Sydney, Australia, 2005

Chris Wild is the IASE representative at the ISI Programme Co-ordinating Committee for ISI-55th Session, to be held in Sydney, Australia, April 5-12, 2005. As such he also is Chair of the IASE Programme Committee, which is in charge of preparing a list of Invited Paper Meetings to be organised by the IASE alone or in co-operation with other ISI Sections, Committees and sister societies. The committee will pay special attention to new topics that have been not discussed at the previous ISI Session. There is still time for you to propose a session theme for the IASE sessions for ISI55 in Sydney in 2005. Sessions that are of joint interest to IASE and another ISI section are also sought. Suggestions should normally include the name of the session organiser, a short description of the theme and an indicative list of possible speakers. Please email your proposals to Chris Wild at c.wild@auckland.ac.nz.

8. ICOTS-7, 2006 in Brazil

We are also glad to announce that the IASE Executive accepted the proposal made by the Brazilian Statistical Association to hold ICOTS-7 in 2006 in Brazil. This decision was announced at the ICOTS-6 farewell dinner. The proposal is also supported by the statistical associations in Argentina and Chile and we are already taking our first steps towards organising the conference. Pedro Morettin <pam@ime.usp.br> is the Chair of the Local Organising Committee and Lisbeth Cordani <lisbeth@maua.br> is acting as a link between the IASE Executive and the local organisers.

South America is an area with an increasing interest in statistics education and new curricula are introducing the teaching of statistics at school level in most of the region. Lisbeth and other members of the Brazilian Statistical Association have a long experience in organising international conferences and are now looking for a suitable venue in Brazil. Later this year we hope to announce the conference theme and to appoint the Local and Scientific Committees.

9. IASE Publications

9.1. IASE Statistics Education Research Journal (SERJ). Report by the Editors

For some time now IASE members have been suggesting that IASE should have its own research journal as a vehicle for encouraging research in statistics education, advancing our knowledge about student's attitudes, conceptions and errors as regards stochastic knowledge, and improving the teaching of statistics at all educational levels. *The Statistics Education Research Journal (SERJ)* was developed by the IASE executive to fulfil these aims. SERJ will continue to

build on the foundations built by the *Newsletter of the International Study Group for Research in Learning Probability and Statistics* (ISGN) and the *Statistical Education Research Newsletter* (SERN). The ISGRN was conceived in 1988 by Joan Garfield. It appeared initially in a printed version and, from 1996, in an electronic version available at <http://www.ugr.es/~iase/isg.html>. ISGN became an IASE publication and was changed into SERN, edited by Carmen Batanero, Joan Garfield, Maria Gabriella Ottaviani and John Truran and available at <http://www.ugr.es/~batanero/sergroup.htm>. We are very indebted to Joan for her vision of a newsletter, and to our dear friend John Truran, who was working with us to develop SERJ until he died, but who unfortunately was unable to see the result of his work.

So far this year guidelines for authors and referees and a template have been developed, as have public and editors' web pages, and we have launched the first issue. The second issue is planned for the end of the year. We are getting increasing numbers of papers, some of which have already been right through the refereeing process and have been formally accepted. SERJ has been announced in IASE publications, statistics and mathematics education email lists, and web pages. The Data base Mathdi contacted us to request our permission to extract SERJ contents. A start has been made on registering the SERJ site with web search engines. We still need to work on advertising SERJ. It was decided to give free access to the starting issues until SERJ gets a wider diffusion. The policies to follow as regards the accessibility of SERJ and the languages of publication are still under development.

Editorial team

- *Editors:* Carmen Batanero, Spain and Flavia R. Jolliffe, United Kingdom.
- *Associate Editors:* Iddo Gal, Israel; Joan B. Garfield, USA; David Green, UK; Annie Morin, France; M. Gabriella Ottaviani, Italy; Christine Reading, Australia; Richard L. Scheaffer, USA, and Chris Wild, New Zealand.

Web page: Chris Reading developed and is maintaining a public SERJ web page at <http://fehps.une.edu.au/serj>. It contains the SERJ issues, guidelines, templates, links to IASE, to IASE publications and the Editorial Board, and a suggestions box.

