

USING AN ESTABLISHMENT SURVEY RESPONSE MODEL, AND FOCUS GROUPS IN THE REDESIGN OF AN ESTABLISHMENT SURVEY QUESTIONNAIRE

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A way of seeing is also a way of not seeing -- a focus upon object A involves a neglect of object B." (Kenneth Burke, cited in Merton, Fiske, and Kendall, 1956: xiv)

1. INTRODUCTION

Focus groups (FG)¹ are non-directive interactive group discussions of six to 12 people facilitated by a moderator, and result in qualitative data of cognitions and attitudes. The Cognitive Aspects of Survey Methodology movement, which has driven the use of cognitive interviews during the last 15 years, has steadily enhanced the utility of cognition-based FG in the *household* survey data collection process. Researchers of establishment surveys have also taken advantage of FG. In a recent study on *Issues in Surveying Establishments*, Christianson and Tortora (1994) report that one fifth of 96 government statistical agencies working in 20 countries have used FG for improving the *establishment* survey data collection process. The growing use of focus groups in establishment surveys reflects the recent emphasis on cost effective and efficient use of respondent time and agency resources while gaining immediate research results directly relevant to qualitative and/or quantitative methodologies. FG help establishment survey researchers identify the breadth and depth of the cognitive insights communicated in a group context in a relatively short time.

The purpose of this paper is to identify sources of response errors in an annual federal survey of establishments where its questionnaire redesign research involved conducting two focus groups, and analyzing their findings according to an establishment survey response model adopted after Edwards and Cantor (1991), and Tourangeau (1984). We discuss in Section 2 focus group procedures used for the redesign of the Hours at Work Survey (HWS), an annual survey of 6000 establishments. Section 3 presents findings according to an establishment survey response model. The model includes record formation, comprehension of questions involving classification, record lookup, judgment and quantification, and reporting answers.

We conclude the paper in Section 4, with research implications for the future.

2. FOCUS GROUP PROCEDURES

Recruited participants: In order to recruit participants for two focus groups, we emphasized three principles in the recruitment process. First, we encouraged the use of a Call Record Sheet for each contact. This form helped us track when, whom, and how to contact a respondent when we did not reach that individual on the initial call. Second, we assured the participant that the focus groups process was strictly confidential. We promised not to reveal company name, and responses were used strictly for analytical purposes. Finally, we determined whether or not the respondent is the potential respondent and/or knowledgeable about the company's recordkeeping system. Five of eight recruited attended the first group; four of 10 recruited attended the second group.

Designed protocols: In the protocols we designed for conducting focus groups, we greeted and introduced the moderator(s) and participants first, and explained some ground rules. The objectives we laid out were in order as follows: 1) concepts and comprehension, 2) record keeping, 3) record look-up and judgment, and 4) motivation. This structure helped us identify where specific sources of measurement errors may be found. The protocol analysis was based on the verbal interactions in the focus groups following this paradigm. Its results provided insight about where to reduce or eliminate sources of measurement errors specific to the questionnaire, respondents, record-keeping system, interviewers, and interactions between these sources.

3. FINDINGS

Two focus groups were conducted with five objectives below:

- Identify how the employers of production/nonsupervisory workers do record-keeping ;
- Evaluate the extent to which the HWS respondent understands relevant concepts and questions, and classifies categories;
- Investigate the process of record look-up in which the respondent compiles data on hours paid, hours

Table 1 Focus Groups Findings according to an Establishment Survey Response Process

Response Process	HWS factors related to source of error	Errors Discussed	
		Group 1	Group 2
<u>Record formation/Encoding</u>			
	Computerized vs. Paper-based	*	***
	Production/Nonsupervisory	*	***
	Hours paid	**	*
	Hours at work	**	*
	Paid leave	**	**
	Overtime	None	**
	Classification of workers		
	Salary vs. Hourly	None	***
	Temporary/seasonal	**	**
	Non-hours-based	***	***
	Pieceworker	***	None
	Commissioned	None	***
	Time period	*	***
	Unit of Record	**	**
<u>Comprehension/Classification</u>			
	Production/Nonsupervisory	**	***
	Hours paid	**	**
	Hours at work	**	**
	Paid leave	**	**
	Establishment	***	*
	Who is the respondent?	**	**
<u>Record lookup/Memory retrieval</u>			
	Respondent's relationship to system	*	*
	Timing	**	**
	Motivation	*	*
<u>Judgment/Quantification</u>			
	Data availability	**	**
	Specification Error (Mismatch)		
	Production/Nonsupervisory	*	**
	Hours paid	**	***
	Hours at work	**	***
	Paid leave	*	**
	Omission error	*	*
	Inclusion error	*	*
<u>Report</u>			
	Social desirability	None	**
	Firm's policy constraint	None	*

Note: We adopted the establishment survey response process from Edwards and Cantor (1991), and Tourangeau (1984). An asterisk indicates the relative amount of group discussion on an issue across two focus groups. Three asterisks suggest an in-depth discussion; two, a moderate discussion; and one, a minimal discussion.

