

IASE REVIEW

October 1994

INTERNATIONAL ASSOCIATION FOR STATISTICAL EDUCATION

The IASE Review is an occasional publication for members of IASE.

NEW BENEFITS FOR IASE MEMBERS

IASE is pleased to announce that all members will now receive three additional publications free of charge:

The International Statistical Review
Short Book Reviews, and
ARIS, the Annual Review of International Statistics

IASE membership has had a high benefit to cost ratio for those who attend meetings. The reduced ICOTS-4 registration fee alone exceeded the annual dues. The two new publications will add to the value that IASE provides to all its members.

All IASE members will receive the thrice- yearly International Statistical Review beginning in 1995. The Review is the flagship journal of the International Statistical Institute, IASE's parent organization. It has been reshaped into a genuine review journal whose purpose is to publish papers of broad interest to all statisticians. Moreover, the first 1995 issue of the Review will contain four papers on statistical education collected under the auspices of IASE. Details appear below.

Short Book Reviews, currently mailed with the International Statistical Review, offers brief reviews of books of statistical interest quite quickly after their publication.

All IASE members will also receive the ISI's Annual Review of International Statistics. In fact, you should already have received the 1994 ARIS, covering developments during 1993. (ISI says that in future years this new publication will be sent earlier in the year.) The IASE section in ARIS will be old news to IASE members, but the publication offers a broad view that is difficult to find elsewhere. IASE has a strongly international flavor, and ARIS will help expand members' understanding of the international scope of our discipline.

The new publications are being provided at no increase in dues. To be precise, IASE dues for 1995 remain 70 Dutch Guilders for members in developed nations and 38 Guilders for members in

developing and transition countries. This translates into sometimes odd amounts in other currencies, and these amounts differ slightly from the 1994 levels due to currency fluctuations.

IASE has at present 321 members in 58 countries. That's not bad for a new society. But there are surely more people deeply concerned about statistical education for whom our several newsletters, the International Statistical Review, meetings, and contact with other like-minded folk is worth IASE's modest dues. Much of IASE's dues revenue goes to support statistical education in developing nations, especially through travel grants to the ICOTS and Roundtable conferences. Quite a few statistics educators in developed countries wish to support such activities; by joining IASE they can do so and receive personal benefits as well, all for about US\$39. Urge your colleagues to assert their concern for statistical education by joining IASE. You may wish to offer them the membership application that appears on the last page of this review.

David Moore, IASE President
Anne Hawkins, President-Elect

SPECIAL EDUCATION ISSUE OF THE INTERNATIONAL STATISTICAL REVIEW

The first 1995 issue of the ISI flagship journal, which all IASE members will receive, includes a special part-issue on statistical education edited by IASE president David Moore. The articles are:

1. How Students Learn Statistics, by Joan Garfield. Based on her plenary address at the 1992 winter meeting of the American Statistical Association, this paper reviews what research in teaching and learning has to say to teachers of statistics.

2. The Coming of Age of Statistical Education, by David Vere-Jones.

One of the leaders in the founding of IASE describes the recent history of statistical education from an international perspective and gives his views of the challenges facing IASE and statistics education more generally.

3. Continuous Quality Improvement in Higher Education, by Robert V. Hogg and Mary C. Hogg. Here is an overview of a hotly debated subject: the application to university teaching of ideas from the Total Quality Management (TQM) movement. Statisticians are better equipped than most faculty to assess these ideas.

4. Continuous Improvement of Teaching: A Case Study in a Large Statistics Course, by C. J. Wild. Chris Wild and his colleagues at the University of Auckland have applied TQM ideas over several years in teaching a basic statistics course to 2,500 students. This detailed case study complements the survey by Hogg and Hogg.