9.2. Other publication matters

In the last year, IASE has produced a CD of the ICOTS-6 Proceedings (edited by Brian Phillips). It can be purchased through the ISI Permanent Office for US\$ 25 or Euro 25 using the order form located at <http://www.cbs.nl/isi/orderform.htm>. In addition, Susan Starkings prepared the IASE component for three issues of the ISI Newsletter. Further, Gilberte Schuyten prepared three issues of IASE Matters, which appears as an insert to the journal *Teaching Statistics*. Finally, the IASE Publications webpage has been updated and expanded. It can be found at <http://course1.winona.edu/cblumberg/pubshomepage.htm> or by clicking on the publications link on the IASE homepage at <http://www.cbs.nl/isi/iase.htm>.

10. Update on the World Numeracy Project

During the past 14 months based on feedback from meetings during the ISI Biennial Session in Seoul, emails from numerous individuals, and discussion among the IASE Executive Committee, several decisions have been made concerning the World Numeracy Project. First, it was decided to change the name of the project to International Statistical Literacy Project, with an abbreviation of ISLP. It was also decided that the first project of the ISLP would be to work with Professor Yadolah Dodge (Université de Neuchâtel) to include more statistics education terms in the new edition of the *ISI Dictionary of Statistical Terms*. This project has been completed. It was further decided by the IASE Executive Committee that the next project of the ISLP would be the creation of a website. Several other possible projects were discussed, but were rejected either because they were too big or too expensive. It was also decided to form an Advisory Committee for the ISLP to guide the project over the next few years.

The members of the Advisory Committee are Carol Joyce Blumberg (USA, Chair), Beverley Carlson (USA/Chile), Iddo Gal (Israel), Orhan Güvenan (Turkey), John Harraway (New Zealand), Peter Holmes (UK), Maria A. Pannone (Italy), René Padiou (France) and Gilberte Schuyten (Belgium). Ex-Officio members of the Committee are: Carmen Batanero (Spain, IASE President), Christopher Wild (New Zealand, IASE President-Elect), Marcel Van den Broecke (Director, ISI Permanent Office), and Daniel Berze (Assistant Director, ISI Permanent Office). The Advisory Committee met on 11 July 2002 in Cape Town, South Africa and made several decisions with respect to the webpage project.

It has been decided to have the focus of the website on resources to enhance the development of statistical literacy. Most of the entries on the webpages will be 3 to 5 sentence summaries of various publications, websites, etc. The emphasis will be on materials that can be obtained for free over the Internet or via other means. Materials that must be purchased at a cost will also be included, when appropriate. Complete ordering information, including direct Internet

links, will be given for all entries. The website will be maintained at Winona State University by Carol Joyce Blumberg and Nicole Machacek (a third year undergraduate student in Communications Studies at Winona State). It is expected that the website will be ready for use around 1 February 2003. Once the website is available, announcements will be made in the [ISI Newsletter](#) and elsewhere. The website will be organised as a series of webpages with each webpage having its own coordinators. The webpages (with coordinators listed in parentheses) will be:

