

## **Mentoring and Development of Government Statisticians: Experiences as a Senior Government Official and Parent**

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### **Abstract**

Employees of official statistics offices enter the workforce with diverse academic backgrounds, varied knowledge of statistics and surveys, and lack of familiarity with government operations. In order to be effective in their jobs they need to hone their skills to include oral and written communication, initiative and leadership, customer service, analytical thinking, and readiness to adopt and manage change – in addition to the technical competencies they brought to the workplace. This paper discusses the training, mentoring, and career development opportunities that three official statistics agencies – the U.S. National Agricultural Statistics Service, the U.S. Census Bureau, and the U.K. Office for National Statistics – have engaged in to develop these skills in their staff. Information on both formal and informal programs will be discussed, along with an evaluation of the programs. Application of these concepts will be made to parenting high school, college-age, and adult children.

Key words: career development, government statistics, workplace training

### **1. Introduction.**

Employees of government statistical offices come from varied academic backgrounds and work experiences. The more common academic backgrounds include statistics, mathematics, economics, operations research, computer science, sociology, psychology, demography, survey research, and business management, although other disciplines are represented. Specifically, those disciplines will be representative of the subject matter area in which an agency or component of an agency focuses its programs: e.g., health, agriculture, education, crime, transportation, energy, commerce, environment, labor. All government employees need to have a basic understanding of their agency's statistics and survey business and know how government operates. To be successful in their careers, employees will continually need to develop their skills. These skills include technical competencies relevant to their current and future jobs, oral and written communication, initiative and leadership, customer service, analytical thinking, and managing change.

This paper discusses orientation, training, career development, and mentoring programs and models that three government agencies – the U.S. National Agricultural Statistics Service, the U.S. Census Bureau, and the U.K. Office for National Statistics – have used successfully to help employees develop these skills. The primary focus of the paper will be on individuals who work in professional positions in government agencies irrespective of the academic background and experience that they bring to the job. However, there are some specific programs that are directed to individuals whose academic background is in statistics, mathematics, or survey research – referred to in the United States as mathematical statisticians or survey statisticians or in other countries as survey or statistical methodologists; they will be referred to as *methodologists* in this paper. The paper will specifically note the population of interest.

### **2. Orientation.**

***On-boarding.*** The U.S. Department of Agriculture, the parent agency of the National Agricultural Statistics Service (NASS) has recently implemented an on-boarding process

for all new employees. This formalizes good practice for the introduction of a new employee to a government job including a supervisor welcome and orientation to the work of the office, discussion of employee benefits, familiarization with the worksite, providing information on the specific activities occurring in the next sixty days, and introducing the new employee to a co-worker who will serve as an introductory mentor.

***Orientation to Government Agency.*** Most government organizations have a program of orienting new employees to the work of the agency. NASS holds a one week training session for field and headquarters employees between the twelfth and eighteenth month of employment. The employees receive an overview of all aspects of NASS survey and estimation procedures, data processing systems, and research activities – and are introduced to all the functions of the agency. Prior to this formal orientation, recently hired field and headquarters employees are introduced to the work of their particular office. The Census Bureau holds a series of seminars periodically with participation from organization leaders to introduce new employees to the scope of work of the agency.

***Orientation to Surveys.*** For many years the Census Bureau had a Professional Skills Development Program (PSPD) for all professional employees of the agency. This six-week program was structured around a new survey. Each employee worked on some aspect of the survey – frame development, sample and questionnaire design, estimation, review, publication—but not necessarily in the area of their expertise. The individuals learned about the survey business model and also benefitted from learning about other bureau programs from participants. The program was copied by Statistics Canada and later by the Australian Bureau of Statistics, but is no longer offered by the Census Bureau.

