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The Joint Program in Survey Methodology and Survey Training in the United States

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ABSTRACT

The Joint Program in Survey Methodology, initiated in 1993, has had a major impact on the work force at the federal statistical agencies in the United States and is having a growing impact on the field of survey methodology. This paper discusses the history and structure of the program as well as its impact on the careers of its graduates. The paper also discusses JPSM's collaborative relationships to its other partners. It explores the impact of the contributions from JPSM graduates on the official statistics programs conducted by the federal statistical agencies in the United States.

Keywords: career development in survey research, on-the-job training, official statistics, survey training

INTRODUCTION

The Joint Program in Survey Methodology (JPSM) at the University of Maryland was established in 1993 to support the U.S. federal statistical system by providing advanced training in survey statistics and methodology. The goal was both to provide training to current employees of the system, to employees at the private survey firms who serve the system by carrying out major federal surveys, and to other students who could be recruited to join one of the federal statistical agencies. Because it was clear from the outset that no one organization had the resources needed to accomplish this goal, the founders of JPSM brought together unprecedented collaboration of organizations, disciplines, and researchers. Because the theory and practice of survey methodology has drawn on a broad array of older disciplines with divergent traditions and approaches, survey methodology does not fit easily into any single academic department or program. Moreover, prior to the development of the instructional program at JPSM, no one had designed a comprehensive curriculum for training survey researchers. The blending of specific aspects of the traditional statistical and social science disciplines into a new discipline was the focus in the initial stages of development of the JPSM, and it remains the foundation of the program.

An essential step in the creation the JPSM was the development of partnerships among several organizations. Because JPSM was first and foremost an educational endeavor, the academic objectives and goals of the program were of paramount importance; still, the practice of survey methodology is not purely academic. It also requires knowledge and expertise in the efficient conduct of surveys and understanding of the federal statistical system and its needs. Since no one organization could provide all of these perspectives, the teaming of organizations was deemed critical to the program's success. The original members of the consortium — the University of Maryland, the University of Michigan, and Westat — brought some of the essential ingredients with them and found cooperative partners with federal agencies to fill in the missing pieces.

This paper discusses how collaborations at various levels have contributed to the success of the Joint Program. We begin by reviewing the history of the program and its initial efforts. We discuss the different types of collaboration that have formed and show how they have enhanced survey methodology over the first 15 years of the program. We conclude with some thoughts on efforts that are being made to strengthen the program and provide a more integrated research environment for the future.

HISTORY OF THE PROGRAM

JPSM is the oldest and largest program in the United States that offers graduate training in survey methodology. JPSM offers both master's and doctoral degrees in survey methodology. It began accepting students into the master's program in 1993, following the award of a grant from the National Science Foundation to a consortium consisting of the University of Maryland, the University of Michigan, and Westat. The first students were accepted into the Ph.D. program in 1999.

From the outset, the JPSM has aimed to strengthen the U.S. statistical system and the field of survey research more generally, by offering advanced training in survey methodology to staff of both the federal statistical agencies and the survey firms that serve the statistical agencies. Another goal is to attract new entrants to the field who might ultimately join the federal statistical system or its private contractors. Wallman, Groves, Parsons, Davis, and Lapham (1994) give the background on the founding of the JPSM. This article is also notable because the first author is from the federal government, the second is from JPSM, and the remaining three were students in the first cohort of the program. As one of the first descriptions of the JPSM it provides insight into the collaborative nature that has always been a hallmark of the program.

Currently, the main educational packages of the JPSM are:

- a master's degree program with concentrations in social science and statistical science,
- a Ph.D. degree in survey methodology,
- certificate programs in intermediate survey methodology and survey statistics,
- citation programs in introductory survey methodology and economic measurement,
- an array of short courses,
- and a summer internship program, the JPSM Junior Fellows Program.

We describe each of these briefly below.

Because of the history of JPSM and its overriding goal of strengthening the federal statistical system by training survey practitioners, the master's program is the core of the program. Of the approximately 50 students currently seeking degrees at JPSM, 80 percent are masters' students. The course offerings are designed to support part-time enrollment to accommodate students who are currently employed (typically, at one of the federal statistical agencies). For example, many of the classes start at 3:30 pm or later. The typical of the mix over the life of JPSM is about 75 percent of the masters' students are part time. Most (about 60 percent) of the masters' students are in the social science concentration, and the remaining are in the statistical science track. More than 150 students have graduated with a Masters' degree since the inception of the program, and more than a third have gone on to work at the U.S. Census Bureau.

