

## Discussion

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### 1. Introduction

Dr. Lohr has provided us with important food for thought. I would like to support much of what she has offered, and add a few thoughts. My comments occasionally, as Jack Welch, C.E.O. of G.E., suggested, “steal shamelessly” from her remarks (Glennan et al. 2007). She speaks from the vantage of the academic who teaches the next generation of survey statisticians. I speak from the perspective of someone who hires recent graduates and helps them grow professionally throughout their careers.

### 2. Morris Hansen

First, I offer a few words about Morris Hansen. I suspect that there are others in the auditorium who feel, as I do, well cared for and fed intellectually by Morris and all that he contributed to our profession throughout his distinguished career. I had the opportunity of meeting and working with him during his “retirement years”, after leaving his decades-long career at the Census.

Our host, Dr. Rick Valliant, spoke about a quote Morris kept on his wall at Westat. “The Perfect is the Enemy of the Good”, a not entirely perfect translation I am told of Voltaire’s original statement, “Le mieux est l’ennemi du bien”, from *Dictionnaire Philosophique* (1764). Is there anyone in attendance who knew Morris at the Census and could tell us if he had that quote on his wall there, as well?

I believe Voltaire’s dictum, which Morris kept ever present, is valuable to statisticians of all ages, not just the recent graduates Dr. Lohr spoke to us about. The quote does not suggest we accept low standards. It does remind us that all things can be improved, even the best report or research paper; yet, there comes a time when we should stop and move on. The challenge is in knowing when. Morris was superb at meeting that challenge, at balancing the tension between the quest for excellence and the “real” world of politics, budgets, and deadlines.

My remarks address the following topics: mentoring; current best methods; standardized software; continued learning; and, communications. Each of these can play a role in the growth of young survey statisticians, leaving university training and entering their career. The challenge is to get the work done while providing opportunities for young staff to grow and learn.

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All of these topics represent organizational investments that may take time to come to fruition, without certainty of a return. How can a manager know that providing learning opportunities, standardized software or documented best practices, which are likely to help young staff in their professional growth, will produce a guaranteed return? W. Edwards Deming, a long-term colleague and good friend of Morris, wrote that some of the most important figures one needs for management are “unknown or unknowable” when advising senior management on how to be competitive (Deming 1986). Morris, who was cited by Deming as an exemplary leader (Deming 1993), knew this.

### **3. Mentoring – Support for Staff Professional Development**

How can we best mentor young survey statisticians? Having been mentored by Morris Hansen, Joe Waksberg, and Westat’s founder, Edward Bryant, it is natural for me to think in terms of the same kind of guidance being offered to younger staff joining Westat. Yet I do believe what they offered to so many has universal value to all survey statisticians beginning their career, regardless of their workplace, be it government, industry, or academia.

Important elements of mentoring include: genuine interest in the staff member’s professional development; consideration of the staff member’s assignments; relevance to their goals and their satisfaction with the assignment; and, identification of peers with whom the staff member can do research and produce useful publications. We will look at each of these in turn.

In a contract research environment, virtually every project has a list of deliverables, a budget, and a deadline. A potential for conflict exists between meeting these objectives and investing time and energy in the professional development of staff. A long-distance view is needed to see the benefits of investing in guidance for career development, an investment of time, resources, and personal interest.

We can benefit not only our own organizations and young staff members, but the profession as well, by encouraging new graduates to become involved in the ASA, AAPOR, and similar societies. Those with research skills and interests can be guided toward tractable problems and supported as they seek to find, document, and report on results. Those with organization skills can be encouraged to join and support local chapters and their functions.

If research is the staff member’s penchant, a mentor can help select a problem that is both tractable and useful, and assist in outlining a research approach. They can continue providing “care and feeding” by reviewing presentations and providing feedback to a dry-run of the presentation. A mentor can help shape and organize the staff member’s thoughts prior to the drafting of a technical paper summarizing the work.

### **4. Mentoring – Choice of Assignments**

Thoughtful choices in assignments can guide a young professional’s career. While project demands and technical requirements may put a premium on staff availability and relevant experience, it’s important to balance this limitation with staff interest and career objectives. It may prove worthwhile to shift assignments, if feasible, to free up time for someone who has expressed interest in a newly opened opportunity. I recall a young staff

member who had requested the opportunity to work on a Random Digit Dial survey. Although not immediately available, when the next RDD survey began, a rearrangement of responsibilities with another statistician made it possible to meet the request.

## 5. Best Methods Teams and Standardized Software

Periodically, we form teams that include young staff and experienced hands to document current thinking on best practices. The topics for such teams to document have included the basic work of a survey sampling department: sampling, nonresponse adjustment, development of weights, imputation, and variance estimation. They have also included rapidly changing issues such as the inclusion of cell phone samples in random digit dialing surveys and the use of Postal Delivery Service Files as the frame in an address based household sample. Confidentiality issues and how to document our work have also been addressed by such teams.