### **3. Training.**

***In-house programs.*** Many statistical agencies use in-house programs to introduce individuals to the specifics of the manner in which surveys are conducted in their organization. In general they cover all the components of a survey process, much as is done in the PSPD, but are specific to the subject matter and information technology infrastructure of the organization. At NASS, individuals receive generic survey training and field employees receive training specific to major surveys in order to train interviewers and oversee data collection and review processes. After an employee has been as NASS for four years, the employee participates in a week of team work training.

The Census Bureau's signature in-house program, Econ U, opened its doors in 1998. The curriculum is directed to the Economic Directorate's survey statisticians and program analysts with seven core courses and several optional courses equipping participants with basic knowledge skills for more effective job performance today, so also with an understanding of directorate-wide solutions for the needs of tomorrow. The core courses address issues of expertise pertaining to accounting, economic statistics, and processing. Elective courses enhance abilities within such fields as writing and public speaking. The wide range of instruction within Econ U cultivates a corporate culture of professionalism, problem-solving, and organizational citizenship among the Econ U graduates.

Econ U interfaces with another innovative program: the Economic Professional Development Program (EPDP). While Econ U emphasizes the organizational mission and the tools to implement it, EPDP focuses on the competencies specific to a job series and the Individual Development Plans (IDPs) to enhance those competencies. Together, Econ U and EPDP provide today's Economic Directorate employees with opportunities to advance their skills within the context of advancing the organizational mission. Over the last 15 years, Econ U has offered roughly 4000 training with 400 individuals graduating from the core curriculum, many moving on to management positions.

**Professional Seminars.** All of the specified organizations hold in-house seminars and encourage employees to participate in professional seminars sponsored by the Washington Statistical Society of the American Statistical Association or the Royal Statistics Society, respectively. The in-house seminars at the Census Bureau have long featured an invited speaker, often from outside the bureau. Special one-day sessions have been arranged on specific topics such as administrative records or sampling methodology. The National Agriculture Statistics Service holds monthly all-day seminars with presentations by staff and an occasional presentation by a cooperating academic. These seminars, attended by almost all the *methodologists* have been very successful in raising the caliber of the research done by staff in the division, and subsequently the presentations of that research.

**Academic Training.** Both the U.S. and the U.K. have developed formal academic programs that provide master's and doctoral degrees in survey methodology. The Joint Program in Survey Methodology (JPSM) is hosted by the University of Maryland, but financially supported also by the University of Michigan, Westat (a private organization), and twelve major U.S. statistical agencies. The university competitively selects individuals to participate in the program. Agency employees of the Census Bureau and NASS can attend the program either part-time or full-time, respectively. Courses are offered during the work day and in the evening at the University of Maryland and some government agencies often using video-conferencing. The master's program has a core set of courses – survey design, data collection, applied sampling, total survey error, randomized/nonrandomized design, survey practicum, introduction to federal statistics, and survey design – taken by all the students. The students then go on separate tracks to specialize either in statistical science or social science.

Since its inception in 1993, the program has had 216 graduates: 195 master's and 21 doctoral candidates. Of these, 105 came from government, 48 were government contractors, and 64 came from other sectors. The Census Bureau, in particular, has over 90 master's graduates from the program. These individuals have contributed immeasurably to the survey methodology used at the Census Bureau, whether they worked as methodologist, researcher, or manager. The JPSM also offers master's level certificate programs that allow individuals to augment their background with courses on survey methodology, survey statistics, or economic statistics. A program of short courses has been developed – taught by experts working in the field of survey methodology – accompanied by a citation providing formal structure for learning and accomplishment. The JPSM has offered 52 certificate or citations.

The University of Southampton offers a master's of science (MSc) degree in official statistics. The program was developed with the support of the U.K. Office for National Statistics (ONS). Individuals, including employees of ONS and other U.K. statistical offices, are competitively selected for the program. Most government employees complete the 12 required modules and a dissertation in four years; full time students generally complete the program in two years. Courses are offered over a two week period, either in Southampton at the university or at the ONS sites in Newport (Wales) or London. Examinations for the courses are taken several weeks later. The master's program has been used by only a few employees, but others have taken individual courses.

