

THE STATISTICAL CONSULTANT



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Christina M. Gullion, Editor

IN THIS ISSUE

- Announcement of Travel Awards Competition for 2003
- Comments from the Chair
- Consultant Website: The BASAS Experience
- Activities at JSM 2002
- The Impact of the Internet and Technology on Consulting Practice
- Notes from the Editor

Announcement of Travel Awards Competition for 2003

The Section on Statistical Consulting invites proposals for Topic (Special) Contributed Paper Sessions for the 2003 Joint Statistical Meetings. Proposals submitted will compete for up to three travel awards, each consisting of \$500 and a registration fee waiver for the organizer. Each organizer will be responsible for lining up speakers for the session and coordinating submission of abstracts in the fall of 2002.

A proposal should consist of a short (one-page) description of the session, including a description of the session theme, the types of papers or discussions to be included, and the intended audience. A list of possible speakers is helpful. The proposal submission deadline is September 1, 2002.

Send your proposal to: **David Daniel**

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Comments from the Chair

Barbara Mann, Wright State University

One of the rather unexpected consequences of becoming Chair of the Statistical Consulting Section is that a small deluge of telephone calls and e-mails has been referred to me from the ASA office in Alexandria. The most frequent request comes from a potential client looking for a consultant: "We have a project that needs a statistical consultant with expertise in underwater basket weaving. Can you refer us to an appropriate consultant for this job?"

Obviously I can't maintain a list of consultants with expertise in various areas. Even if I tried to do this, it would be difficult to do so in a way that would be fair to all members of the Section.

On the other hand, it seems reasonable to me that the ASA office staff would refer such questions to this Section. It also seems reasonable to me that the Section might be able in some way to act as a conduit for these requests. As a service to our members, it would be helpful if we could develop a way of helping connect the right consultant to a client.

One of the ways we can offer this service would be by way of a Web site. I have been pipe-dreaming a little about how such a Web site might operate and have come up with the following very "drafty" list of ideas.

- A potential client would fill out an on-line form outlining their need for a consultant. The form would be in two parts:

- Part 1 would include a brief description of the project, the general location of the work, the time line, special statistical skills needed, and other special expertise needed. *What else should be included?*
- Part 2 would include contact information for the client.

- Each application form would be "vetted" by a volunteer from the Section to make sure that it is appropriate for inclusion on the site. I have in mind only some very simple rules: no student projects, no free jobs, only legitimate requests for statistical consultation.

- After approval, the client would pay a fee, preferably fairly small, maybe pro-rated depending on the type of project. It will be convenient if this fee payment step could be handled through the ASA office. It would be used to cover the operating costs for the service.

- The client's "ad" would be posted on a Web site and an automatic e-mail sent out to Section members who subscribe (for free) to an e-mail notification list (listserv).

- Anyone would be able to access Part 1 of the ad, but only members of the Statistical Consulting Section would have access to Part 2 of the ad. The service would be free to our members.

- Ads would automatically be deleted after a fixed period, but a client could renew an ad without cost if the need still existed.

- Consultants would be responsible for contacting the client and both client and consultant would be responsible for determining whether or not they are well-matched.

- The Web site would include a disclaimer indicating that we do not guarantee the competence of a given consultant.

The last point raises an interesting issue. Although the ASA membership sentiment about certification has clearly been in the negative, the Section might consider

re-visiting this issue in connection with this client-consultant matching service.

ASA has recently established a new job matching service at www.amstat.org. While there are similarities between this idea and what is being done there, there are also several differences. The biggest differences are cost to the advertiser and the scope of the jobs being advertised. I propose that we restrict our service to potential clients who are looking for a statistician strictly as a consultant and not as an employee. Wording would have to be developed to distinguish between the two situations.

I would like to hear from members who have any thoughts to share with me and with the Executive Committee of the Section, preferably by e-mail or by snail mail (see con-

tact information below). I intend to discuss this idea in the Executive Committee meeting at the JSM this year and also to bring it to the Section Business Meeting. If you would like to participate in shaping this service, I urge you to attend the Business Meeting at JSM.

