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EDITORIAL

The First International Conference on the Teaching of Statistics has now taken place - see below - and this is of course the major event to report; some smaller news items have been held over until the next issue.

A number of invitations of various kinds have been made in the past issues, but they can bear repetition. Firstly, this Newsletter needs news - of what has happened or is about to happen; secondly, reports, of such things as the existence of committees, programmes and projects are valuable; thirdly, articles similar to - or perhaps different from - those that have already appeared under the heading 'Viewpoint' putting forward suggestions or refuting previous ideas and so on on the subject of statistical education will be welcome. Advertisements of vacancies in the third-world will be carried free, as described in the May 1982 issue. Finally, of course, suggestions for the development of ISEN are welcome.

REPORTS FROM ROUND THE WORLD

FIRST INTERNATIONAL CONFERENCE ON TEACHING STATISTICS, SHEFFIELD, ENGLAND. AUGUST 1982.

The setting up of a Task Force for an International Conference on the Teaching of Statistics, and the subsequent planning of the conference (with a programme committee chaired by L. Råde and a local organising committee chaired by V. Barnett) has been reported previously in ISEN and elsewhere. In the event over 400 participants from 60 countries attended 4 plenary sessions, and heard 60 invited and 38 contributed papers. The following account is condensed slightly, with permission, from an article to appear in The Professional Statistician. The Proceedings should be available in photo-offset form within three months, at a cost between £6 and £10. Full participants in the conference receive a copy automatically; others interested should write as soon as possible to ICOTS Secretary, Department of Probability & Statistics, The University, Sheffield S3 7RH, England.

The four major speakers were Professor Barnett, Professor Råde, Professor C.R. Rao and Professor J. Gani. In his opening talk Professor Barnett pointed conference members to the crucial question "Why Teach Statistics?" and the implications that different answers to this question have for what statistics should be taught, who should teach it and how it should be taught. Professor Råde raised the opportunities being presented to statistics teaching by the existence and motivating effects of computers. Professor Rao reminded members of the balance needed between theory and practice, arguing for a greater emphasis on teaching students to look carefully at data. Professor Gani returned to the opening theme of 'why teach statistics' arguing for its relevance for all students as part of the main school curriculum.

Although the keystones to the programme were the plenary sessions it is probably true that most participants found more to provoke and interest them in the workshop and invited paper sessions devoted to the 23 different topics. Five strands could be identified within the conference programme. These were on teaching statistics

a) at the school level,
b) in college level courses for non-statisticians,
c) for practitioners in government and industry,
d) in teacher training courses and
e) in developing countries.

Each of the major topics had one invited paper and two workshop sessions and, outside the plenary sessions, there was always a choice of five different sessions one could attend. This sometimes led to some very difficult decisions. Some of the workshops were rather large and, depending on who was leading them, they could become less of a workshop and more of a different type of paper presenting session. Some of the smaller workshops went very well and developed a large number of new ideas within an intimate atmosphere. Perhaps the biggest challenge of the conference was posed to those who had been given only 15 minutes to present orally their short contributions. The discipline of having only this limited amount of time led some to give greater thought to their presentation and the use of overhead projector and handouts, though regrettably not all rose to the challenge.

A decision has already been made to hold a second international conference on teaching statistics in four years time. In the meantime we can look forward to reading the proceedings of the first conference within the next few months and hope that it has been a springboard for greater efforts and achievements in statistical education round the world.

(This report first appeared in the Professional Statistician (issue no. 8, Oct. 1982) published by the Institute of Statisticians.)

STATISTICAL TRAINING IN DEVELOPING COUNTRIES

II. The Training of Statisticians

This is the second of a two-part article on statistical training in developing countries. The first part dealt with the training of users of statistics. Here we discuss the training of statisticians.