#### **4. Career Development.**

**Individual Development Plans.** Many government agencies utilize Individual Development Plans (IDPs) to assist individual employees in guiding their career progress. Both NASS and the Census Bureau use IDPs to direct employees' progress in developing skills necessary for success on the job. These include gaining competence in oral and written communication, initiative and leadership, customer service, analytical thinking,

adapting to and managing change, knowledge of fundamentals of statistical surveys, and substantive knowledge of the survey application area (e.g. economics, demography, agriculture, health.) NASS utilizes more generic plans for employees during the first years of their career, adding specific activities to match an employee's development needs. EPDP uses the IDPs to focus on the competencies specific to a job series.

***Mathematical Statistician Intern Program at the Census Bureau.*** In the 1990s the Census Bureau initiated a competitive program for its mathematical statisticians (individuals with a bachelor's or master's degree in mathematics or statistics). Four individuals were selected each year for several years into a three year program that involved one-year assignments in the methodology areas of the economic, demographic, or census programs, or in the research division. Once selected they were matched with one of the relevant division directors as a mentor, given a "plum assignment" that would lead within the year to a paper that could be presented at the annual meeting of the American Statistical Association, provided with any training that they identified with their mentor, and given the opportunity to meet as a group quarterly with all the senior methodology leadership at the Census Bureau. On occasion they were asked to complete a group assignment. At the conclusion of the three year opportunity each intern was promoted to a grade 13 position and placed in the division of their choice. The program was in existence for 5 years and then discontinued at the recommendation of the mentors.

The interns felt that they were being singled out from their peers in a way that made it difficult for them to establish relationships with their colleagues in the units in which they worked. This identification had, in fact, been to the detriment of the Census Bureau leadership development as these individuals were highly sought out for positions and promotions at other government agencies or in the survey industry. The interns also felt that the "privileges" they were being given should be made available to all the *methodologists* at the Census Bureau. On the basis of their recommendation, the directors of the methodology and research divisions reassessed their training policy and made training more available to all *methodologists*. They worked to identify more opportunities for individuals in their divisions to work on projects that would lead to papers for presentation at statistical meetings. They identified opportunities for *methodologists* to take lateral positions in other divisions of the Census Bureau. They also developed a mentoring program that was accessible to all professional and support staff who worked in the methodology and research divisions (discussed in Section 5).

***Stretch Assignments.*** One of the ways in which NASS, the Census Bureau, and the Office for National Statistics (ONS) have provided the opportunity to develop leadership skills has been through stretch assignments. These are usually shorter term opportunities to lead a team, step into a position that is temporarily vacant, or work in the agency director's office. These opportunities allow an employee to be exposed to issues that are not normally present in their permanent job and to see the organization from a different viewpoint. Examples of such assignments include: leading a strategic planning team, managing a technology efficiency project, or participating in such a project.

In the U.K., ONS has a well established tradition of supporting employees on long term details to other organizations, generally referred to as a career break. Employees may be gone for 2 to 3 years to such organizations as the Australian Bureau of Statistics. During this time an employee's job is retained at ONS although the employee might return to a different assignment. The ONS also accepts and recruits individuals from other statistical offices to gain skills that it may not currently have. These arrangements have been beneficial to both the employees and to the organizations who send and receive them.

***Executive potential program.*** Many U.S. government agencies participate in programs that provide both leadership training and development opportunities through details to other U.S. government agencies – either within the particular department or in another department. These programs range in time commitment from three months to a year. The employee generally is given a specific assignment and provided with a mentor. Such assignments often are critical in jumpstarting an individual's career.

## **5. Mentoring.**

Formal or informal mentoring of students and colleagues has occurred for several years among members of the statistical profession. This topic has been a focus of discussion among the profession as the profession has sought to find effective ways to develop technical and leadership skills among its members. The Census Bureau established a formal program in 2003 with five goals:

- Lateral movement and career development,
- Promotion potential and training,
- Achieving and maintaining career satisfaction,
- Understanding job expectations,
- Identifying opportunities for career development and advancement.

