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The American Statistical Association: Opportunities for the Future

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Abstract: The ASA is the oldest and largest professional association for statisticians. This paper focuses on opportunities for statisticians in ASA publications, education, and meetings. Future challenges are discussed.

Key words: Statistical publications; statistical meetings; statistical thinking; quantitative literacy.

1. Overview of Association

The American Statistical Association (ASA) is 153 years old. Since its very beginning, ASA has had programs in the typical activities of associations – publishing, holding meetings, and generally looking for ways to be of service to statisticians. Just to give a focus to the discussion of some key issues, I provide a few statistics. ASA has about 18,000 members, in 107 countries, but with the vast majority in the United States. It has 79 Chapters in the United States and 3 in Canada. Currently, there are 18 Sections, covering interest areas such as survey research, the physical sciences, and Bayesian statistical science. There are 52 committees that carry out the work of the Association as a whole. In appealing to statisticians to be involved at the grassroots level (Chapters), in subject matter areas (Sections), and in service to the profession (Committees), ASA tries to get its members actively involved in its activities.

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2. Publication Opportunities

Rather than describe the major activities of ASA, let me describe some current issues that will influence the future. If one asks an ASA member, "What is the most important benefit you receive from belonging to ASA?", most likely you will get the response "journals." The *Journal of the American Statistical Association* (JASA) has been published by ASA since 1888. Over the years, it has evolved into three separate parts: theory and methods, applications, and a general section that includes review papers and book reviews. In 1991, for theory and methods, about 20% of the manuscripts submitted were accepted for publication; the comparable figure for applications was 23%. (The general section is somewhat different and an acceptance rate is not meaningful.) What acceptance rates of that size indicate is that more than 75% of potential authors are having their work rejected by JASA. Sometimes the rejection is because the caliber of the work, but often page limitations in JASA inspire fierce competition for space. Good papers are rejected

because of lack of space. This is particularly hard on new researchers who have little or no experience to put a rejected paper in perspective.

The ASA has other journals as well, primarily in applications. There are *The American Statistician* and the *Journal of Business & Economic Statistics*, wholly-owned by ASA. Publications that are joint ventures with other associations are *Technometrics* (with the American Society for Quality Control), the *Journal of Computational and Graphical Statistics* (with the Institute of Mathematical Statistics (IMS) and the Interface Foundation), and the *Journal of Educational Statistics* (with the American Educational Research Association). There is also the *Current Index to Statistics*, a joint indexing activity with IMS. The acceptance rates for these publications are higher. However, there are needs for more publication outlets.

How does ASA balance the need for statisticians to have outlets for their work against the pressure on libraries to reduce their subscriptions? Many associations are actively promoting new journals, in direct competition with commercial publishers, because associations publish at lower cost. Compare the library prices shown in Table 1 for some statistical journals published by commercial publishers and by associations. Thus, there is some feeling that associations can be helpful to libraries when difficult choices need to be made by keeping journals at a reasonable cost. The ASA is now actively considering launching two or three new journals in the applications area over the next few years.

Another issue related to publications concerns what publications ASA will promote in its mailings to members, primarily in its dues renewal notices. Currently, on the dues renewal notice, ASA lists all of its own journals as well as those jointly owned. It also lists the *Journal of Official Statistics* (JOS), published by Statistics Sweden, and *Survey Methodology*, published by Statistics Canada. Commercial publishers have asked ASA to promote other journals in mailings to members. When ASA has done so, the publisher paid for an insert and any actual postage charges that were incurred because of increased weight. Generally, ASA has not been receptive to joint publication with commercial publishers, even if big discounts are given to members. ASA has now been asked by other associations to offer their journals and books to ASA members at reduced rates. If the associations provide a mailing piece, ASA will probably go forward with this, at least on a trial basis. One reason is that this is likely to be a reciprocal relationship, and the other association will give ASA the opportunity to market its journals to the other association's members.

Another publications issue is that of book reviews. Currently, JASA has excellent reviews of professional books. Very few books considered to be primarily textbooks are reviewed in JASA. Generally, the reviews appear about two years after publication of the book, which would not be timely enough for textbooks. However, many members have inquired about textbook reviews. Is there a need for a book review that would include timely reviews of textbooks?

Finally, an issue of interest to all associations is that of electronic publishing. Several associations much larger than ASA are taking the lead in this area, but it has great potential interest for ASA. In mid-1992, the American Association for the Advancement of Science (AAAS) and the Online Computer Library Center, Inc. (OCLC) began *The Online Journal of Current Clinical Trials*. It is a high-risk venture but has great potential. The journal is peer reviewed, cuts time to publish by at least two months, features graphic displays, and