Participating in these teams is one way a new statistician can learn from more experienced colleagues. They can help in the all important documentation of practices, documentation that can be shared with others lacking a familiarity with the topic. They often bring up the all-valuable “why do we do it that way?” question that more experienced staff may overlook because of their familiarity with a preferred approach. If the teams’ documentation can be easily written and understood by the less experienced members, its value is enhanced.

The availability of standardized software that performs basic survey functions allows less senior staff to spend more time on learning and applying statistical methods. They function as survey statisticians and not programmers. In some work environments, the newer statistical staff may spend a considerable amount of their time writing and even re-writing software that performs core functions needed routinely. We have chosen to develop and maintain standardized software for sampling, imputing, weighting, variance estimation, and other routine functions. While some of the newer staff may help in expanding these routines and testing that they work properly, they spend little time in coding and checking. We hope this makes their work more interesting and challenging and is another small but important element in their “care and feeding.”

## 6. Continued Learning

The intellectual feeding of any professional requires continued learning. This may come from any number of sources: advanced degree programs, full semester classes, short courses, self-study, and on the job seminars and discussions. Part of mentoring new staff involves not only encouraging them to continue learning but supporting, and even providing these opportunities, as well. Support can come in the form of offering time or financial aid. It can also mean organizing in-house courses and technical paper discussions.

I’ll note that Graham Kalton, in the audience, came to today’s Hansen Lecture direct from the first day of a short course he started teaching at Westat on survey sampling. His sessions on theory will be followed by ten sessions presented by other senior statisticians on the practice of sample design as applied to a number of challenging survey designs we have carried out.

When thinking of full semester courses or additional degree programs, continued education specifically for survey statisticians, we can find guidance in advice offered by Kalton (2002). He proposed criteria for a master's program for survey statistics:

- strong foundation in statistical theory and methods
- specialized training in the theory and practice of survey sampling
- broad knowledge of the whole survey process
- development of good computing skills, and
- training in oral and written communications.

I turn now to Kalton's fifth topic, an area where University programs could play a greatly expanded role.

## 7. Communications

Efforts to improve graduate students' communications skills offer the greatest opportunity, yet may present the most difficult challenge. Although some graduate statistics programs have begun to offer students increased exposure to writing and speaking, more can and should be done. Most of our 65 statistical staff spend a significant amount of time writing proposals, reports, specifications, memos, and technical papers. As Donsig Jang noted earlier, an increasing percentage of graduating statisticians in the U.S. have English as their second language. If graduate programs are to prepare their students for the work they will face, then they need to allocate more time to practice writing and giving talks.

I have offered a number of ways we can help keep young graduates well cared for and fed. Most importantly, we do this by mentoring them as many of us were mentored by the previous generation, Morris Hansen's generation. We can offer them challenging assignments that they find interesting and that are aligned with and support their professional growth. They can learn from documented best methods and not have to re-invent the wheel. We have to decide how much of their time is to be spent on being their own programmers or on learning statistical theory and doing practical research. We can support them and challenge them in many ways to continue learning. We can partner with graduate programs to give them opportunities to improve their communication skills.

## 8. My Extraordinary Teachers

I close by joining Sharon in acknowledging some of my statistical mentors and teachers.

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Leslie Kish	Sampling Section, ISR, University of Michigan
Graham Kalton	Summer Institute, ISR, University of Michigan
Edward Bryant	Founder of Westat, Inc.
Morris Hansen	Westat
Joe Waksberg	Westat

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Those who are familiar with Leslie's famous text on Survey Sampling, used world-wide, will appreciate why I refer to him as the James Joyce of the survey world for his "stream of consciousness" style of instruction. Both he and Morris appreciated a reply

I once gave Morris when I was foolish enough to ask him where I could find a reference for a particular sampling approach he had suggested. “In the Bible” he shot at me, as if it had not occurred to me to check his two volume text. “Which, the Old or the New Testament?” I responded, meaning HH&M or Kish, and drawing that famous Hansen smile known to so many. Graham taught me my very first sampling class, though we have a joint pact not to say just how long ago that occurred. Joe Waksberg tried his best to help me improve my writing. I am sure I am just one of the many who recall his marvelous style when providing feedback. “Very well written”, he would always begin, “but there is something I am a bit confused about.” Such a gentle way to begin his long list of improvements that seemed so obvious as he offered them. Lastly, and perhaps most importantly, I acknowledge Edward Bryant with whom I travelled thousands of miles. He taught me a lot more than survey statistics. He showed us all how to face some of life’s greatest challenges with grace, a sense of humor and dignity and never a hint of any burden. From all of these mentors, I received much.

## 9. References

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