The ONS developed a similar program but with different stated goals:

- Development of a 3 to 5 year career plan,
- Identification of strengths and areas for further development
- Development of a training and development plan

Both programs solicited individuals to be mentors and protégés, established specific requirements for mentors, allowed a process in which mentors and protégés participated in a matching process, and provided training for both groups. Mentors were required to undertake their role in a confidential manner, be willing and able to spend time with the protégés, have good listening skills, participate in training, have technical experience in statistics and research, be able to encourage and motivate others, have knowledge and be willing to share it, and to give feedback in a constructive, honest, and caring manner.

At the Census Bureau, the formal program occurred over a 6 month period. Mentors and protégés could meet as often as twice a month. At the end of the initial period, individuals were allowed to continue if both mentor and protégé agreed to do so. The program was offered six times – 2003, 2005, 2006, 2007, 2009, 2012. The number of mentors and protégés ranged between fifteen and twenty – out of a group of approximately 400. A formal evaluation of the program was conducted for 2003 and 2005 and is in process for 2012. Results are provided in the appendix table. The employees and Census Bureau methodology leadership were pleased with the results of the program. The formal program at the ONS was similar but the goals were different. The evaluation showed that both mentors and protégés benefitted from the program: gaining thereby advice, ideas, and insights. If the mentor or protégé had specified goals, over 50 % of those were achieved. The confidential matching process followed by a meeting worked well for 79 % or more of the participants. Occasional one hour meetings were generally adequate.

## **6. Application to Parenting.**

As a parent of six children, now all adults, I practiced many of these mentoring skills on my own children. The primary purpose of the mentoring and development programs is, in general, to assist individuals in learning life skills that help them to be independent and to guide their own career. My children learned early on that our family's goals were to help each individual become productive and contribute to their family, community, and society. They learned that obtaining different life skills assisted them in reaching this

goal. They also learned that they could take control of their life by finding activities that their parents would feel were meaningful opportunities in which to spend their time – particularly in the summer when they had more options as to what they might do.

For example, one 12-year-old daughter learned about a summer creative writing workshop at the University of Virginia, applied and received a scholarship to attend. A teen-age son learned that a local private school had a summer arts camp, knew that he had learned skills in photography and film development that he could teach to others. He applied for the position and spent several productive weeks refining his teaching skills. One high-school-age son learned about a two week program at a New York City private school that introduced students to the architecture and art of the city. He participated and lived with a family who had students at the school, learning how people live in a large city. Other high-school-age children sought out programs at local universities that enabled them to enhance their knowledge in science or mathematics. All of these experiences led to confidence building and to a growing understanding respecting what they did well and appreciation of areas in which they might want to strengthen their skills. As a parent, I helped to create an environment where learning was fun and where it was okay to try things that were not within one’s ordinary experience. These experiences have influenced my desire to create similar opportunities in the organizations in which I have worked.

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**Appendix Table.**

Results from Census Bureau Evaluation	Mentors		Protégés	
	2003	2005	2003	2005
Percent answering ‘yes’ to:				
Did you grow professionally?	50 %	78 %	86 %	62 %
Did you gain advice, ideas, or insights?	71 %	78 %	100 %	92 %
Did the training prepare you?	63 %	89 %	80 %	70 %
Do you want to continue?	81 %	78 %	67 %	77 %
Were meeting length & frequency sufficient?	80 %	71 %	90 %	92 %
Did you have specific goals?	63 %	22 %	76 %	85 %
If you had goals, did you achieve them?	70 %	100 %	63 %	73 %
Did matching work well?	79 %	89 %	95 %	92 %
Did orientation content work well?	64 %	100 %	80 %	62 %
Did number of protégés work well?	86 %	89 %		