The Ph.D. program is aimed largely at full-time students; its purpose is to strengthen the overall infrastructure of the field by creating the next generation of researchers and teachers. As of fall 2008, 12 students are pursuing Ph.D.'s at JPSM, nine full-time. We expect three to four to enter the Ph.D. program each fall, and a corresponding number to graduate during each academic year.

The certificate programs are tailored to students who already have advanced degrees in some other field but are seeking to enhance their survey methods skills. For example, many of the staff at US federal agencies, such as the Bureau of Economic Analysis or the Bureau of Labor Statistics, have advanced degrees in economics. But they have limited exposure to survey research. The program has about a dozen students enrolled in certificate programs at the present time. Sixteen have completed the certificate since the program began. The certificate is conferred by the University of Maryland and is a credential recognized by many of the federal statistical agencies. It consists of roughly half the course work involved in obtaining the master's degree (and all but one of the courses in the certificate program also counts toward the Master's degree). All of the courses making up the certificate programs are semester-length graduate courses.

The citation programs are built upon the foundation of two-day short courses, and are less intense and more introductory than the degree or certificate programs. Their goal is to upgrade the skills of current survey staff at the statistical agencies and their contractors. The short courses are designed for agencies to help orient new staff and to provide opportunity for agency staff to increase understanding of survey methods without needing to enroll in formal graduate courses. About 600 persons attend 15-20 short courses in an academic year.

The citation in survey methodology focuses on household surveys and requires completion of a set of short courses — four core and four electives — plus completion of a single semester-length course covering the fundamentals of survey methodology. The short courses are two days of about 15 hours of instruction on taught by experts on the course topic. The citation in economic measurement focuses on establishment surveys and requires a similar completion of short courses and the semester length fundamentals course. Both citation programs currently have about a dozen students enrolled.

The Junior Fellows Program is currently JPSM's only undergraduate program. One of its aims is to recruit promising undergraduates to the field of survey methodology. Highly qualified undergraduates are placed in internships at US statistical agencies in the Washington, DC, area for the summer, where they work on methodological and statistical projects. In addition, the fellows attend a weekly seminar at JPSM. There are 30-35 junior fellows in a given summer, and more than 250 who have participated since the program began. At least 10 of the fellows

have returned to the Joint Program as master's students, and three have joined survey methodology doctoral programs as well.

Although JPSM was created in order to provide advanced training in survey methodology, implicit in this mission was the conduct of cutting edge research on survey methodology. Research and teaching are often seen as intertwined, but for several reasons this relationship is especially close for JPSM. First, it is difficult to provide training in research methodology without including extensive hands-on experience in conducting such research. Second, with almost all of JPSM's educational programs aimed at the graduate level, its courses deal with the most advanced techniques for conducting surveys and survey methods research. Thus, it is essential that the faculty be intimately familiar with new developments in the field. Third, the field of survey research is undergoing profound and rapid changes brought on by larger societal, technological, and theoretical developments. The speed of these changes means that, more than in most fields, only active researchers can provide adequate instruction in the new methods being developed and adopted.

We discuss the current state of these educational partnerships in more detail below in the context of the collaborations that they entail.

TYPES OF COLLABORATION AT JPSM

Two main types of collaboration take place at JPSM—collaborations between organizations and collaborations between disciplines. Below, we discuss ways these collaborations take place, and the effects they have on the program and its products.

Organizational relationships. The special relationship between two organizations — the JPSM and the US Bureau of the Census — provides the key link between JPSM and the US federal statistical system. On average 40% of the JPSM masters' students are Bureau employees. More than 40 JPSM graduates currently work at the Bureau of the Census. These employees benefited from a special program developed by the Bureau as part of its Census Corporate University. The students work half-time, go to school half-time, and receive full-time pay and benefits. Most of the students complete the masters' program in three years. The Bureau of the Census also supports each year several research assistants who are not employees of the Bureau but intern there while enrolled in the program. These research assistants are paid through the JPSM like other research assistants there.

This key partnership goes well beyond student support. Groves and Clark (2001) discuss the relationship between the JPSM and the Census Bureau in detail and Clark, Donnelley, and Tourangeau (2004) provide an update. Procedures have been developed to meet specific training needs of the Bureau of the Census. There is feedback that the Bureau provides JPSM regarding the training of the JPSM students. And there is the impact of JPSM training on the Bureau of the Census workforce. In many respects, without this collaboration it would be impossible to effectively accomplish the goals of the JPSM.