If the general idea meets with approval and if we think we can work out the details, I am willing to spearhead a strategic initiative proposal to go to the ASA Board next year for implementation of the idea.

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Consultant Website: The BASAS Experience

Christina M. Gullion, Kaiser Permanente Center for Health Research

The Bay Area SAS Users Group (BASAS) maintains a website for SAS users that includes a page with a list of SAS consultants who are offering their services. Each listing is a link either to another website or to a resume.

A SAS programmer or consultant can advertise availability at this site by submitting either an e-mail with properly formatted information, or the URL of an existing website that contains the required information.

To view the website, go to www.basas.com and click on *Consultants*. A disclaimer at the bottom of the page says "These pages are posted by organizations and individuals independent of Bay Area SAS Users Group and Bay Area SAS Users Group is not responsible for its contents."

In February 2002, I interviewed Sy Truong, the BASAS webmaster, about the operation of this website. I wondered whether the BASAS experience might provide our Section with insights or ideas as we discuss the possibility of offering a similar service (see **Comments from the Chair**). What follows is a summary of this interview.

How long has the service been offered?

About five years as a website. The service was initially provided via the BASAS newsletter and a version still continues there. When we started the consultant website, we already had a system for job postings online. We charge a fee for publishing ads in the newsletter, but not for postings at the website.

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Do you keep statistics on number of hits and number of posters? The ISP managing the website provides a counter, which updates every 24 hours. Historically, we have had over 100 to several hundred hits per day.

Why did you decide to offer it as a free service? Were there unanticipated costs? The original concept was to build a searchable, interactive website and then charge for it. This more complex website has never been developed, and the plain text version has stayed free. The fees for the newsletter ads cover the cost of having a website on a server. These are about \$20/month, plus \$30 for domain registration.

When we considered charging a fee, we recognized that there are costs and labor involved in receiving fee income. A volunteer organization has to post all of its income, which would require bookkeeping and reporting. This increased labor seemed to be more trouble than the extra income was worth.

Do members of the BASAS have any special privileges regarding using or posting on the consultant or job pages? BASAS doesn't maintain a membership roster, since it doesn't cost anything to join. The nearest thing to a roster is the mailing list for the newsletter. [*Ed. note: There are about 1040 addresses on the mailing list.*] For a while the BASAS website had a secure area but it was mainly for officers to share files. Managing the security became too much trouble, so we eventually gave up on it.

Are the postings screened? What are the criteria? How many people/how much time does this take? Who does the screening? The listing has to be for SAS programming

or SAS-related work and it has to follow the format and be complete. I [Sy] do all of the screening. The criteria have evolved over time. Originally, only posters in the Bay Area were allowed, but now we accept listings from all geographic areas. It takes about an hour a week to keep up with new postings.

How long can a poster leave something at your site? Can they pay to go beyond that time limit? The standard time is three months. The postings are reviewed about once a week. Actually, postings are removed only when the list gets too long. Then, those that are more than three months old are removed. Sometimes posters request to have their link removed earlier than three months.

If BASAS were to start this service at this point, what would you do differently? We would set up a special e-mail address, instead of using my personal e-mail. We would develop the infrastructure to create an interactive, searchable version before going live. We would use a listserve from the beginning for people who want to receive information such as new postings.

Have there been any liability problems? Any public relations problems? Any disgruntled users or posters sending poison e-mail? No problems. There was potential for a problem because I send an e-mail addressed to all new posters confirming that their information is online. Cross-talk sometimes develops among posters, but so far there haven't been any problems with that.

Do you have any advice for another voluntary organization about getting something like this set up? It's a challenge to keep a service like this going with voluntary support.

