

## USING COGNITIVE RESEARCH TO IMPROVE THE ACCURACY OF POSTSECONDARY FACULTY COUNTS

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### **Key Words: Cognitive Research, Response Accuracy, Postsecondary Faculty**

The purpose of the cognitive research we undertook was to gain a better understanding of the range of problems and limitations institutions face when responding to the National Study Of Postsecondary Faculty (NSOPF) requests and how these relate to errors in the faculty<sup>1</sup> lists and counts provided by institutions in previous rounds of the survey.

### **NSOPF Background**

The NSOPF is conducted by the National Center for Education Statistics (NCES) every five years. This survey consists of two components: the institution component and the faculty component.

The institution component is made up of two parts. The first part is the Institution Questionnaire. All sampled institutions are asked to complete a questionnaire that asks a number of questions concerning institutional practices such as: tenure practices, downsizing, retirement plans, benefit plans, etc. The second part of the institution component is the faculty list request. All sampled institutions are asked to provide a complete list of their faculty. It is this list of faculty that serves as the "universe" for the second component of the NSOPF -- the faculty component.

The faculty component is a questionnaire that is mailed to a sample of the faculty obtained from the faculty list request. These sampled faculty members are asked a wide variety of items concerning:

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<sup>1</sup> In this report, the term "faculty" refers to both faculty members and institutional staff who do not have faculty status. We use the term in this manner to avoid repeating cumbersome phrases such as "faculty members and non-faculty instructional personnel."

workload, academic and job background, retirement plans, income, job satisfaction, etc.

In analyzing the mix of issues raised during our cognitive research, we felt it was necessary to bear in mind some important aspects of the history of this study -- particularly the experience in the 1992 NSOPF field test and its consequent recommendations.

### **NSOPF Discrepancy History**

In February 1994, NCES issued the 1992-93 National Study of Postsecondary Faculty Field Test Report (NCES 93-390). This comprehensive report described the persistence of the problem of discrepancies in faculty counts between the Institution Questionnaire and the Faculty List. This problem was present in the 1988 study, conducted by SRI, continued in the 1992-1993 field test, and was present in the full study, as well. The authors noted that in 83% of their field test sample, a discrepancy was found between the faculty list count and institution questionnaire count.

In analyzing the factors contributing to the discrepancies, NORC identified the following elements: (a) definitional problems and questionnaire misinterpretation (the major factor), (b) institutional clerical error, (c) problematic lists, and (d) tracking and record-keeping problems. They noted that in the field test "concise definitions of the relevant terms [faculty and instructional staff] were not provided." Interestingly, they noted that it was the judgment of the Technical Review Panel to not provide a glossary of terms in mailings to institutions, for fear that such definitions would inadvertently exclude certain categories of faculty. In the full-scale study, a very brief glossary of terms was included as part of the Institution Questionnaire. The fact that the field test questionnaire did not include a glossary may be of significance for problems that arose in the full-scale study regarding

the classification of faculty to be included in the lists and the institution questionnaire counts.

## Study Background

The issue of having a glossary is an area that we explored further in this study. Specifically, if institutional coordinators are relying on the glossary for guidance is it clear which faculty and instructional staff to include or exclude in the questionnaire, what gaps exist, what needs clarification? Similarly, how clear and comprehensive are the instructions for preparing lists of faculty? The instructions and glossary are fundamental components of the study. If they are inconsistent or unclear, the integrity and comprehensiveness of the subsequent data are imperiled.

There are differences between the glossary as it appears in the Institution Questionnaire and the instructions to the institutional coordinator for preparing the faculty lists. For example, the glossary in the Institution Questionnaire defines "instructional faculty and staff" as "all institutional staff (faculty and non-faculty) whose major regular assignment at this institution (more than 50%) is instruction." The Instructions for Preparing Lists of Faculty, which does not provide a glossary, instructs the respondent to include, "those full-and part-time personnel whose regular assignment includes instruction." These differences in specificity between the two sets of instructions could well have led to inclusion or exclusion of different populations of faculty and instructional staff.

Some of the terminological confusion might be resolved with the development of a standardized set of definitions employed by U.S. higher education institutions to classify faculty and instructional staff. An initiative in this direction is the Handbook on Human Resources Record-Keeping and Analysis. The Handbook is a project sponsored by the NCES and executed jointly by the National Center for Higher Education Management Systems (NCHEMS) and the State Higher Education Executive Officers (SHEEO). This guide provides a framework of standard definitions and recommended methodologies for the reporting and interpretation of data about faculty and staff in higher education in the United States.

With luck, the Handbook's definitions of terms and concepts important for the NSOPF survey will be generally accepted in the academic community and can serve as the definitional "standards" to be used in the glossaries and instructions in the upcoming NSOPF cycle. NCES may wish to work with organizations such as the Association for Institutional Research and the American Personnel Association in collaborating with the developers of the most popular software packages for storage of faculty data -- BANNER and SCT -- to incorporate the Handbook's definitions in its software packages.