- A. Introductory page(s) with definitions of statistical literacy, some general resources on statistical literacy, and an explanation of what is and is not included on the website. (Carol Blumberg, USA, cblumberg@winona.edu)
- B. Resources for elementary school teachers to use in their classrooms. (Judith Zawojewski, USA, judiz@iit.edu and Helen Chick, Australia, h.chick@unimelb.edu.au)
- C. Resources for secondary school teachers to use in their classrooms. (Philip Boland, Ireland, philip.j.boland@ucd.ie)
- D. Resources for elementary school teachers to use to improve their own knowledge of and teaching of statistics and probability (where statistics and probability are defined in their widest possible meanings). (Judith Zawojewski, USA, judiz@iit.edu and Helen Chick, Australia, h.chick@unimelb.edu.au)
- E. Resources for secondary school teachers to use to improve their own knowledge of and teaching of statistics and probability (where statistics and probability are defined in their widest possible meanings). (Philip Boland, Ireland, philip.j.boland@ucd.ie)
- F. Resources for those training teachers, both those who are preparing future teachers and those who are giving further education to those already teaching. (Mike Perry and Gary Kader, USA, perrylm@appstate.edu & gdk@math.appstate.edu)
- G. Resources for those doing official statistics to improve the correctness, usefulness and readability of their work. One part of this webpage will be a listing of training programmes and centres that offer basic statistics courses focussed towards official statistics for those not already trained in statistics. (Reija Helenius, Finland, reija.helenius@stat.fi)
- H. Resources for journalists and other members of the mass media to use that will help them understand and report statistics and statistical ideas correctly and in an understandable manner. (John Harraway, New Zealand, jharraway@maths.otago.ac.nz)
- I. Resources for other adults who want to learn basic statistics on their own.
- J. Resources for those who are working with adults to improve their statistical literacy skills.
- K. Resources for planning and conducting a children's census or similar activity. (Neville Davies, UK, neville.davies@ntu.ac.uk)
- L. A list of projects or other efforts in statistical literacy sponsored by the national statistics offices, national statistical societies, or similar groups. This list will be sorted by country. (Carol Blumberg, cblumberg@winona.edu)
- M. A list of funding organisations that will accept grant applications from individuals or organisations that want to begin or to expand statistical literacy efforts in their countries or regions. (Carol Blumberg, cblumberg@winona.edu)
- N. A collection of data sets that can be used when doing teaching or training in statistical literacy and links to collections of data sets that already exist. (Brant Deppa and Christopher Malone, USA, bdeppa@winona.edu & cmalone@winona.edu)

Coordinators are still needed for the webpages on resources for adult statistical literacy. Also, several of the coordinators listed here would like to have co-coordinators. If you are interested in being a coordinator or co-coordinator, please contact Carol Blumberg (see below for contact information). If you have an item that you feel is appropriate for inclusion on the website, please send it to the appropriate list coordinator or contact Carol Joyce Blumberg at cblumberg@winona.edu; Department of Mathematics & Statistics, Winona State University, Winona MN 55987-5838 USA Tel: ++1-507-457-5589; Fax ++1-507-457-5376.

11. Benefits of Membership in the IASE

IASE offers its members the opportunity to become part of the only international community interested in the improvement of statistical education at all levels. Members can both contribute to innovations and progress in statistical education and learn from colleagues. They receive various publications free and discount rates on others as well as discount rates at IASE and ISI meetings. Please encourage colleagues, who are not already members of IASE, to join. If you are not already a member of IASE, you are strongly urged to consider joining. Members have found the publications, meetings and contacts formed through IASE membership have been most helpful in their teaching of statistics. For further information about the IASE membership benefits go to the IASE web site <http://www.swin.edu.au/math/iase/benefits.html>. A membership form can be found below or on the IASE website.

12. National Correspondents

The IASE national correspondents help provide communication between local membership in their countries and the IASE. This includes passing on information about the IASE activities to those concerned with teaching and learning

statistics as well as letting the IASE know about activities in their countries. Below is a list of the present national correspondents. If there is no National Correspondent for your country and you feel that you can help us, please contact Brian Phillips at <bphillips@swin.edu.au>.

IASE National Correspondents

- Argentina: Teresita Teran, <tteran@arnet.com.ar>
- Australia: Brian Phillips, <bphillips@swin.edu.au>
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- Estonia: Katrin Niglas, <katrin@tpu.ee>
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- India, A.C. Ravi Rangaswami, <futnat@rediffmail.com>
- Iran: Abbas Bazargan, <abazarga@chamran.ut.ac.ir>
- Ireland: Philip J. Boland, <philip.j.boland@ucd.ie>
- Israel: Dani Ben-Zvi, <dani.ben-zvi@weizmann.ac.il>
- Italy, Enzo Lombardo, <lombardo@scec.eco.uniroma1.it>
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- Japan: Kensei Araya, <araya.k@oregano.ocn.ne.jp>
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- Mali: Lamine Diop, <afriestat@malinet.nl>
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- Morocco: Mohamed Mahmoudi, <mahmoudi@insea.ac.ma>
- New Zealand: Maxine Pfannkuch, <pfannkuc@scitec.auckland.ac.nz>
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- UK: Margaret Rangecroft, <F.M.Rangecroft@shu.ac.uk>
- Ukraine: Ruslan Motorny, <vitro@kneu.kiev.ua>
- Uruguay: Ramon Alvarez, <ramon@chaja.edu.uy>
- USA: E.J. Dietz, <dietz@stat.ncsu.edu> and Gail Burrill, <gburrill@nas.edu>
- Venezuela: Audy Salcedo, <audysalc@yahoo.com>
- Yugoslavia: Katarina Cobanovic, <katcob@polj.ns.ac.yu>