Activities at JSM 2002

Program Chair: Brenda Gaydos, Eli Lilly and Company

The theme for the 2002 Joint Statistical Meetings (JSM) in New York is *Statistics in an Era of Technological Change*. The full JSM program is on the web at

<http://www.amstat.org/meetings/jsm/2002/onlineprogram/index.cfm>.

Our section is sponsoring two invited sessions, three special topic contributed sessions, and three luncheon roundtables. In addition, through co-sponsorship, we have flagged five invited sessions and three topic contributed sessions to be of potential interest to our members. The topics covered span consulting issues across academia, industry, and government.

Session details and abstracts are listed below. This year, for the convenience of our members, each of the luncheon roundtables will be offered on a different day.

We congratulate our three travel award winners (who receive \$500 plus registration fee waiver) and thank them for their leadership in organizing the special topic contributed sessions: Susan Devlin for the panel session, "The Nuts and Bolts of Building a Consulting Business", John Zhang for the paper session, "Statistics Consulting in an Academic Institution", and Loveday Conquest for the technical paper session, "Model-assisted and Design-based Sampling Approaches in Sampling of Natural Resources".

Business Meeting and Member Reception

The Statistical Consulting Section will hold its Business Meeting and Member Reception on Tuesday evening, August 13, from 5:30 p.m. to 7:00 p.m. This session was omitted from the May *Amstat News*, but is included in the online program.

As in previous JSM Section meetings, the activities will include small-group brainstorming about Section projects and about future plans, which has been very enjoyable and stimulating in the past.

Light refreshments will be furnished at the

meeting, and door prizes donated by various exhibitors will be given. This year the Section mixer is supported in part by Smith-Hanley, for which we are very grateful. This will allow us to provide goodies a cut above the popcorn and ice water that the Section alone could afford at NYC prices!

Please join us to find out about how the Section is serving the needs of consulting statisticians, and use this opportunity to help shape the future of the Section.

We look forward to seeing you there!

JSM 2002 Schedule:

Sessions Organized by the Section on Statistical Consulting

Session 32: "Statistics Consulting in an Academic Institution"

Time: Sunday, August 11, 4:00 p.m. – 5:50 p.m.

Session Type: Topic Contributed Session

Organizer: John Zhang, Indiana University of Pennsylvania

Chair: John Zhang

Cosponsors: ENAR, Section on Statistical Education, Section on Quality & Productivity

Many academic institutions have statistical consulting groups that support the research efforts of their faculty, staff and students. This session is intended to be a forum for statistical consultants from academic institutions to share their experiences so as to improve their consulting operation and to advance their academic careers.

4:05 Running a Successful Applied Research Lab – Charles Bertness

4:25 Distance Consulting in a University Statistical Consulting Lab: Two Case Studies – Holmes Finch

4:45 The Penn State Statistical Consulting Center – Andrea Piccinin

5:05 Statistical Consulting in a University Environment: A Graduate Student Perspective – Dan Pontzer

5:25 Enhancing Consulting With a Web Site: Making Resources Available to Clients – Christopher Williams

5:45 Floor Discussion

Session 60: "The Impact of Technological Changes on Statistical Consulting"

Time: Monday, August 12, 8:30 a.m. – 10:20 a.m.

Session Type: Invited Session/Theme Session

Organizers: Brenda Gaydos, Eli Lilly and Company; Roger Hoerl, General Electric Company

Chair: Roger Hoerl

Cosponsors: Council of Chapters, Section on Statistical Education, Section on Quality & Productivity

Experienced statisticians from industry and academia will discuss the impact of technological changes on statistical consulting. The range of topics will include case studies of the impact of Internet statistical tools and real-time data acquisition on the role of today's professional statistician, and recommendations to prepare for a successful career in today's environment.

8:35 What We Wish We Had Known on Our First Jobs – Gerald Hahn

9:00 The Impact of Web-Based Statistical Tools on Statistical Consulting – Fred Hulting

9:25 Education of Future Statistical Consultants – Douglas Montgomery

9:50 A New Paradigm for Clinical Trials Afforded by Emerging Technologies – Stephen Ruberg

10:15 Floor Discussion

Session 103: "The Nuts and Bolts of Building a Consulting Business"

Time: Monday, August 12, 10:30 a.m. – 12:20 p.m.