In its Technical Report: Discrepancies in Faculty Estimates in the 1992-93 National Study of Postsecondary Faculty, NORC indicated that in the categories of part-time faculty and health sciences faculty, significant disparities existed between the 1988 and the 1993 NSOPF full-scale study data. Significant list and questionnaire disparities in the 1993 full-scale study existed in these areas, as well (with less striking disparities in other areas). NORC's Retrieval and Reconciliation Effort pointed to the "definitional problem" as the primary reasons for these problems. Some part-time or full-time faculty were either excluded from the list or the questionnaire; non-faculty/ineligible staff were included on either the list or questionnaire. Confusion over definitions also extended to the time frame considered in completing the questionnaire and compiling the list. Some responding institutions used time periods/academic terms other than those indicated in the guidance provided by NORC. In the next NSOPF cycle, greater attention should be devoted to specifying the time frame required -- again, some specific examples of what time periods should or should not be included would help in addressing potential questions.

Another time-related element which contributed to the discrepancies between the lists and questionnaires in the 1993 NSOPF study, was the gap between the mailing of the letters/instructions for the lists and the mailing of the Institution Questionnaire. According to the NORC technical report, "lists were submitted to NORC between October 1992 and July 1993, whereas, the institutional survey was conducted between September 1993 and May 1994." Hence, lapses of many months (NORC indicates a spread of from 3 to 12 months) occurred between the receipt of the

instructions for the list development and the questionnaire completion. This time lag surely contributed significantly to the discrepancies between the faculty count lists and questionnaires, as assumptions and processes employed in one enumeration may not have been followed in the second. The next NSOPF cycle must aim at a much closer time fit between the list and questionnaire activities. Indeed, NCES and its contractor should explore the entire range of constraints on the "rollout" of the list/questionnaire activities -- and aim to reduce the timelag to the minimum.

Another set of issues that emerge from NORC's data concerning the sources of the discrepancies between lists and questionnaires is obliquely indicated in the finding that 18% of the institutions they recontacted, "could not provide a specific reason" for the discrepancies. This points to the need for greater concern by the contractor and by NCES of promoting and, indeed, marketing (in the spirit of "social marketing" employed in public health and other socially meaningful campaigns) the NSOPF effort and giving respondents at colleges and universities a reason to be committed to providing the best data they can for this national effort. NORC, in its Field Test Report, recommends that NCES mail brochures describing NSOPF-93 to Chief Administrative Officers (CAOs) and institutional representatives. They further suggest that the cover letter to the CAOs and representatives (as well as the brochure) include the endorsement of NSOPF-93 by some 15 higher education/professional associations. NCES did follow these recommendations for NSOPF-93. Consequently, NCES has a good foundation to build upon in generating interest and enthusiasm throughout the American higher education community for the next cycle of NSOPF.

Feedback during our current cognitive study underscores the interest and attention paid to NSOPF by college and university administrators. Directors of Institutional Research, Directors of Human Resources, Vice-Provosts, and other senior academic officials made numerous thoughtful suggestions concerning the purpose and scope of the study. NCES should seriously consider ways to more significantly involve this community in the formulation and analysis of the next NSOPF.

## Cognitive Research Background

Forsyth and Lessler (1991) contend that "if we are to understand the sources of survey measurement error and find ways of reducing it, we must understand how errors arise during the question-answering process. This will allow us to develop better questions that will yield more accurate answers. The primary objective of cognitive laboratory research methods is not to merely study the response process, but through careful analysis to identify questioning strategies that will yield more accurate answers" (p. 394). As Nolin and Chandler (1996) explain, the methods of cognitive research can be used to increase understanding of the ways that respondents comprehend survey instructions and questions, recall requested information, and respond to the influence of word and question order.

Cognitive research draws on three different literatures: research in cognitive psychology on memory and judgment, research in social psychology on influences against accurate reporting, and evidence from survey methodology research regarding response errors in surveys. Researchers generally agree on five stages of action relevant to survey measurement error: 1) encoding of information; 2) comprehension; 3) retrieval; 4) judgment of appropriate answer; and 5) communication. Beyond acceptance of these five stages, cognitive research takes different paths.

Forsyth and Lessler (1991) concluded that no guidelines were available for choosing one cognitive research method over another, due at least in part to a lack of theoretical and empirical work exploring how methodological details can affect cognitive laboratory results. Nonetheless, they offer four general sets of methods that have been implemented. These four methods are expert evaluation, expanded interviews, targeted methods, and group methods. For the NSOPF cognitive research, we chose to use a combination of expanded interviews (site-visits) and group methods (focus groups).

The purpose of our study was to combine the historical evidence summarized above and the findings from our cognitive research in order to propose specific recommendations for changes in definitions and instructions for the NSOPF list collection process. However, the purpose of this

paper is to discuss how our cognitive research enabled us to determine some of the problems and to arrive at some recommendations to improve the data collection process.