Table 1. Library prices of selected statistical journals in U.S. dollars 1989–92

Title and publisher	1989	1990	1991	1992
Journal of the American Statistical Association, American Statistical Association	95.00	100.00	125.00	160.00
The American Statistician, American Statistical Association	30.00	32.00	35.00	40.00
The Annals of Statistics, Institute of Mathematical Statistics	105.00	105.00	110.00	250.00
Applied Statistics, Oliver and Boyd	48.33	51.50	64.00	73.00
Biometrika, Cambridge University Press	58.00	60.00	87.00	110.00
The Canadian Journal of Statistics, Statistical Society of Canada	62.60	63.71	77.00	77.00
Communications in Statistics A, Theory and Methods, Marcel Dekker	755.00	875.00	985.00	1085.00
Computational Statistics and Data Analysis, North Holland Publishing Co.	311.00	297.24	361.00	463.00
SIAM Journal on Scientific & Statistical Computing, Society for Industrial and Applied Mathematics	150.00	168.00	195.00	210.00
Statistical Science, Institute of Mathematical Statistics	45.00	45.00	60.00	60.00

has an annual subscription rate that includes unlimited connect time. ASA is interested in moving forward in this area, but certain questions need to be answered. Within the next few years, we hope to begin getting answers.

3. Education Opportunities

ASA is active on two fronts in the education area. First, since 1982 ASA has had a program of continuing education for its members. Courses are offered at the Annual Meeting in the summer and at the Winter Conference. The other area of activity is the Quantitative Literacy Program, in which ASA holds week-long workshops for middle and high school teachers of mathematics. Each of these programs is at the crossroads of major expansion.

The Continuing Education (CE) Program has offered between 8 and 17 courses at the Annual Meeting and one or two at the Winter Conference. The course presenters are generally members who submit proposals to the Advisory Committee for Continuing Education. Recent courses given are shown in Table 2.

In the past, ASA videotaped one course a year, and the videotape was made available at very low rental rates to Chapters. In recent years, there has been no videotaping because of prohibitive cost considerations.

Chapters have asked ASA for assistance with offering CE courses to members in local areas. Within the next two years, ASA will begin to offer one- and two-day courses, taught by distinguished members in their areas of expertise at local Chapters. The ASA and the Chapters will share in arranging the

Table 2. Courses offered at Joint Statistical Meetings in 1990 and 1991

Course title	Instructors
Categorical Data Analysis	Alan Agresti and Christy Chuang-Stein
Generalized Additive Models	Trevor Hastie and Robert Tibshirani
Structural Equations: Models, Statistical Theory, Practical Implementation	Peter M. Bentler and Kenneth A. Bollen
Survival and Risk Analysis	Frank E. Harrell, Jr.
Quality Improvement and Statistical Thinking	Thomas J. and Eileen Boardman
An Introduction to the Exploratory Analysis of Repeated Measures Data	Stephen W. Looney
Working with the 1990 Census Data	Marie Argana and Paula Wright
Accelerated Testing: Statistical Models, Data Analyses, and Test Plans	Wayne Nelson
Basic Statistical Methods for Categorical Data Analysis	Gary Koch
Graphical Modelling in Applied Multivariate Statistics	Joe Whittaker and Svend Kreiner
Visualizing Multidimensional Data	Richard A. Becker, William S. Cleveland, William Shyu, and Allan R. Wilks
Weighting Survey Data for Analysis	Brenda G. Cox
Statistical Analysis of Reliability Data	A.C. Kimber, R.L. Smith, and T.J. Sweeting
Product/Process Optimization and Variation Reduction	Wayne Taylor

logistics of the course and in the proceeds. The Advisory Committee will decide on the courses to be offered, just as it makes those decisions for the Annual Meeting.

The Quantitative Literacy (QL) Program is a success story for the ASA. The ASA/National Council of Teachers of Mathematics (NCTM) Joint Committee encouraged a group of statisticians and high school mathematics teachers to write a proposal to the National Science Foundation (NSF), offering a method of introducing statistics into the mathematics curriculum. At the same time, NCTM was working on standards for the teaching of mathematics from kindergarten through grade 12. The standards, adopted in 1989, have a statistics and probability strand in all grades. The proposal was funded and four booklets have been published on the following topics: Exploring Data, Exploring Probability, Simulation, and Surveys and Information from Samples. A workshop for teachers was developed and tested. Now ASA, after presenting five workshops with funding from NSF, gives week-long summer workshops, funded by school districts. One of the highlights of the workshop is a Statisticians' Day

where statisticians from a local Chapter come to the workshop to work directly with the teachers. These statisticians often become long-time resources for the teachers.

ASA is now working on two additional grants in the QL area. One is on extending QL to the elementary school curriculum. The other is on the development of modules to mesh into certain existing mathematics courses in the high school (algebra, geometry, trigonometry, and functions). Once these projects have moved beyond the field testing stages, new workshops for classroom teachers, K–12, will be offered in these areas.

Some new directions are also beckoning. Statistics would fit very well with the science curriculum in middle and high schools. A project team is now working on a proposal for introducing QL into science teaching through laboratory exercises. Similarly, QL fits into social science, where there is much interest in charting, ranking, graphing, and making comparisons between countries or states. A proposal has been developed for this area.

There are so many directions in which QL can go that careful choices need to be made. Fortunately, many ASA members contribute their time to these efforts and get great satisfaction from doing so. ASA will continue to move forward in this area.