Session Type: Topic Contributed Panel

Organizer: Susan Devlin, The Artemis Group, LLC

Chair: Susan Devlin

Panelists: Rebecca Klemm, Klemm Analysis; John Hughes, The Artemis Group; Robert Condon, RJC Associates, Inc.; Lynn Bacon, Knowledge Networks

Often a business fails to prosper not for lack of the right consulting services, but due to lack of planning and not anticipating management necessities. The panelists, all of whom have built small consulting firms, will share their experiences and offer advice on critical issues such as business planning, marketing, proposal/contract development, and other critical management decisions from insurance requirements to financial management.

Session 122: "Consulting Experiences and Issues with Data Mining"

Time: Monday, August 12, 12:30 p.m. – 1:50 p.m.

Session Type: Roundtable Luncheon/Fee Event

Organizer: David Daniel, New Mexico State University

Host: Richard De Veaux, Williams College

Session 222: "Successful Consulting Projects for Graduate Students"

Time: Tuesday, August 13, 12:30 p.m. – 1:50 p.m.

Session Type: Roundtable Luncheon/Fee Event

Organizer: David Daniel, New Mexico State University

Host: David Daniel

Session 295: "Experiences of Statistical Expert Witnesses in the Legal System"

Time: Wednesday, August 14, 10:30 a.m. – 12:20 p.m.

Session Type: Invited Session

Organizer: Stephen Eckert, Pfizer Inc.

Chair: Stephen Gulyas, Pfizer Inc.

Cosponsors: Council of Chapters, Section of Statistical Education

Statisticians who have testified as expert witnesses, either as private consultants or for their employers, will describe their experiences. Collectively, the speakers have testified in over one hundred cases covering a broad range of topics such as employment discrimination, paternity, rape, murder, robbery, commercial disputes, census adjustment, sampling, scientific misconduct, and pharmaceutical study results.

10:35 Testifying in Criminal Cases Involving DNA Evidence – Seymour Geisser

11:00 Statistics and the Law – David Freedman

11:25 A Statistical Perspective on the Judicial Decisions in the Florida 2000 Presidential Election – Michael Finkelstein

11:50 How Testifying in a Legal Case Changed My Work Habits as a Biostatistician – Stephen Eckert

12:15 Floor Discussion

Session 326: “Hiring and Marketing Issues for the Small Consulting Business”

Time: Wednesday, August 14, 12:30 p.m. – 1:50 p.m.

Session Type: Roundtable Luncheon/Fee Event

Organizer: David Daniel, New Mexico State University

Host: John Hughes, The Artemis Group

Session 342: “Model-assisted and Design-based Sampling Approaches in Sampling of Natural Resources”

Time: Wednesday, August 14, 2:00 p.m. – 3:50 p.m.

Session Type: Topic Contributed Session

Organizers: Loveday Conquest, National Research Center for Statistics and the Environment, The University of Washington

Chair: Loveday Conquest

Cosponsors: Section on Statistics & the Environment, Section on Survey Research Methods

An important issue for sampling of natural resources is that of optimizing designs for population and process inference. Model-based designs can be optimized for process estimation. Designs that are not model-based can be optimized for design-based objectives. These designs may be “in conflict” in the sense that it is unlikely that a single design will result in optimality for both strategies. However, model-assisted sampling techniques may provide a framework to build designs optimal to both objectives. The four talks will discuss various aspects and applications of design-based and model-assisted approaches for monitoring the natural environment.

2:05 Estimating Trends in Oregon Coastal Coho Salmon Populations Using a Multi-Panel Sampling Design – Don Stevens, Jr.