### **Study Phases**

The following are the six study phases that took place between October 1995 and October 1996:

1. Reviewed and summarized NSOPF-88 and NSOPF-93 documentation
2. Interviewed project director from NSOPF-93 contractor
3. Developed issues to be addressed during site visits and focus groups
4. Conducted six in-depth interviews and site visits
5. Conducted four focus groups
6. Reviewed study results & made recommendations

### **Review and Summary of NSOPF-88 and NSOPF-93 Documentation & Interview with NSOPF-93 Project Director**

After reviewing the '88 and '93 documentation and interviewing the NSOPF-93 project director, we identified several areas that may have contributed to discrepancies between the counts of faculty on the institutional questionnaire and counts of faculty obtained from the faculty lists. Those potential sources of discrepancies are as follows:

1. Differences in definition of "faculty" among NSOPF-93 faculty list request, NSOPF-93 Institution Questionnaire glossary, and IPEDS Fall Staff Survey
2. Faculty list collection process
  - Staggered times for list collection versus Institution Questionnaire
  - Differences within institutions in the interpretation of instructions
  - Differences across institutions in the interpretation of instructions

### **Issues to be Addressed During Study**

Our work up to this point made it evident that no single issue was the cause of the problems in the NSOPF-93. It was clear that many items from logistical issues such as, timing of the mailing of the

institution questionnaire and faculty list request, to definitional issues such as, institution to institution personnel definition differences, contributed to the discrepancies between the counts of faculty on the institution questionnaire and the counts on the faculty lists. Essentially, the entire process of arriving at counts of faculty on the Institution Questionnaire and the process of compiling the faculty lists needed to be examined.

### **Site Visits**

Research staff visited five institutions and conducted a telephone interview with one institution in the Washington-Baltimore area during late September and October 1996. Using the institutions' Carnegie codes as descriptors, institutions in the sample were two Research University I institutions, one Doctoral I institution, one Doctoral II institution, and two Associate of Arts (Community) Colleges. Two of the institutions had medical schools and law schools; four had a variety of graduate programs. Sites were chosen by NCES and contractor staff for NSOPF-93 participation, geographic location, Carnegie type, and medical school inclusion. Each of the site visits and telephone interview took approximately one and one-half hours. At each of the site visits there were two facilitators and facilitators used a semi-structured protocol.

### **Focus Groups**

Four focus groups were conducted between late July and October 1996. The focus groups were held at an NCES Advanced Training Seminar in Denver, Colorado; at the College and University Personnel Association (CUPA) annual convention in San Diego, California; and two at the Southern Association of Institutional Researcher (SAIR) annual conference in Mobile, Alabama. Focus groups lasted approximately one and one-half hours in Denver and San Diego and approximately 40 minutes in Mobile. At each of the focus groups there were two facilitators and facilitators used the same semi-structured protocol as was used in the site visits.

Twenty-six people participated in the focus groups. Institutions that were represented during the focus groups included eight Associate of Arts (Community) Colleges, six Master's

(Comprehensive) Universities, four Research I Universities, three Research II Universities, three Doctoral I Universities, one Baccalaureate I College, and one other. Only one Baccalaureate College participated; others were invited but could not send representatives.

## Recommendations

After completing the site visits and focus groups, we reviewed the participant comments, synthesized them with our review of the current and past NSOPF data collection practices, and developed the following recommendations.

Clearly an easy way to reduce the number of discrepancies between the two sets of counts would be to have the same respondent complete the institution questionnaire and prepare the lists of faculty. Tied in with that recommendation is the recommendation that both the institution questionnaire and faculty list request arrive at the same time.

The current NSOPF allowed each institution to categorize personnel into the NSOPF categories according to each institution's own definitions. This clearly would allow personnel to be categorized differently across institutions. Institution to institution differences in the categorization of personnel presents a serious problem to the validity of the data. Therefore, we suggest using a standard set of definitions for categorizing personnel (on both the institution questionnaire and the faculty list request) that all institutions understand (i.e., IPEDS).

Lastly, a recommendation that is not quite as easily obtained as the ones listed above, but one that is as important if not more than the others -- getting the institutional staff responsible for completing the NSOPF to believe in the importance of the NSOPF. Without this "buy-in," then the staff completing the request may not place the correct emphasis on obtaining complete and accurate lists of faculty. To attain the involvement and level of engagement really needed for university administrators and staff to minimize discrepancies and transmit comprehensive data and thoughtful responses to NCES requests, they will need to feel both professionally and personally committed to these activities. Academic administrators and staff, in a

climate of increasing fiscal constraints and staff reduction, increasingly feel outside demands -- however significant -- as mounting burdensome. NCES must do everything within its power (as, indeed, NORC has suggested) to reduce the time burden for the higher education community -- administrators, staff and faculty -- in responding to its national surveys.

## Conclusions

There is a lot of work to be done in determining the path for the next NSOPF; however, we feel that the cognitive research that we undertook allowed for a better understanding of how data on postsecondary faculty is kept at higher education institutions and how to better ask institutions to give complete and accurate lists of faculty. This study was an important step in understanding how to avoid the problems encountered in the NSOPF-93 study.

## REFERENCES

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