13. Meetings related to Statistics Education in 2002

- June, 3-7. 2002. **Education and History Session at the Gnedenko Anniversary Meeting**, Kiev. More information from David Vere-Jones <david.vere-jones@vuw.ac.nz>.
- June, 2002. **Second ICMI-EARCOME** (East Asia Regional Conference on Mathematics Education), Singapore. More information from the Division of Mathematics, National Institute of Education, <earcome2@nie.edu.sg>.
- July, 1-6. **International Conference on the Teaching of Mathematics at the Undergraduate Level**. Crete, Greece. More information from Ignatios Vakalis, <ivakalis@capital.edu>. Web site www.math.uoc.gr/~ictm2
- July, 10-13. **VISIT-ME 2002. International Symposium on Integrating Technology into Mathematics Education**, Vienna, Austria. Web site: www.kutzler.com/visit-me-2002.htm. More information from: <b.kutzler@eunet.at>
- July, 15-10. **RELME. LatinoAmerican Meeting in Mathematics Education**, Instituto Politécnico J. A. Echevarría, La Habana, Cuba. Web site: <http://www.cinvestav.mx/clame>. More information is available from <ecarlos@ind.ispjae.edu.cu>.
- July, 21-26. **26th Conference of the International Group for the Psychology of Mathematics Education**, Norwich, UK. More information from Anne Cockburn <a.cockburn@uea.ac.uk>. Web site: <http://www.uea.ac.uk/edu/pme26>.
- September, 20-25. **International Conference on The Humanistic Renaissance in Mathematics Education**, Hotel Città del Mare, Terrasini, Palermo, Italy. Web site: <http://math.unipa.it/~grim/21project.htm>
- October, 26-29. **PME-NA XXIV. Psychology of Mathematics Education. North American Chapter**. University of Georgia, Athens, USA. Web site: <http://www.pmena.org/2002>
- October 28- November 1. **InterAmerican Conference on the Teaching of Statistics**, Buenos Aires, Argentina. Inter American Statistical Institute (IASI), and Universidad Nacional Tres de Febrero, in connection with CLATSE V (Latino American Conference of Statistics. More information from Celina Curti <ccurti@ciudad.com.ar>.
- November, 8-10. **Stochastics Section of German Mathematics Education Association**. Dortmund, Germany. Web page: http://www.uni_klu-at/ak-stochastik.
- November, 12-16. **IV Mathematics Education Conference in Venezuela**, Trujillo – Venezuela., More information from ivcovem@yahoo.es. Web page: <http://es.geocities.com/ivcovem/>

See the IASE website <http://www.cbs.nl/isi/iase.htm> for details of all these meetings and forthcoming conferences.



INTERNATIONAL ASSOCIATION FOR STATISTICAL EDUCATION
<http://www.cbs.nl/isi/iase.htm>

Application form

To become a member of IASE, please complete and return this form to:

ISI Permanent Office, 428 Prinses Beatrixlaan, PO Box 950, 2270 AZ Voorburg, The Netherlands.
Tel.: +31-70-3375737, Fax: +31-70-3860025, E-mail: isi@cbs.nl

First Name: _____ Last Name: _____ Female/Male: _____

Mail Address: _____

Tel.: _____ Fax: _____ E-mail: _____

Occupation: _____ Nationality: _____

Work Address (If different from above): _____

Areas of Interest in statistical education: _____

Annual Fees - Tick as appropriate

For people from a developed country

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- I also wish to subscribe to the ISR (International Statistical Review) only (EURO 25, US \$25)
- I also wish to subscribe to the SBR (Short Books Review) only (EURO 10, US \$10)
- I also wish to subscribe to the ISR **and** the SBR (US \$27, EURO 30)

or For people from a developing country

- I wish to become an **IASE member from a Developing Country**, basic fee (EURO 12, US \$12)
- I also wish to subscribe to the ISR only (EURO 12.5, S \$12.5)
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