2:25 Semiparametric Estimation in Complex Surveys – Jean Opsomer

2:45 A Survey Design Framework for a U.S. National Streams and Rivers Monitoring Program – Anthony Olsen

3:05 Model-aided Sampling Designs for Spring Chinook Salmon in the Middle Fork Salmon River – Jean-Yves Courbois

3:25 Discussant – Gretchen Moisen, USDA Forest Service

3:45 Floor Discussion

The Impact of the Internet and Technology on Consulting Practice

John H Schuenemeyer, Southwest Statistical Consulting, LLC

Author's note: At the 2001 Joint Statistical Meetings (JSM), I organized and chaired a session with the above title. The panelists were Janice Derr, U.S. FDA, Roger Hoerl, General Electric, and Ronald Snee, Tunnell Consulting. The following paper presents some of the ideas and issues raised by the panelists and some subsequent thoughts.

Many statisticians recognize that technology is transforming the way that we learn and work. To understand how, several questions were addressed by the panelists at a JSM panel on the impact of the Internet and technology on consulting practice. These included:

- How will technology affect statistical consulting? What are its advantages and disadvantages?
- Can technology reduce or eliminate the need for face-to-face contact?
- Can we automate the questions that statistical consultants ask?
- Can we use human and material resources more effectively?
- What is the impact of technology on training statistical consultants?

Let us look first at what technology will not do. It will not free us from the responsibility of establishing a good working relationship with the client, communicating effectively, doing quality statistical work in a timely manner, and all of the other components of good statistical consulting practice.

Now let us examine some of the new technologies currently available and under development.

Education in math and statistics

Many schools have PCs available to students K-12 and are linked to the Internet. However, there are wide discrepancies in facilities between less and more affluent school districts. Also, many secondary school teachers are ill equipped to teach the latest technology and effectively integrate it into the curriculum. Fortunately, some high school students do have access to Advanced Placement (AP) statistics courses and the accompanying technology.

Colleges and universities are further along, with PCs and high-speed network connections in labs, classrooms, and dorms. Many have site licenses for advanced statistical, geographic information system (GIS), and other software. Some are networked to allow students and faculty access to super computers and voluminous data libraries.

Students across many disciplines now take at least an introductory statistics course. These vary widely in quality and in integration of new technologies, so there is plenty of room for continuing development of this area.

Training statisticians in the use of new technologies needs to extend through graduate school and into the work environment. An increasingly practical means for this to occur is distance learning. Distance learning can be an important training tool in business, academic, or government institutions. This is also providing opportunities for students in isolated communities, those who are homebound, and those who work irregular hours.

Access to Information

The Internet has become a primary research tool; however, conducting research on the Internet is different from that which occurs in

libraries using traditional materials. Information (and some misinformation) is available on every imaginable topic. Even seemingly obscure topics can yield millions of hits.

Information Exchange

One of the most important and widely used computer tools is e-mail, which allows us to communicate more effectively with individuals in our own organizations and with colleagues around the world.

E-mail frees us from the need to wait for scheduled meetings to communicate and allows us to send graphs, tables and other forms of data and analysis. It also provides us with a written record of our "conversations". Clearly, e-mail has aided the isolated statistician.

E-mail can be misused, of course. The sort of person who speaks in a meeting before putting "the brain into gear" will no doubt treat e-mail similarly but with potentially more serious consequences.

Internet chat rooms also are vehicles for communication, as they provide a medium for exchanging ideas on consulting problems and practices.

Videophones and video conferencing are among the newest technologies. These are increasingly used, though access is still limited by cost and availability of facilities. A technology currently under development is virtual reality. With it, people in different parts of the world can have the feeling of being in the same location.

Statistical Computing

High-speed PCs and advanced statistical software have changed the nature of computing and statistical practice. Any computer user with access to the appropriate software can now do computations and analyses done by statisticians two decades ago. Clearly a "goof-proof" statistical analysis package has not become available; however, many packages now

have augmented help systems and other tools to assist users.

Availability of such software potentially frees statistical consultants to step back and consider a broader array of problems. They can and do work with colleagues from other disciplines to help focus on the critical aspects of a problem, recommend appropriate tools, and engage in product improvement.

