Notes and Comments

I was glad to hear from members that they supported my decision to postpone a research roundtable until the next International Conference on Teaching Statistics (ICOTS) in 1994. Some felt that postponing the date would increase the number of participants from their country. As I learn more about the plans for ICOTS 4 I will prepare materials to solicit participants for our research roundtable. In addition, if any of you have specific suggestions and recommendations regarding the content and format, please send them to me.

Information from Members

Margaret Rangecroft (Sheffield City Polytechnic) is interested in the teaching and learning of graphwork and is currently concentrating on differences in the way this is taught in Primary (pre 11/12 years) and Secondary (11/12+ years) schools. She is interested in finding out if there are any differences in teaching approach for the different grade leveles and how this affects pupils' understanding. Do any members have anything to offer in this area, no matter how tenuous the link? If so, please contact her at Sheffield City Polytechnic, Hallamshire Business Park, Sheffield S11 8HD, England.

Brian Greer (Queen's University in Belfast, Ireland) was happy to receive several responses regarding his work on two "Data Handling" projects which were described in the January newsletter. He would like members to know that in connection with his project he has 200 pounds to spend on a resources box for schools and would be interested in suggestions for the best materials to buy (for pupils up to age 15). His e-mail address is: PYG0051@V2.QUB.AC.UK

New Members

I would like to welcome the following new members to the study group:

Gary Kader
Department of Mathematical Sciences
Appalachian State University
Boone, NC 28608 USA

Markita Price
Business, Math, and Computer Science
Stephens College
Columbia, MO 65215 USA

Jane Watson
Department of Educational Studies
University of Tasmania
GPO Box 252C
Hobart Tasmania 7001, Australia

Geoff Woodhouse
Dept. of Mathematics, Statistics, and Computing
Institute of Education
University of London
20 Bedford Way
London WC1H OAL, UK

Publications of Members

Marie-Paule Lecoutre sent an abstract of a paper to be published in *Educational Studies in Mathematics*.

Cognitive Models and Problem Spaces in "Purely Random" Situations.
Abstract:
As part of a study on the natural interpretations of probability, experiments about elementary "purely random" situations (with dice or poker chips) were carried out using students of various backgrounds in the theory of probability. A prior study on cognitive models which analysed the individual data of more than 600 subjects had shown that the most frequent model used is based on the following incorrect argument: the results to compare are equiprobable because it's a matter of chance; thus, random events are thought to be equiprobable "by nature". The present paper is divided into two parts. In the first, the following two hypotheses are tested: 1) Despite their incorrect model, subjects are able to find the correct response. 2) They are more likely to do so when the "chance" aspect of the situation has been masked. An experiment testing 87 students showed, as expected, that there is a way to induce the utilization of an appropriate cognitive model. However, the transfer of this model to a classical random situation is not as frequent as one might expect.
Members may request copies of the complete article from Marie-Paule Lecoutre, Groupe Math de Psychologie, Universite Rene Descartes, Sorbonne, 12 Rue Cujas, 75005 Paris, France.

Andrzej Matuszewski offers an English version of a paper which has appeared in a Polish statistical journal last year, "Statistical Standard Scaling of Ordinal Attributes." This paper concerns problems involving the numerical scaling of ordinal data, and recommends a particular procedure for scaling ordinal data. Copies may be requested via e-mail: DABROWSK@PLEARN.BITNET

Andee Rubin and **Bertram Bruce** had a paper published in the May 1991 issue of the *New England Mathematics Journal*, "Using Computers to Support Students' Understanding of Statistical Inference." This paper describes the Sampler program and curriculum and how they may be used to help students understand basic ideas of sampling and statistical inference. Copies may be obtained from Andee Rubin at ANDEE_RUBIN@TERC.EDU

Jan Mokros and **Susan Jo Russell** have published a working paper in a new research series produced by TERC. Their paper (#4-92) is titled "Children's Concepts of Average and Representativeness." The description of this paper follows:
Whenever the need arises to describe a set of data in a succinct way, the notion of representativeness or average arises: What is "typical" of these data? The goal of this research is to understand the characteristics of fourth through eight graders' constructions of average, and how these constructions are used in dealing with a variety of problems involving real data. Five basic approaches to using the idea of representativeness are identified, analyzed, and discussed.

Copies of this paper may be ordered for $5.00 (US) from TERC Communications, 2067 Massachusetts Ave., Cambridge, MA 02140.

Manfred Borovcnik has recently published a new book (in German), *Stochastik im Wechselspiel von Intuitionen und Mathematik*, which is roughly translated as "Probability between Intuitions and Mathematics". This book is scheduled to be available in May from Bibliographisches Institut, Mannheim, Germany. The book introduces the bizarre world of intuitions regarding random events. The interplay between intuitions and mathematics is used as a key for a deeper understanding of mathematical terms and methods.

George Cobb has written a chapter, "Teaching Statistics" in the recently released *Heeding the Call for Change: Suggestions for Curricular Action*, published by the Mathematical Association of American in their MAA Notes series. This chapter summarizes discussions and recommendations made by the Statistics Focus Group regarding teaching statistics at the college level. Three major sections of the chapter are "Recent Changes in the Field", "Some Differences between Mathematics and Statistics", and "What Research Tells Us." These sections are followed by examples of how the recommendations may be put into practice and suggestions regarding implementation.

Joan Garfield has written a chapter which will appear in the *National Council of Teachers of Mathematics 1993 Yearbook* which is on classroom assessment. Her chapter, "An Authentic Assessment of Students' Statistical Knowledge" describes the use of a structured student data collection and analysis project to assess students' ability to use the statistical language, perform statistical calculations, and interpret and evaluate statistical information.

Other Papers of Interest

Sahai, Hardel, and Reesal, Michael R. (1992) Teaching Elementary Probability and Statistics: Some Applications in Epidemiology. *School Science and Mathematics*, 92, pp. 145-149.

This article illustrates some common applications of probability and statistics in the field of epidemiology as they may be presented to an undergraduate class in probability and statistics.

Lightner, James. E. (1991). A Brief Look at the History of Probability and Statistics. *Mathematics Teacher*, November, pp. 623-630.

This paper provides an overview of the historical development of probability and statistics. Teachers are encouraged to incorporate this historical information into the curriculum in order to increase student motivation to learn these topics as well as to help students appreciate the role of individuals in developing these disciplines.

ISI Roundtable

This August, the ISI will be sponsoring a roundtable on "Introducing Data Analysis in the Schools: Who Should Teach it and How?" Several members of our study group will be presenting papers on their current research or curriculum projects. Although the papers will eventually be collected and published, I would appreciate it you would send me copies of your papers as they are available so that I may summarize them for the September newsletter.

NEWSLETTER OF THE INTERNATIONAL STUDY GROUP FOR RESEARCH ON LEARNING PROBABILITY AND STATISTICS

Volume 5, Number 2

May, 1992

Joan Garfield, Secretary and Editor
340 Appleby Hall
128 Pleasant St. S.E.
University of Minnesota
Minneapolis, MN 55455 USA

E-Mail: JBG@vx.acs.umn.edu
Fax: (612) 626-7848