- at work and paid leave;
- Evaluate the extent to which the respondent judges the available (hard) data to be appropriate to answer the HWS questions; and,
- Investigate what motivational factors enhance the selected establishment's participation in the HWS. Results were analyzed on the basis of these objectives. Corresponding recommendations were developed which will be reflected in the redesign of both the

HWS mail form, and the Computer Assisted Telephone Interview (CATI) script for nonresponse follow-up.

Table 1 summarizes findings according to the establishment survey response model.² The model suggests that to answer a question the establishment survey respondent goes through five information processing stages: 1) record formation or encoding, 2) comprehension and classification, 3) retrieval by record look-up or memory, 4) judgment and quantification, and 5) reporting answers.

Factors relevant to the source of response errors are categorized within each response process. Findings from each of two focus groups are classified in Table 1 indicating where a piece of information is relevant. For each of these factors, we indicated the relative amount of group discussion across two groups. Three asterisks indicates an in-depth discussion; two, a moderate discussion; and one, a minimal discussion. For example, as indicated by a single asterisk in the first row, third column, the first focus group briefly touched upon the issue of record formation in terms of computerized vs. paper-based record keeping system. On the other hand, as indicated by three asterisks in the first row, last column, participants in the second group elaborated on the issue of record formation in depth, and helped us understand the potential variations of computerized information systems and their impact upon data quality.

As planned, we spent most of the time in the two focus groups understanding the variations of relevant record formation in the firms. In both focus groups, we had about the same amount of discussion to evaluate the extent to which payroll representatives from firms understood relevant concepts and questions, and classified categories such as types of workers and paid leave. In the first group, the amount of discussions specific to record look-up were no less than those focusing on reports of answers. However, in the second group, it appeared that we had more discussion which evaluated the extent to which participants judged and quantified the available data in order to answer the HWS questionnaire.

We reviewed important findings specific to each response process for answering the essential HWS questions: production or nonsupervisory workers, hours paid, hours at work, and paid leave. Discussion about the report stage is absent due to lack of relevant findings in the two focus groups.

3.1 Record formation/encoding

Computerized vs. paper-based information system: The respondents informed us that that availability and type of computerized record-keeping systems determine the completeness and accuracy of the responses to each of the HWS questions. We learned that the availability of a computerized record-keeping system depends upon the size of the firm which is indicated by the number of employees. Overall, the larger the firm, the more likely it is to have a computerized system. Regarding the variations of the computerized record-keeping system, it appears that the firms have diverse ways of record-keeping such as 1) hiring an outside company to handle the payroll, 2) using an in-house customized program only, 3) using both an outside payroll processor and an in-house program, 4) using a commercial software package as is, and 5) using software adaptable to specific needs.

Hours paid: All respondents reported that they kept hours paid information for workers in an information system or log book, except for employees such as piece workers, and commissioned workers including salesmen and truck drivers. For piece workers, it would be theoretically possible to compute the number of hours they were actually on the job. Actually estimating these hours, however, was not realistic because it involves a manual record check of each employee's time card for every time period. For truck drivers, a formula that a firm used to compute hours paid did not match the HWS definition. For other commissioned workers, it appeared that the firm did not know how to convert commissioned work to the number of hours paid. The current HWS has no mechanism to handle these categories of non-hours paid workers. We also do not know the full scope of these types of workers or their impact on the productivity ratio.

Time period: All participants agreed that there was no representative time period (e.g., pay period, month or quarter) that would be used to report accurate hours information.

3.2 Comprehension and Classification

Once the payroll representative figures out which unit of their establishment they should report, the next task is to understand who to include and exclude in the production or nonsupervisory worker category. This comprehension and classification task requires a respondent knowledgeable about the firm's information system.

Classifications of workers by production or nonsupervisory vs. nonproduction or supervisory:

This is the most important HWS definition that we attempted to communicate to respondents before they began to answer questions about hours information. Several participants found the classification of supervisory versus nonsupervisory and production versus nonproduction workers to be ambiguous and very difficult to follow. In terms of record formation, none of the firms in the two focus groups stored data specific to production or nonsupervisory workers. Some firms did have a data processing mechanism that could select production or nonsupervisory workers from their information systems. The production/nonsupervisory definition, however, did not necessarily match the HWS definition. Some participants indicated that they used alternative classifications in their systems such as exempt vs. nonexempt, or administrative vs. nonadministrative. However, these distinctions also did not match the HWS classifications.

Hours at work: The conceptual understanding of the hours at work was not discussed in the focus groups. Without defining the concept, payroll representatives discussed what they would likely report as hours at work information. The feasibility of reporting this piece of information depends upon 1) the existence and classification of type of worker, 2) treatment of overtime, 3) whether the relevant record is stored in the information system, and 4) whether the hours paid minus paid leave information can be obtained and used as hours at work information. None of the firms reported their hours at work information according to the HWS definition. For salaried employees, no record was generally kept of their hours at work. For the non-hourly workers, it was reported that it would be very difficult, if not impossible, to report the hours information. For those firms who were not able to report the hours at work directly, they seemed to be able to report paid leave information except for hourly workers.

