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EDITORIAL

This is the final issue of ISEN Volume 7, which I have undertaken to produce during 1987. The name of the new Editor is to be announced shortly by ISI, and issues of ISEN will continue to appear regularly, as they have over the past seven years.

I should like to take this opportunity of thanking all those who have responded to my appeals for contributions; they have provided ISEN with material of more than passing interest to all statisticians. Would readers please continue to contribute, and send their work to ISEN Editor, c/o ISI Permanent Office, PO Box 950, 2270 AZ Voorburg, Netherlands.

NEWS AND ANNOUNCEMENTS

May 9-11, 1988 - Annual Quality Congress, Dallas/Fort Worth, TX, USA. Information from S.A. Halladay, American Society for Quality Control, 230 W. Wells St., Milwaukee, WI 53203, USA.

May 17-19, 1988 - International Research Conference on Reliability, Univ. of Missouri, Columbia. Sponsored by Amer. Statist. Assoc. Productivity and Quality Committee and Univ. of Missouri. Information from Asit P. Basu, Dept. of Statistics, 328 Math. Sci. Building, Univ. of Missouri, Columbia, MO 65211.

July 23-27, 1988 - ISI Round Table Conference on Teaching Teachers to Teach Statistics, Budapest, Hungary. Information from Anne S. Hawkins, Centre for Statistical Education, Univ. of London Institute of Education, 20 Bedford Way, London WC1H 0AL, England.

August 22-26, 1988 - Bernoulli Society, European Meeting of Statisticians, Berlin, German Democratic Republic, Information from ISI Permanent Office, PO Box 950, 2270 AZ Voorburg, Netherlands.

August 29-September 2, 1988 - Fourth Prague Symposium on Asymptotic Statistics, Prague, Czechoslovakia. Information from J. Antoch, Dept. of Probability and Mathematical Statistics, Charles Univ., Sokolovska 83, 18600 Praha 8, Czechoslovakia.

August 29-September 6, 1989 - ISI 47th Session, Paris, France. Information from ISI Permanent Office, PO Box 950, 2270 AZ Voorburg, Netherlands.

REPORTS FROM ROUND THE WORLD

Training for Statistical Practitioners: Approaches and Experiences of the Munich Centre

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PART II

2.4 Training staff

Since the Munich Centre changes the subject of its training activities every year, the permanent teaching staff is small. It is one of the managerial challenges for the Munich Centre to find short-term lecturers who have a good knowledge of the subject matter and the course language, as well as pedagogic talent and experience of developing countries. A strong preference is given to lecturers with practical experience in a statistical service.

Taking into account the repeated suggestions of participants, the Munich Centre also tries to engage a number of lecturers from developing countries who are working either in their countries or in international organisations. In this way one tries to avoid a "Eurocentered" approach in practical statistics.

3 New approaches / challenges

3.1 Data processing (DP) and teaching methods

The Munich Centre started DP classes for statisticians in 1983 as part of its advanced training courses in statistics. The data processing background of course participants ranged from rather good command of FORTRAN or other programming languages, and experience with some standard software, like MULTIPLAN and LOTUS, through rather theoretical knowledge dating some years back, to no experience at all. In spite of this heterogeneity the Munich Centre started computer classes, showing the statistician what a microcomputer is, handling it in statistics exercises and demonstrating its use in a statistical office. But it has always been aware of the inadequacies and limitations of this undertaking.

With the start of the microcomputer boom, there have of course been parallel developments in several Third World countries, and it can be noticed that the percentage of course participants familiar with actual computer work increases constantly.

The computer training of the Munich Centre is to be shifted towards more practical applications of microcomputers in a statistical service. In future our introduction to computers will only contain elementary necessities like hardware handling, and unavoidable operating system commands. In order to assure a fairly uniform level of knowledge, three topics of software structure will be treated: (a) Variables and operators, (b) Repetition/Branch and (c) Files and file handling.

In future, standard software will be included as much as possible in the training program. Special emphasis will be placed on typical applications in statistical services: (a) Data recording, (b) Data storage and (c) Data presentation.

Several packages are widely used and have become a de facto standard because of their universal dissemination (e.g. WORDSTAR for word processing, MULTIPLAN/VISICALC/LOTUS for tabulation, dBASE II/III for data base management). Analytical packages are used to a much lesser extent in official statistics, but packages like SPSS/PC, STATPAK and others will have their applications, especially in teaching statistics and can become even more valuable in combination with a tabulation package.

Like other typical mainframe packages, reduced versions of COCENTS and CENTS4 are available on microcomputers; but it remains to be seen if microcomputer-oriented packages will not be more appropriate for developing countries application. The use of former mainframe-packages (like these or SPSS) has a strong argument in its favour: it eases the training effort for well known software.

For the Munich Centre, the decision has been made to offer as much up-to-date standard hardware and software for

training purposes as possible, depending on the current course subject. Nevertheless this will mean a constant additional financial burden and workload for data processing, because a standard training module cannot always be expected, if the up-to-date training is to meet the needs of a constantly changing environment.

Nowadays the Munich Centre works with ten 16-Bit microcomputers, IBM-compatible for 20-23 participants at a time and the microcomputer courses are conducted by a permanent staff member.

These micro-computer workshops have certainly become an additional attraction of the Munich Centre's courses. The new applications for fellowships show the increasing demand for improved computer literacy. Moreover participants are invited to bring along selected materials from their own statistical services, suitable for a case study in data processing.

3.2 Dialogue between users and producers of statistics

The lack of communication (and sometimes understanding) between users and producers of statistics has long been deplored by many and is one of the reasons for deficient planning and decision making in developing countries.