One of the challenges that the Bureau of the Census initially faced in taking advantage of JPSM was that some of the employees interested in the master's degree program did not have academic qualifications for graduate work. Employees had on-the-job experience in survey operations and methodology, but it was not clear how that knowledge would transfer to the JPSM academic environment. At the request of the Bureau, JPSM developed a senior level undergraduate course — Fundamentals of Survey Methodology — designed to provide an

introduction to the discipline for employees. This course was envisioned as a screener for admission to the JPSM masters' degree program where individuals without the JPSM academic qualifications who performed well in the course could be given consideration for admission to the degree program. More Bureau of the Census employees have been able to participate in JPSM as a result. In addition, the absence of a textbook for the class led to a collaboration of six authors, each of them experts in some aspect of survey research, writing a text, *Survey Methodology*, which was published by J.W. Wiley and Sons in 2004.

The Bureau of the Census also had individuals whose career needs and goals were not met by either of the masters' degree programs. In response to Bureau concerns, JPSM has met some of these needs through the Citation in Introductory Survey Methodology, the Certificate in Intermediate Survey Methodology, and the Certificate in Survey Sampling begun in 1999. Mid-career professionals often found the citation program was a good way to update their knowledge in a number of areas. The two certificate programs have been used by Census employees from varied backgrounds — with bachelors' or masters' degrees in a number of disciplines — to gain knowledge of the academic literature in survey data collection, questionnaire design, applied sampling, statistical computing, and an elective area. In total, more than 30 certificates and citations have been awarded. At least 10 have been to Bureau employees.

On a broader level, the collaboration with the federal government has been mutually beneficial. Of the 150 students who completed masters' degrees at JPSM, more than half are currently working in the federal government. The first Ph.D. in Survey Methodology was awarded in 2004 to Ken Copeland, whose dissertation examined nonresponse in a Bureau of Labor Statistics survey. During part of his tenure at the JPSM, Copeland had a fellowship at the Bureau of Labor Statistics to study the problem.

Other federal agencies also participate actively in the JPSM, some of them by employing research assistants from JPSM. The National Center in Health Statistics supports a JPSM student, and the Bureau of the Census employs JPSM students each year.

Another means of federal agency participation is through courses offered by JPSM. Many survey researchers from several federal agencies, including the National Center for Health Statistics, the Bureau of Justice Statistics, and the Bureau of Labor Statistics, have presented problems to a design seminar course in which the students serve as consultants on survey problems presented by the agencies. In addition, the students carry out a survey in a two-course 'practicum' sequence. In recent years, the JPSM practicum has conducted surveys on behalf of the National Science Foundation and the Bureau of Labor Statistics.

In addition to the federal government, other private survey organizations play an important role in the JPSM. Research assistantships and summer internships have been provided by Westat, Arbitron, Mathematica, Gallup, and the Pew Center, all leading private survey organizations. These periods of employment in survey organizations provide both financial support and a base of experiences which greatly enrich student training. Obviously, these assistantships and internships also have benefits for the survey organizations which get the services of talented newcomers.

Partnerships with other universities are also important to JPSM. From the beginning, the founders of JPSM saw it as the hub of a national system of graduate training in survey methodology, increasing the impact of the JPSM both on the field at large and on the federal statistical system in particular. To accomplish this goal, the JPSM has developed relationships with other universities to further the field of survey methodology. The relationships have helped other universities develop their own programs in survey methodology. These organizational

collaborations began with consortium members from two academic institutions and one commercial survey research firm, but have expanded over time. Most directly, the JPSM has been able to expand its reach and improve its course offerings by sharing courses with other universities through the use of distance learning technology. Courses have been jointly offered with the University of Michigan in Ann Arbor, the University of Nebraska at Lincoln, and the University of North Carolina at Chapel Hill. Responsibilities for teaching in the shared courses are typically divided among the instructional staff at the universities sharing the classes. For both students and faculty members, this arrangement provides a richer and more diverse environment than is available in a single institution.

Disciplinary relationships. As noted earlier, the curriculum at JPSM was built on ideas from the statistical and social science disciplines. However, both set of disciplines are themselves large, and bringing them together raised complicated issues. This feature of the problem has been discussed for a long time (e.g., Bishop 1964; Eldridge et al. 1982) and is still an important topic (e.g., Groves 1996; Kalton 2002).