ICOTS-4 MARRAKECH

The International Congress Palace in Marrakech, Morocco, scene of the signing of the GATT treaty earlier this year, was the site of the Fourth International Conference on the Teaching of Statistics, July 25 to 30. Marrakech proved a most fascinating city, combining the traditional shops and work

places in the maze of the old souks with the broad boulevards of the new city. ICOTS-4 offered a varied program of sessions on such topics as research on teaching and learning, technology, and the use of projects and hands-on class activities in teaching. There were working groups in Arabic, French, Spanish, and English on the statistics curriculum towards the year 2000 and on software.

ICOTS-4 attracted 307 registered participants from 45 countries. An Arabic-language satellite meeting in Cairo drew others from Arabic-speaking nations, especially Egypt. IASE is grateful to Mr. El Ghazali Abdelaziz and his colleagues for hosting the conference in Morocco, to Professor Yves Escoufier for chairing the program committee, and to the Egyptian Committee for Public Mobilisation and Statistics and Professor Abdelmegid M. Farrag for arranging the Cairo satellite meeting.

Copies of the ICOTS-4 proceedings (2 volumes) are available from ISI office, 428 Prinses Beatrixlaan, PO Box 950, 2270 AZ Voorburg, The Netherlands, price US\$60 including postage (ISI members US\$50, IASE members US\$45.) The ISBN number is 90-73592-09-7.

Further reports incorporating working group discussions are to be found in issues of IASE Matters. The Autumn issue, found in Teaching Statistics vol.16(3), concentrated on Research in Statistical Education and Developments in Technology. The next issue will carry reports of the working groups on Curriculum Issues. The latest issue of the IASE section of ISI Newsletter (distributed free to all members of IASE) included a report of the Arab-speaking satellite conference.

ISI BEIJING 1995

The 50th biennial session of the International Statistical Institute will be held August 21 to 29, 1995 at the International Convention Center in Beijing, China. For the first time, IASE sessions are among those scheduled. The IASE invited papers sessions are:

- The relative roles of universities and employers in training professional statisticians.
- Networking innovations and resources: the Internet as toolbox.
- Teaching statistics in Asia.
- Teaching statistics in geographical courses; links with GIS (Geographical Information Systems).

There are also many contributed paper sessions on announced topics. These include: statistical software packages, statistical thinking, statistics at school level, training statistical staff and continuing education in developing countries, statistical literacy in the educational programme, and research in statistical education. There is a December 15, 1994 deadline for applying to give a contributed paper.

The first bulletin has been issued. IASE members should have received this bulletin. Those who are interested in participating but who did not get the bulletin should contact:

Executive Secretariat, 50th ISI Session
c/o State Statistical Bureau
No. 38 Yuetan Nanjie, Sanlihe
Beijing 100826, China
Fax: 86-1-3810035
email: wangjl@bepc2.ihep.ac.cn

For those who like to plan their travel far in advance, ISI will meet in Istanbul, Turkey in 1997, and plans are under way for a meeting in Finland in 1999.

IASE ROUNDTABLE 1996 GRANADA

ICME8, the eighth International Conference on Mathematics Education, will be held in Seville, Spain, July 14 to 21, 1996. Like ICOTS, ICME is held every fourth year. IASE will continue to sponsor a Roundtable Conference on a special topic in statistical education as a satellite to ICME. Roundtable conferences are small meetings of invited participants with special interests in the meeting's topic. The 1996 Roundtable will take place in July, 1996 in Granada, Spain. The scheduled topic is Research on the Role of Technology in Teaching and Learning Statistics. The local organizers are Carmen Batanero and Juan Godino of the University of Granada. The program committee is chaired by Joan Garfield. IASE members interested in the Roundtable topic can obtain more information from:

Professor Joan B. Garfield
General College,
University of Minnesota
140 Appleby Hall
128 Pleasant St. S.E.
Minneapolis, MN 55455, USA
Fax: 1-612-626-7848
email: JBG@vx.cis.umn.edu

ICOTS-5 SINGAPORE 1998

Plans for ICOTS-5 in the summer of 1998 are already underway. The almost-certain location is Singapore, during the latter half of June. We will make a concerted effort to attract participation from south and east Asian developing nations, in part by offering low- cost university accommodations.