No network of regional graduate training centers exists that is comparable to the statistical training centers listed in the Almanac prepared by the ISI Task Force on Co-ordination of Statistical Training Centers. The Task Force on Tertiary and Technical Education in Statistics might well take on the long-term goal of encouraging the development of new graduate training centers and their co-ordination. They will only develop with careful national planning and with objective evaluation of the potential for a national center or the need to co-operate in a regional center. In some cases, existing programs, one or two of them in developing countries, may serve a country's needs. In most cases, it seems likely that national or regional programs are needed to meet demands and to utilize and retain the few well qualified statisticians available.

Graduate training centers in statistics might be developed in the best national university, in association with the regional statistical training centers, or as autonomous independent institutes. The advantages of the first possibility seem to come through interaction with other disciplines and their real problems of applied statistics and through established high university standards. The second possibility would permit development from an established base, but has risks of diversion of effort. The third possibility may provide visibility and flexibility together with a means to the conduct of special projects of national or regional interest, but an institute of statistics must not permit itself to become insulated from real problems.

Faculties of graduate training centers in statistics must be selected carefully and, in some cases, developed through training abroad. Faculty remuneration and support must be sufficiently good that multiple appointments can be prohibited and there is sufficient time for research and the direction of student research. Senior leadership in research may be an initial problem. It may be obtained when necessary through attractive visiting appointments.

Initial effort in a new graduate training center should be concentrated on Master of Science programs in statistics. In this way, some of the immediate regional and national needs in statistics can be met fairly quickly. We have noted in Part I of this article the need for instructors to support the statistical training of students in other disciplines and for the initiation of statistical consulting support for research in colleges and universities. Other needs may differ by regions and should be evaluated. It seems almost certain that there will be major needs in government, industry and medicine that can be met at least partially by M.S. graduates. Programs of study should have central basic components in the theory of statistics and probability. But they should also have components tailored to the perceived needs of the country and there should be sufficient flexibility to permit student preparations for somewhat specialized careers, for example, in engineering statistics, biostatistics and econometrics. Some limited experience with data analysis, consulting, and computing should be included in programs of study.

As graduate training centers develop, Doctor of Philosophy programs, perhaps Diploma programs, and statistical consulting may begin. Only the very best students should be permitted to continue to advanced study of statistics and they should be chosen for the capability for independent study. Much of the advanced study should be done initially as directed individual study with careful faculty direction and supervision. Much faculty attention should be given to dissertation research and ample time allotted for the purpose. Statistical consulting should be undertaken on special problems that contribute to advanced training and research. It might be in support of statistical consulting in colleges and universities discussed earlier. It might involve special projects of national or regional importance. It should not involve routine elementary applications of statistics. Statistical consulting provides a vehicle for student training and should provide research problems and motivation for research. Research in doctoral dissertations and in the training center generally should be directed to problems of application or statistical methodology of particular regional interest whenever possible.

Graduate programs in statistics developed must be good. At the M.S. level, it should be possible to provide programs comparable to those available anywhere else. Information on good existing programs is readily available and those programs can be adapted to particular needs. Proceedings of conferences on the teaching of statistics have been published, as have special reports, for example, Preparing Statisticians for Careers in Industry (The American Statistician, V.34, p.65). Doctoral programs must produce graduates who can be competitive with the best in the world or they should not be attempted. The program must be sufficiently good that visiting scholars can be attracted and faculty exchange programs developed and sustained. The faculty of the training center in statistics should be committed to quality and quality control must be achieved through comparisons with other established programs and perhaps through the use of external examiners of doctoral dissertations.

In the two parts of this article, I have not presented challenges that cannot be met in most regions and at least in some countries. To meet statistical training needs, statisticians in developing countries should take leadership in the assessment of resources and needs, perhaps through formation of a national committee on statistics, and then, if necessary, through a regional committee. A plan for development and a co-ordinated effort should attract resources. The ISI Education Committee can provide international support. Where should the graduate training centers in statistics be? Bangkok, Cairo, Kuwait, Lima, Peking, Sao Paulo, Taipei,...?

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