COLLABORATION AT THE JOINT PROGRAM IN SURVEY METHODOLOGY

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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. From the outset it was clear that no one organization had the resources required to accomplish this goal; what was needed was a collaboration of organizations, disciplines, and researchers that was unprecedented in previous efforts at the education and training of survey methodologists. The theory and practice of survey methodology is very diverse, encompassing many different disciplines with divergent traditions and approaches. The appropriate survey methodology components do not fit easily into a single academic department or program, even an interdisciplinary one. The blending of specific aspects of statistical and social science disciplines was the focus in the initial stages of development of the JPSM, and it remains the foundation that supports the expansion of the program into other areas.

An important ingredient in creating the JPSM was the development of partnerships between organizations. As an educational endeavor, the academic objectives and goals of the program were of paramount importance, but the practice of survey methodology also requires knowledge and expertise in the efficient conduct of surveys and understanding of the federal statistical system and its policy needs. Since no one organization could provide all three 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 supplement the missing pieces.

In this paper, we discuss how collaborations at various levels have contributed to a broader perspective on the theory and application of survey methodology at the JPSM. We begin by reviewing the history of the program and its initial efforts. We discuss the types of collaboration and how the products of these collaborations have enhanced survey methodology in the first 10 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.

Background

The JPSM is the oldest and largest program in the nation that offers both master's and doctoral degrees in survey methodology. The JPSM began accepting students into the master's degree program in 1993 following the award of a grant from the National Science Foundation to the consortium 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 interesting because the first author is from the federal government, the second is from the JPSM, and the remaining three are 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, a citation program in introductory survey methodology, an array of short courses, and a summer intern (Junior Fellows Program) program. Each of these is briefly discussed below.

Because of the history of JPSM and its overriding goal of strengthening the federal statistical system, the master's program remains the core of the program. Approximately 90 percent of current enrollees are master's students. The course offerings are designed to support part-time enrollment to accommodate students who are employed. In fall of 2004, 50 students are enrolled in the master's degree

program, with about two-thirds of these students in the social science concentration. This is typical of the total enrollment and the split between the social science and statistical science concentrations.

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. In fall 2004, nine students will be pursuing Ph.D.'s, with five of these enrolled for the first time this semester.

The certificate programs are tailored to students who already have an advanced degree in another field and are seeking to enhance their survey methods skills. For example, many of the staff at the Bureau of Economic Analysis or the Bureau of Labor Statistics have Ph.D.'s in economics but may have limited exposure to survey research. Currently, 28 students are enrolled in one of the certificate programs. The short courses are one or two-day courses on specific topics that are taught by experts on the topic. The short courses and certificate programs are designed mainly to serve persons who are already part of the statistical system; their goal is to upgrade the skills of current survey staff at the statistical agencies and their contractors. About 650 persons attended short courses in the 2003-2004 academic year.

The Junior Fellows Program aims to recruit promising undergraduates to the field by providing a weekly seminar and an internship at one of the statistical agencies. It is the only undergraduate component of the JPSM. There were 33 junior fellows in the summer of 2004 and more than 180 overall. Nine of the fellows have returned to the Joint Program as Master's students.

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 the 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 packages in more detail below in the context of the collaborations that they entail.

Types of Collaboration

The two main types of collaboration in the JPSM are between types of organizations and between disciplines. This statement oversimplifies the situation because the variety of collaborations within these two types is immense. 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 Census Bureau – is the key collaboration between the JPSM and the federal government. Currently, 14 of the 50 master's degree students are Census Bureau employees and more than 40 of JPSM's graduates work at the Census Bureau. These employees benefited from a special program developed by the Census 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. This enables most of the students to complete the program in three years. The Census Bureau also supports to research assistants who are not employees of the Census Bureau but intern there while enrolled in the program. These research assistants are paid through the JPSM like other research assistants.

The partnership goes well beyond these arrangements. Groves and Clark (2001) discuss the relationship between the JPSM and the Census Bureau in detail and Clark, Donnalley, and Tourangeau (2004) provide an update. They describe the procedures developed to meet the specific needs of the Census Bureau, the feedback that the Census Bureau provides regarding the training of the JPSM students, and the impact of the JPSM on the Census Bureau workforce. In many respects, without this collaboration it would be impossible to effectively accomplish the goals of the JPSM.

On a broader level, the collaboration with the federal government has been mutually beneficial. One example of this is that of the approximately 100 master's degree recipients from the JPSM, over half are currently working in the federal government. The first Ph.D. recipient 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 he had a fellowship at the Bureau of Labor Statistics to study the problem and he is currently employed at the Bureau of Labor Statistics.

Other federal agencies also participate actively in the JPSM. One example is in the employment of research assistants. NASS and the Bureau of Transportation Statistics currently support research assistants, as does the Census Bureau. Another example is participation in the survey design seminars and the JSPM Practicum. Staff from the National Center for Health Statistics and from the Bureau of Labor Statistics have presented problems in the design seminar, in which the students serve as consultants on survey problems presented to the class. The students actually carry out a survey in the Practicum. In recent years, the Practicum has conducted surveys on behalf of the National Science Foundation and the Bureau of Labor Statistics.

In addition to the federal government, other survey organizations play an important role in the JPSM. Research assistants, summer internships or assistantships are currently provided by the following survey organizations: Westat, Arbitron, Mathematica, Gallup, and the Pew Center. These experiences enrich not only the students who partake in them, but it also provides a different perspective that is shared among the master's degree students in discussions in courses. Obviously, it also has benefits for the survey organizations.