Who is the respondent?: All participants in the focus groups agreed that they were the person in their company who would receive and fill out the HWS form. We expected this as we had attempted to contact the most knowledgeable respondent during the recruitment process. We learned that identifying the "most knowledgeable" respondent for the HWS is extremely important in order to reduce both nonresponse errors and response errors that may arise from any stage of the establishment survey response process. For a small firm, such a respondent may be an owner, a co-owner or the office manager. For a medium or large establishment, it is more likely that

there is a person responsible for payroll and hours information. For a firm whose reporting unit is located elsewhere, it is important to initially mail the form to the correct contact person. The process of refining the list of contacts (i.e., person's name and address) should, therefore, receive special attention.

3.3 Record look-up/retrieval from memory

Respondent's relationship to the information system: The majority of the focus group participants worked in payroll, personnel or human resources departments. The remaining respondents were owners or office managers. When a respondent is contacted, it is expected that comprehension error would be reduced to the extent to which s/he would more likely be familiar with the content of the survey questions and less likely to have problems putting the data in the requested categories. However, if such a person is not knowledgeable or not able to access the relevant records, the HWS data quality is likely to be affected due to the respondent's inability to use relevant hard data on hand.

Timing of the HWS mailings: Participants all agreed that the best time to mail the HWS is during February. January is the time during which establishments prepare many federal and financial documents including W2 forms. The HWS form is expected to get much less attention from the firms in January. Some firms appeared to have a policy to set non-mandatory surveys aside until someone had time to do it. If no time was available, the survey remained unanswered, forgotten, or thrown out. An additional reason that the HWS should avoid January is that the data necessary to fill out the HWS may not be ready in the first month of a new year.

3.4 Judgment

Data Availability and Consistency with Definitions: The hours paid information appeared to be available although some respondents felt uneasy about distinguishing production or nonsupervisory from non-production or supervisory workers. The availability of accurate hours at work data depended on the extent to which the firms had a record-keeping system that could directly retrieve the appropriate information. As an alternative, some firms reported that they had 'paid leave' information for some types of workers, but not all required by the HWS. Omission errors occurred when the payroll representative left out some type of workers or hours information such as overtime. Specification errors arose when the respondent could

not report some essential information (e.g., overtime and jury leave) that fit the HWS definition.

4. CONCLUSION

We have examined the results of two focus groups conducted for the redesign of the HWS in order to identify the sources of response errors. In response to the identified errors specific to each response process in the Hours at Work Survey, we recommended several revisions to the redesign of the HWS mail form and CATI script (detailed resolutions not presented here). Edwards and Cantor's (1991) response model was applied in preparing the protocol of the focus groups, and findings were analyzed accordingly. The principle advantage of applying Edwards and Cantor's model was to isolate the sources of response errors, and to develop mechanisms (e.g., form redesign, and implementation procedure) to reduce or eliminate specific response errors. However, any conclusions drawn from these focus groups have to be interpreted *with caution* because the ideas generated by group discussion may differ from those identified by individual cognitive interviews. Our study is the first application of Edwards and Cantor's response model developed for establishment survey respondents. More studies should replicate in order to evaluate the model's utility in conducting focus groups and analyzing findings.

Reducing or eliminating response errors may involve asking questions that establishment respondents may find difficult to answer due to information constraints (e.g., availability and accessibility). This response burden may, in turn, reduce motivation of respondents, leading to a declining response rate at the cost of gaining more valid data. The tradeoff between reduction of response errors and increase of nonresponse errors is not an easy issue to evaluate in focus groups, which is qualitative by its very nature. Other quantitative research should thus be conducted to enhance findings from focus groups.

NOTES

1 Focus groups, the term Merton and his colleagues (1956) never used but are credited for the development, originated from communications research and propaganda analysis during the 1940s.

2 It is useful to briefly describe each of the response processes of an establishment survey: record formation, comprehension and classification, record look-up/retrieval from memory, judgment and quantification, and reporting answers. Record formation, according to Edwards and Cantor (1991), is the process where the

establishment sets up an information system by which records are stored. The system varies from fully computerized, to log-book-based, to memory. Respondent selection is critical in the establishment survey because the next cognitive stages of comprehension involve classification, and record look-up depends upon the extent to which a respondent is aware of the firm's information system and knows how to access the system. Comprehension is the next cognitive process and involves interpretation of the HWS question and instructions. In the HWS context, this is the stage where the respondent classifies distinctions between production-nonsupervisory vs. nonproduction-supervisory, between hours paid, hours at work, and paid leave. Once the HWS respondent comprehends/classifies the intent of the question, s/he searches for the relevant record from the information system or memory in order to answer the question. This "retrieval by record look-up or memory" is followed by judgment including a quantification process where the respondent makes judgments about the extent to which his or her response is what the HWS intends. When perceived inappropriate, the respondent adjusts his or her judgment, or refers to other sources including other knowledgeable people in the firm. The final stage is the actual reporting of answers that are judged appropriate.

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