Although a program committee has not yet been named (ICOTS-5 is, after all, nearly four years off), the IASE executive committee has received several suggestions from members for strengthening the ICOTS conferences and has discussed this issue. Some ideas are:

More interactive and hands-on sessions, including workshops.
Expository talks on current topics in statistics, by recognized experts.
More use of poster sessions for contributed papers, and other methods of increasing conversation and interaction among participants.

When a program committee is formed, IASE encourages members to submit suggestions for session topics, for organizational arrangements, or other areas. ICOTS is IASE's major conference; we want it to respond to member's desires.

PERUGIA PROCEEDINGS

The IASE held its first scientific meeting in Perugia, Italy in August of 1993 as a satellite to the ISI meeting in Florence. The volume Proceedings of the First Scientific Meeting of IASE, edited by Lina Brunelli and Giuseppe Cicchitelli, has been sent to all participants. Others may obtain copies for only the cost of postage, US\$5. Send orders to the ISI office, 428 Prinses Beatrixlaan, PO Box 950, 2270 AZ Voorburg, The Netherlands. The ISBN number is 90-73592-10-0.

Among the many interesting papers in the Perugia volume are Peter Holmes' comparison of the place of school statistics in the EEC countries and David Vere-Jones' discussion of the problems of statistical education in developing countries.

Don't overlook the many other useful IASE publications related to statistical education. A full listing appeared in the first issue of the IASE Review.

NEW IN THE ELECTRONIC ARCHIVE

IASE members with Internet access should remember that information helpful to anyone concerned with statistical education resides in the JSE Information service housed at North Carolina State University. The archive has recently added the second edition of the Journal of Statistics Education. This electronic journal, which is not published in hard copy form, contains both articles and data sets. To retrieve the contents and abstracts, send the e-mail message:

send jse/v2n1/contents
to the address
archive@jse.stat.ncsu.edu

For complete information on the material available from the archive, and methods of access, send this e-mail message:

send index
send access.methods
to the same e-mail address.

ELECTION OF NEW IASE OFFICERS

The terms of the current members of the IASE Executive Committee expire at the end of ISI's 50th Session in Beijing in August, 1995. At that time Anne Hawkins, now president-elect, will become IASE president. She will be joined by a president-elect and four vice-presidents elected by IASE members. Current vice-presidents may be nominated for another term. Candidates for these offices will be selected by a five-member Nominating Committee composed of IASE members from five different nations. The Nominating Committee is now being formed. Its chair is:

Dr. Annie M. J. Morin
IRISA
15, rue Gutenberg
35000 RENNES
France
Fax: 33-99-383832
Email: Annie.Morin@irisa.fr

IASE welcomes suggestions of possible candidates for president-elect and vice president. Please send your suggestions to Dr. Morin.

A TOPIC REPORT FROM MARRAKECH

Research on teaching and learning statistics is the primary interest of an influential group of IASE members and was the topic of several sessions at ICOTS-4. This report was prepared by Andrew Ahlgren and Joan Garfield. It originally appeared in the IASE Matters column in the August, 1994 issue of Teaching Statistics.

The central problem in statistics education is not how to optimise students' learning of statistics but how to help them to understand statistical reasoning at all. Research on isolated aspects of instructional technique cannot help with this problem. Yet research on statistics teaching tends to be a "cottage industry" of mostly unconnected, small-scale projects. The total number of people involved is also rather small. Progress on the central problem will require coherence among different groups' studies and perhaps even some consensus on priorities for what and how to investigate.

The research sessions organised for ICOTS-4 begin to show the necessary concern for coherence and priorities. Rather than reporting on diverse, unconnected studies, researchers explored topics that address larger and cross-cutting issues on how students learn or don't learn statistics and probability. A total of 23 papers were presented in three invited paper sessions and two contributed paper sessions, representing research conducted in 11 different countries on students at all educational levels.