Even in the more narrowly defined components of a statistical consultant's job, such as analyzing a designed experiment, new tools permit implementation of computer intensive methods and interactive graphics, which allow a broader investigation of solutions to a problem.

Issues and Questions

There are myriad benefits but also some areas of concern associated with new technologies, including the Internet. The following is a somewhat arbitrary overview of some of these.

To what extent can e-mail and other forms of communication technology be used to replace face-to-face contact? This question is even more germane after 9/11 and the increased reluctance to rely on air travel. Time, cost, hassle, and safety of traveling to a meeting location are obvious concerns.

Whereas e-mail or chat rooms are increasingly widespread, most consultants continue to feel the need for personal contact. It helps us establish rapport. We may learn relevant facts that would not be communicated via written material or telephone. We may gain greater insights into the needs and wants of clients. Personal interaction may help establish us as full-fledged members of the team. Also, access and transmission speed are still uneven and limited in some client groups.

Personal contact will remain an important component of the consulting process; however, proper use of e-mail, the Internet, and other technologies can minimize it and make the time team members spend together more ef-

fective.

What can we learn about technology use from other professions? Consider the medical profession. Although there are not sufficient specialists to staff every hospital and clinic, technology is bringing the benefits of experts to remote locations. Transmission of data to and from under-served areas allows input from specialists into medical care far from major medical centers. For example, teleradiology (a line-by-line x-ray scanning technique) allows doctors to view radiographs as a guide to diagnoses and teaching.

In statistics, as in medicine, the demand for specialists far exceeds the supply. Many full-time consulting statisticians are generalists, and technology provides easy access to these specialists. Also technology can allow us to bring statistical expertise to remote areas and third world countries at a sufficiently high level, even when face-to-face contact is not possible.

Consulting via electronic means from and to remote places carries with it opportunities to provide needed services at lower cost. There is a risk, however, that serious problems of quality assurance can arise. Do we understand the process well enough to effectively serve clients via remote connections?

How do clients evaluate consultants? To-

day service providers and customers communicate worldwide via telephone, e-mail, and the Internet. Recipients are sometimes unaware of the service provider's location. The ability of customers of statistics in an international venue to know, in advance, the qualifications of consulting statisticians is problematic. A way to evaluate statistician qualifications and means to provide feedback on consulting experiences are needed.

How do the new technologies affect communication of results? Instantaneous communication has advantages but is also fraught with hazards. For example, it is now quite easy to communicate preliminary results to the world, which may reduce the effectiveness of peer review. Do we dazzle or inform?

Summary

Technology permits rapid computation and communications. Lower costs have added a large measure of democracy and universality to the process.

The challenge for statisticians is to gain a greater understanding of the process of consulting under this new paradigm and use it to teach and function more effectively. These tools offer us the opportunity to be part of solving more exciting, challenging, and important problems.

Notes from the Editor

If you would like to submit an article or announcement for the next newsletter, please send it to me at the email address below. The deadline for the next issue is October 1.

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Section on Statistical Consulting Mission and Membership

The Statistical Consultant is a member benefit for the ASA Section on Statistical Consulting. The special interests of the Section on Statistical Consulting are statistical consulting and the training of statistical consultants. The section is broadly interested in fostering the increased and improved use of statistics through effective client/consultant interchanges.

In addition to *The Statistical Consultant*, members can compete for one of up to three \$500 travel awards given annually for the best Topic Contributed Session proposed for JSM,

as well as participate in section business and officer elections. Also, there's FREE FOOD and door prizes at the JSM Member Reception.

If you would like to join this Section, use the ASA Fax on Demand service to obtain an enrollment form. In the US, call 1-888-267-8285, from outside the US, call 703-531-0879. Request Form 1104 to join the Section. If you are not an ASA member, you need to join ASA in order to qualify for Section membership. To join ASA, request Form 1100.

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