Within a EUROSTAT project, the Munich Centre is preparing the organization of a series of seminars to be held in several African countries. These workshops will bring together about 20 statisticians and users of statistics for two weeks. The core of these seminars will be a simulation game: participants will have to decide on agricultural policy matters and will face simulated results in various areas of public life through short-term and mid-term forecasts. The simulation game will be played on microcomputers first in a fictitious country, then within a case-study adapted to the countries' realities making use of existing statistics. It is hoped that through these didactic means the process and consequences of decision making will become more transparent and the necessity and value of reliable statistics will become clearer.

4 In conclusion

The Munich Centre will continue to contribute to the improvement of the manpower capabilities of the statistical services in developing countries by different means and activities. It will provide training which focuses on practical applications, and will bear in mind the changing environment in which statistical work has to be carried out.

UCLA's Microcomputer Laboratory for Statistical Instruction

Donald Guthrie, Center for Health Sciences, UCLA, Los Angeles, CA 90024, U.S.A.

The UCLA School of Public Health has established a Microcomputer Laboratory (Director: Peter A. Lachenbruch) to support instruction in Biostatistics. Students range from those with a limited mathematical background to advanced graduate students. The facility is used for entering and managing data, performing elementary descriptive analyses, graphical methods, and fitting and evaluating statistical models.

The laboratory equipment consists of 24 Personal Computers donated by the IBM Corporation, and connected as a local area network for the exchange of programs and data. Software includes programming languages (BASIC, FORTRAN, C, etc.), many commonly used statistical packages (SAS, BDMP, SYSTAT, etc.), specialized packages such as GAUSS and GLIM, data base management systems, and spreadsheets. Word processing and text editing programs are also available.

Major emphasis is placed on advanced instruction. For these courses, students are assigned research level case studies in data analysis which form the basis of group discussions and tutorials. Graphical methods are encouraged and the choice of analytic technique forms a link between theory and application. The generalized linear models course presents methods for log-linear models, logistic models, and quasi-likelihoods.

A unique feature of the laboratory is its support of handicapped students. Some of the computing stations are specially equipped for wheelchair access. The keyboard is designed to permit combinations of keys to be pressed sequentially (i.e. the student can press Shift, followed by a letter to get a capital letter, rather than having to hold both keys simultaneously). Another computer equipped for visually handicapped students has a large typeface program, and the student can scroll the display; for the more severly handicapped there is a voice emulation device (DECTalk) which reads the contents of the screen aloud (the students use headphones).

Additional information about the laboratory may be obtained from the Director of the Division of Biostatistics, UCLA School of Public Health, Los Angeles, CA 90024.

Statistics Teaching in the USA: A Personal Perspective

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PART I

During my first nine-month tour of duty in a North American university, what has struck me most is the serious lack of real learning in statistics classrooms.

A common attitude among students is that their function is to be taught passively rather than to learn actively. This is connived at by instuctors who reward rote learning and implicitly discourage critical thought and creativity. A grading system which marks down from a maximum, with missed points, emphasises (not merely symbolises) a negative attitude towards scholarship.

The students' academic experience is diminished by the expedient habit of accepting everything taught (or read) without question. Students are anxious to "understand" (point-saving) detail, but are too often unconcerned with the overall soundness or relevance of arguments presented. What they want is formulae into which they can plug numbers, not discussion of when these formulae are appropriate, especially in those cases where appropriateness cannot be decided by blind adherence to some rule.

The impression they gain of Statistics is purely superficial. Given some numbers (rarely real data) and instructions as to what test to perform, they can recall a recently presented formula for a quiz, and compute an answer. But problems such as deciding which test to use in the context of real data and its actual environment, or of interpreting the numerical answers of an analysis, they cannot manage. Nor do they want to. For such questions are not examined in assessments encouraging mindless recall rather than careful thinking.

An example of the sort of simple reasoning which American students find difficult to perform is given by the following problem, which appears beyond the capability of many seniors.

Question. (a) What is the mean of the integers 1 through 19? (b) Sum the integers from 1 to 101.

Answer. (a) $x = 1 + 2 + 3 + \ldots + 19$ = more-or-less 190, laboriously summed by hand or by calculator, so $\bar{x} = \Sigma\, x/19 = 10$ (with luck). (b) Open revolt, "too much calculation", even after it has been pointed out that a solution to (a) is just 10 (the middle number). For students know the formula

$$\bar{x} = x/n \qquad (1)$$

but do not make the jump to one that states

$$x = n\bar{x}. \qquad (2)$$

When everything is learned by rote, the insight needed to rearrange (1) into (2) is perhaps too much to be expected. If you have been brought up to believe that every problem has a specific formula for its solution, then you learn a lot of formulae to cover all standard situations, but are nonplussed by anything not so covered. Furthermore, students only retain such undigested formulae in the short-term, and find that, for each successive statistics course, they have to start again from scratch. Instructors are justified in assuming that the main principles "learnt" in previous courses will not be remembered.

During two semesters, I have tried (unilaterally) to combat this endemic philosophy of "learning". To start with, I have emphasised, not always with success, that for homework there is no credit in reproducing material from the lectures. What is needed is critical assessment as to its validity. I tried to make it clear that I was interested not in students repeating my views, but rather in hearing what theirs were, and why they either agreed or disagreed with mine. No formulae were to be used, unless they had been fully assimilated through thought and usage. I emphasized the relationships between results, and the value to obtaining each from first principles.

The idea that scientific truths cannot be neatly packaged for easy assimilation is a bit of a shock to students. But the implications of the present rote-learning approach go far beyond the USA. The way things are done in North America percolates through academic exchanges to many developing countries. And emerging nations will not benefit greatly from copying current methods.