In the first session, Marie-Paul Lecoutre (France) described the great variation found in students' conceptions of statistical problem situations. Carmen Batanero and Juan Godino (Spain) presented

methods of displaying some fairly complex relationships among students' ideas. Rolf Biehler (Germany) shared concerns about how two major lines of thought - probability and descriptive data analysis - may produce in students conflicting ways of thinking. Manfred Borovcnik (Austria) encouraged the use of analogies as a general and powerful strategy for teaching understanding of statistical concepts. The discussant, Andrew Ahlgren (USA), recommended that analogies could be extended to more complex stories - like myths and fables - in which multiple issues and points of view could be represented.

All papers in the second session focused on issues related to assessment. Brian Greer (Northern Ireland) reported on teachers' readiness to teach data handling. Kay Lipson (Australia) described the use of concept maps to assess students' "concept images" of sampling distributions. Jane Watson (Australia) reported on assessment of school children's understanding of statistical concepts. Joan Garfield (USA) used assessment to determine students' informal intuitions relating to statistical power before and after formal instruction. Flavia Joliffe (UK) stressed the importance of students explaining "why" they selected a particular test answer if we are to understand their statistics reasoning.

In the third research session, coherence was achieved by a common focus on particular tests of probabilistic understanding - on the domains of knowledge they purport to represent, and on the properties of their scores. Claude Gaulin (Canada) and Juan Godino (Spain) reported on collaborative studies involving researchers from several different countries. We hope that increasing agreement on what and how to measure students' understanding will enhance the comparisons and mutual influences among different researchers' work in the future.

The two contributed paper sessions included several presentations on assessment issues as well as reports of large-scale empirical studies, informal classroom research, and in-depth interview approaches. Several papers reported work in progress that should lead to interesting results for future conferences.

The sharing of research findings on centrally important issues was further fostered by informal meetings of the International Study Group for Research on Teaching Probability and Statistics, convened by Joan Garfield. These will hopefully lead to collaborations, bringing even more coherence and focus on high-priority questions that will be evident at ICOTS-5.

MEMBERSHIP APPLICATION FORM
INTERNATIONAL ASSOCIATION FOR STATISTICAL EDUCATION 1995

You are invited to join IASE, the newest section of the International Statistical Institute. IASE is devoted to the development and improvement of statistical education on a world-wide basis. Membership will appeal to those whose interests or professional activities include

Teaching statistics at a primary or secondary school,
Teaching statistics in a college, technical institute,
or university,
Teaching, or developing software for, statistical computing,
Teaching statistics, including quality improvement methods, in
business or industry,
Training statistical staff for government statistical offices,
Developing statistical textbooks, audio-visual materials, or
curricula.

Members receive the International Statistical Review, Short Book Reviews, the Annual Review of International Statistics, the ISI Newsletter, and the occasional IASE Review. They may subscribe at a reduced rate to Teaching Statistics (which includes IASE Matters) and may purchase IASE and ISI education publications at a discounted price. Members also receive reduced registration fees for IASE and ISI international conferences.

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@cs.vu.nl]

Title

Forename

Family Name

Mailing Address

Telephone

Fax

Email

Occupation

Nationality

Areas of Interest

I wish to be a member and agree to pay 70 Dutch Guilders (US\$39.12, UK£26.08, 216.18 FFr, 53.53 SFr, 62.45 DM) for 1995.

As a Developing Country Member, I agree to pay 38 Guilders (US\$21.24, UK £14.16, 117.35 FFr, 29.06 SFr, 33.90 DM) for 1995.

I enclose a cheque or money order for my membership dues, as indicated above, made payable to the International Statistical Institute.

I enclose UNESCO coupons for this amount.

I wish to pay by credit card: Mastercard Visa

Name on credit card account

Credit card number

Date of expiry

Signature and Date