4. Promoting Statistical Thinking

One of the aims of any association is to promote the profession of its members. For ASA, it is not just the profession that we want to promote, but also statistical thinking. People in other disciplines use statistics; people "do statistics" by means of computer packages; American citizens are presented with choices on health care, environmental solutions, and business strategies, many of which depend on making decisions with imperfect knowledge. This is the world of statistical thinking. There are many ways that ASA interacts with other groups to promote statistical thinking. One of these is by means of the Quantitative Literacy Program, described earlier. Another is by statisticians being involved in science fairs. Many ASA Chapters now have a core of members who judge in science fairs. The projects are in any kind of science and the judges look for statistical content. Some judge projects; others give awards for the best statistical content. In addition, ASA's Council of Chapters sponsors the statistics prize at the International Science and Engineering Fair, an annual competition for high school students drawing from 360 regional and state fairs in the U.S. and from several other countries. An ASA judging team looks for projects exhibiting either the correct application of statistical methods to a research project or the investigation of statistical methodology.

ASA was a prime mover in the establishment of a National Institute of Statistical Sciences (NISS). The aim of NISS is to promote cross-disciplinary work in which statistics is used as a tool or way of thinking in some other discipline. The hope is that scientists of many different backgrounds will come together in NISS to work on projects of joint concern and interest. NISS was formally established in December 1991 in the Research Triangle Park, North Carolina.

ASA also works through other organizations. It is a member of the Conference Board of Mathematical Sciences (CBMS) which draws together representatives from all the mathematics and statistics organizations to work on projects of joint interest. It is a founder and supporter of the Council of Professional Associations on Federal Statistics (COPAFS) which provides for more effective participation of professional

associations and their members in the development and improvement of Federal statistical programs. It is also a founder and supporter of the Consortium of Social Science Associations (COSSA) – an advocacy organization which acts as a bridge between social and behavioral science researchers and Washington policymakers to promote attention to Federal funding for social and behavioral research.

ASA is one of eight associations that sponsor the American High School Mathematics Examination (AHSME), and other examinations that use the AHSME score as a qualifier. Members from each of the sponsoring associations develop questions to appear on the national examinations. The national three-stage competition involves more than 400,000 students. After the AHSME, qualifying students take other, increasingly more difficult exams, culminating in the Olympiad of which ASA is one of eight cosponsors. Eight outstanding high school students are honored annually during festivities in Washington, in which ASA participates.

5. Statistical Meetings

The best known statistical gathering is the annual Joint Statistical Meetings, sponsored by ASA, the Eastern and Western North American Regions of the Biometric Society, often the Institute of Mathematical Statistics, and sometimes the Statistical Society of Canada (SSC). The meeting is often attended by more than 3,000 statisticians with 1300–1500 papers presented. The program is planned by the organizing associations; the ASA Sections play a major role. Many members dislike this meeting because it is large, and because it is so busy. Many members, sometimes the same ones, would not miss it because it is the best chance to talk to people with the same interests, hear new research on topics of interest, and carry out work of interest to ASA's Committees, Sections, and Chapters. ASA actively recruits paper sessions from other disciplines, so there is a good opportunity to keep abreast of the latest statistical applications. Though some members complain about the size and busy atmosphere of the Annual Meeting, the meeting continues to attract increasing numbers of members and increased competition for sessions.

However, ASA is aware that smaller meetings have their own attractions. The Winter Conference, held early in January, attracts 350–600 members. The topic is more focused and so it does not have the general appeal of the annual meeting. There are very few Committee or Section meetings, so the general ambience of the meeting is more relaxed.

ASA also works with Sections and Committees on more specialized meetings. The Section on Survey Research Methods, for example, has had a very active role in organizing conferences in 1986, 1987 and 1990, each of which has been very successful and each of which has resulted in a book. The three books are *Panel Surveys*, *Telephone Survey Methodology*, and *Measurement Error in Surveys*. Another such conference is planned for June 1993 on establishment surveys.

The Conference on Radiation and Health also has a long history. The first conference was in 1981 in Berkeley Springs, West Virginia. Several other conferences were held in that location and two have been held in Copper Mountain, Colorado. The 1990 conference features "Ionizing Radiation Risks: Present and Future" and the proceedings were published in *Radiation Research*. Another conference in this series was held in June 1992 in Hilton Head, South Carolina. The program features an overview of the latest developments in radiation topics,

including electromagnetic fields, radon, radiation risk assessment, and occupational exposure.

Planning is going forward for some other conferences on environmental topics. ASA also has Sections that cosponsor the Fall Technical Conference, jointly with the American Society for Quality Control (ASQC), and the ENAR Spring Meetings. As the ASA Sections plan more activities, conference activities will burgeon. ASA hopes to add more student fellowships to all of its meetings over the next few years.

These are the major areas in which ASA has plans for growth and change to meet the needs of its members. Since we are currently in a very successful major membership campaign, there may be new needs coming from the new members. Many new opportunities for ASA to be of service to its constituency are on the threshold.

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