To better understand the problem, consider the issue of deciding on the curriculum for training in statistical sciences concentration. A standard statistics curriculum might consist of courses in probability theory, the theory of estimation, large sample theory, analytic methods, and design methods. Survey methodologists from the statistical sciences concentration must be comfortable with these topics, but they must also be trained in relevant social science concepts and theories. The role of the behavioral and cognitive sciences in any training program for survey methodology is critical. These disciplines provide theories that can lead to a better understanding of the origins of survey error and the interactions in surveys between the interviewers, respondents, questionnaires, and other factors that contribute to errors in surveys. Thus, choosing what specific components of the statistical and social sciences should be included in the master's degree program has been difficult. At JPSM, integrating pertinent aspects of the social sciences and the statistical sciences into a coherent academic program in survey methodology is an on-going activity.

A central course in the master's degree program is the Practicum. This two-semester course involves the students in all aspects of a survey beginning with conceptualization and planning, questionnaire development and testing, data collection and processing, and all the way through the analyses stages after the data have been collected. This course helps grounds the masters' students with a common experience and highlights the complimentary nature of the social science and the statistical science disciplines in surveys. Both are essential in the design and implementation of the Practicum.

The Survey Design Seminar highlights the need for the students to have at least some familiarity with both the social sciences and statistical sciences. This course is designed for students nearing the completion of their training and exposes them to real survey problems on problems ranging from classic sample design issues, to improving response rates, to estimating coverage, to developing questionnaires, to devising unbiased estimation procedures. The class applies and links concepts drawn from the various disciplines to the problems of a particular survey.

JPSM has also actively sought to serve the needs of economic surveys. The improvement of economic statistics in the United States was one of the main goals that led to the establishment of the Joint Program. Many large-scale federal government surveys either deal with economic issues directly or indirectly. Both household surveys and establishment surveys measure factors related to employment and unemployment, government services and products, and economic

indicators that play a vital role in government policies. JPSM has developed full-semester and short courses to cover these issues, which have never been adequately addressed in other academic settings in the US. Special issues raised by economic surveys enhance the expertise of its faculty in economics. JPSM has a senior economist, Katharine Abraham, on the faculty, a former Commissioner of the US Bureau of Labor Statistics.

One of JPSM's major contributions to the survey profession has been the establishment of its short course series. The short courses serve a wide audience, bringing experts from a variety of disciplines together with survey practitioners to share experiences and perspectives that otherwise might never be possible. The number and diversity of the topics covered in the short courses offered by the JPSM is impressive. The instructors for these short courses are the pre-eminent scholars and researchers in a variety of disciplines. They come from many different academic as well as commercial and nonprofit organizations.

PLANS

JPSM has periodically re-evaluated its programs. The last such evaluation was completed in 2005. In preparation for that review, Clark, Donnelley, and Tourangeau (2004) conducted focus groups with JPSM graduates at the US Bureau of the Census to get feedback on the program's strengths and weaknesses. In the process of conducting self-evaluations, the program identified several areas where it could improve its ability to meet objectives.

One such initiative is expanding the number of courses shared by the program with other universities. The program examined, for example, opportunities for sharing courses with Iowa State University, to allow students to be trained by world-class instructors at other institutions. The instructors in turn get to teach classes with a critical mass of students, a critical mass that would be unavailable at a single institution.

A second proposed initiative is to develop and offer more advanced seminars aimed primarily at the Ph.D. students. The Ph.D. program is still in its early stages and advanced seminars are one method identified to enhance the research environment and to stimulate high quality dissertations from the students.

Other proposed activities intended to improve the research environment involve encouraging top-notch researchers to spend some time at the JPSM in various ways. To this end, a Distinguished Lecture series was launched in 2004 to bring internationally recognized experts in survey statistics and survey methodology to JPSM, where they give lectures and discuss research topics with the faculty and students. The first Distinguished Lecturer was Chris Skinner of the University of Southampton, who visited JPSM in September 2004. Subsequent lectures in the series have been given by Jon Krosnick of Stanford University, Don Rubin of Harvard University, Nora Cate Schaeffer of the University of Wisconsin, and Colm O'Muircheartaigh of the University of Chicago.

A visiting faculty program is also being considered to bring in outstanding researchers to spend one or two semesters in residence at the JPSM. During their stays, the researchers give seminars and engage in discussions with faculty and students about research interests. The program is examining how to establish affiliated faculty positions to take advantage of local area researchers, especially those employed in the US federal government, who have expertise in survey methods or related topics. These affiliated faculty positions would provide a more formal mechanism for fostering the already close collaboration between the federal government and JPSM.

All of these enhancements to the program are designed to enrich JPSM as an environment for students, researchers, and faculty and to encourage further collaborations among the diverse actors who have contributed to the success of the program.

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