From the beginning, the founders of JPSM envisioned 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. At least in part, the JPSM has provided the impetus for other universities to develop programs in survey methodology or related fields. These organizational collaborations began with consortium members from two academic institutions and one commercial survey research firm. The affiliations have expanded considerably 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 at Ann Arbor, the University of Nebraska at Lincoln, 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. For both students and faculty members, this arrangement provides a richer and more diverse environment than is available in a single institution. We will return to the diversity of instructors when we discuss short courses later.

Disciplinary Relationships

As noted earlier, the JPSM was built primarily by merging ideas from the statistical and social science disciplines. However, both of the disciplines are large and the specific components of this merger are complex. 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 as an example 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 also must 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 better understandings of the survey process and the interactions in surveys between the interviewers, respondents, questionnaires, and other factors that contribute to errors in surveys. Thus, choosing the specific components of the statistical and social sciences to include in the master's degree program is difficult. At the 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. We discuss a few courses below to illustrate the types of choices that have been made.

An essential course in the master's degree program is the Practicum. This two-semester course involves students with 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 grounds the students with a common experience and highlights the complimentary nature of the social science and the statistical science disciplines in surveys.

The survey design seminar is another course that highlights the need to be familiar with and understand 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 better serve the needs of economic surveys, which was identified as a key federal need in the establishment of the original grant that funded the Joint Program. Many large-scale federal government surveys either deal with economic issues specifically 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. The JPSM has developed full-semester and short courses to cover these issues that previously were never addressed in academic settings. Thus, the economic sciences are another discipline that is increasingly being addressed at JPSM; as a result, it recently added a senior economist, Katharine Abraham, to the JPSM faculty. Dr. Abraham is the former Commissioner of the Bureau of Labor Statistics.

One of JPSM's major contributions to the survey profession has been the establishment of the 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 appendix lists the short courses that have been offered recently, arranging them in categories that underscores the broad range of interests and disciplines covered. 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. The background they bring to the audience is very diverse.

Plans

The JPSM formally re-evaluated its programs in the last year. In the process, we identified areas that would improve the ability of the program to meet its objectives. Several specific activities are being proposed as a result of this evaluation. All the activities are related to making sure the research and educational environment at the JPSM is at the highest possible level.

One of these activities that will be considered is expanding the course sharing that are currently part of the program. We are examining opportunities with Stanford and Iowa State for sharing courses. As described earlier, our experience indicates that sharing courses is helpful to both students and faculty. We believe that sharing courses with high-quality research institutions such as Stanford and Iowa State would bring these same benefits.

A second proposed activity 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 that are 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 has been created beginning in 2004 to bring internationally recognized experts in survey statistics and survey methodology to give lectures and discuss research topics with the faculty and students. The first Distinguished Lecturer is Dr. Chris Skinner who will be visiting in September 2004. The second lecture in the series is expected to be held in the spring of 2005 and feature a researcher with a social science background.

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 will give seminars and engage in discussions with other faculty and students about their research interests, thus enriching the research environment.

Another idea being considered is the establishment of affiliated faculty positions to take advantage of local area researchers, especially those employed in the federal government, who have expertise in survey methods or related topics. These affiliated faculty positions would provide a more formal mechanism for increasing the collaboration between the federal government and the 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.

References

Bishop, H.E. (1964). The training of government statisticians, *Journal of the Royal Statistical Society*, 127, 211-215.

Clark, C.Z.F., Donnalley G., and Tourangeau, R. (2004). The Joint Program in Survey Methodology and its impact on the Federal statistical agency workforce. Paper presented at the Joint Statistical Meetings, Toronto, Canada, August 8, 2004.

Eldridge, M., Wallman, K. Wulfsburg, R., Bailar, B., Bishop, Y., Kibler, W., Orleans, B., Rice, D., Schaible, W., Selig, S., and Sirken, M. (1982). Preparing statisticians for careers in the federal government: Report of the ASA section on statistical education committee on training of statisticians for government. *The American Statistician*, 36, 69-89.

Groves, R.M. (1996). Presidential Address: The educational infrastructure of the survey research profession. *Public Opinion Quarterly*, 60, 477-490.

Groves, R.M., and Clark, C. (2001). The Joint Program in Survey Methodology,: A Government Partnership for an Academic Program. *Proceedings of the Survey Research Methods Section of the American Statistical Association* [CD-ROM].

Kalton, G. (2002). Training needs for survey statisticians in developed and developing countries. *Proceedings of the Health Policy Statistics Section of the American Statistical Association*, 1746-1750.

Wallman, K., Groves, R.M., Parsons, J., Davis, M.C., and Lapham, S. J. (1994). Increasing statistical awareness through graduate training: The Joint Program in Survey Methodology, *Proceedings of the Social Statistics Section of the American Statistical Association*, 39-44.

Appendix: JPSM Short Courses

General Surveys

Introduction to Survey Quality
An Introduction to Survey Management
An Introduction to Survey Sampling
Introduction to Survey Estimation
Web Survey Design
Telephone Survey Design
Model-Based Survey Sampling: Theory & Practice
Experimental Design for Surveys

Economic Surveys

Creating Price Indexes: Theory and Practice
Collecting Data from Businesses
Business Data Collection
Introduction to National Accounts
Quality Change and Hedonic Price Indexes
Creating and Updating Price Indexes: Theory and Practice
Measuring and Analyzing Trends in Productivity
The Role of Administrative Records in Federal Economic Statistics

Survey Measurement

Focus Groups from Start to Finish
Words, Numbers, Symbols and Graphics
Questions for Standardized Measurement in Surveys
Nonresponse in Household Interview Surveys
Information Visualization for Digital Government
U.S. Federal Statistics as a System

Other Issues

Statistical Metadata: Understanding its Role in Survey Processes
Record Linkage
Statistical Analysis with Missing Data
Statistical Disclosure & Disclosure Limitation