Journal of Official Statistics
Vol. 1, No. 2, 1985, pp. 179–188

Informal Testing as A Means of Questionnaire Development

Dawn D. Nelson[1]

Abstract: Informal testing, also called pretesting, is a fundamental step in the process of developing a questionnaire. Because it is a relatively easy and inexpensive technique, it is used frequently to detect and correct problems in a proposed questionnaire. As described in this paper, an informal test requires a small number of field interviews to be conducted and depends mainly upon subjective evaluations for suggestions on improving the questionnaire. Informal tests are particularly useful in discovering poor question wording or ordering, errors in the format or instructions, and problems caused by the length of the questionnaire or the respondent's inability or unwillingness to answer the questions. Information is provided on how to conduct an informal test and use the results to improve a questionnaire. In addition, an example of an informal test that was conducted by the U.S. Bureau of the Census is described.

Key words: Questionnaire; informal test; pretest; pilot study; data collection; survey planning; and survey research.

0. Introduction

The U.S. Bureau of the Census conducts about 25 household surveys every year on demographic subjects such as income, education, health, employment, expenditures, and so forth. Several major nationwide surveys are conducted on a continuing basis, with data collected at specified intervals; e.g., monthly, quarterly, or annually. Other Federal agencies fund the work on many of these surveys, including the National Health Interview Survey, National Crime Survey, Consumer Expenditure Survey, and the American Housing Survey. Another survey, the Current Population Survey, which provides the official U.S. unemployment and labor force estimates, is jointly funded by the Census Bureau and another agency, and the Survey of Income and Program Participation is solely funded by the Census Bureau. In addition, a number of one-time surveys and supplemental inquiries on continuing surveys are conducted frequently, primarily for other agencies.

Most of the surveys collect a large quantity of detailed information, and therefore, require face-to-face interviewing. Generally, the Census Bureau is responsible for the development of the survey questionnaire; although some sponsors take a more active role than others. The Bureau relies upon the standard types of guidelines regarding questionnaire wording, sequencing, and formatting that are found in several published sources on the subject (e.g., Payne (1965); Sirken (1972); Sudman and Bradburn (1982)). These guidelines, however, are general and are not always applicable to every questionnaire situation because of differences in the subject matter, respondent population, or survey design.

[1] U.S. Bureau of the Census, Demographic Surveys Division, Washington, D.C., U.S.A.

Consequently, pretesting is considered to be a necessary step in designing a questionnaire.

The type of pretesting most frequently used by the Bureau is: a questionnaire field test involving a relatively small number of interviews in the kind of setting chosen for the final survey (i.e., home, work, etc.) as opposed to a laboratory setting. In this type of testing, detection and correction of problems in the questionnaire draft depend mainly upon subjective information provided by the interviewers and observers. Such tests are not designed to be evaluated on a rigorous statistical basis. Since the term pretesting also is used in reference to other types of testing such as split-sample testing, which does rely on statistical evaluations, the remainder of this paper will use the term informal testing rather than pretesting to avoid confusion.

Informal testing is particularly appropriate for the development of questionnaires to be used in personal visit or telephone surveys because interviewers and observers can be used as a source of feedback. In developing a mail survey questionnaire, such testing can provide information on overall response rates and item nonresponse on completed questionnaires. It is also possible to have interviewers deliver mail questionnaires, watch respondents complete the questionnaires, and, afterwards, discuss any problems. Regardless of the final method of interviewing, some questionnaire testing should be conducted prior to the survey, unless the same questionnaire was used in another survey.

Given the constant constraints of time and costs, however, there may be a strong temptation to omit this testing stage in the development of a questionnaire. Unfortunately, the trade-off may be lower quality or worthless survey data. Therefore, the purpose of this paper is to encourage the use of informal testing as a relatively simple and inexpensive means of improving a questionnaire. Section 1 of the paper describes the preparations before an informal test; Section 2 covers the operation and evaluation of the test: Section 3 discusses time and cost considerations; and Section 4 provides an example of an informal test conducted by the Census Bureau in preparation for a recent nationwide survey[2].

1. Preparing for an Informal Test

1.1. Preliminary Design Work and Considerations

An attempt to draft a questionnaire should not be made until the objectives of the proposed survey have been clearly determined, including what data should be collected and how it will be used. The next step is to review available literature on the survey topic(s) and questionnaires from other related surveys, if there are any. Experts in the problem area also should be consulted, if possible. In addition, there are some qualitative techniques that can be used effectively in developing the framework and content of a questionnaire before the specific questions are written.

The two main qualitative techniques are unstructured individual interviewing and group interviews. Unstructured individual interviewing is a discussion of the proposed survey topics between one member of the target survey population and the questionnaire designer or a specially trained interviewer. The discussion is guided by a topic outline rather than a set of specific questions. Qualitative group interviews are informal discussions about the survey content that involve several members of the intended survey population. These discussions are

[2] This article was adapted from a paper prepared for the report, Approaches to Developing Questionnaires, Statistical Policy Working Paper 10, (November 1983: Office of Management and Budget). Several other valuable tools and techniques for developing questionnaires are discussed in this report.

usually led by someone who is knowledgeable about group interviewing techniques and the purpose of the survey. These techniques can provide valuable insights into the best way to structure the questions and questionnaire[3].

There are some other basic issues that need to be considered also before the first attempt is made to draft questions. These include such things as the data collection mode, the type of respondent, and whether the survey will be longitudinal (including the number and frequency of interviewing). The overall structure of the questionnaire should also be established showing the organization and relationship of the various components, pieces, or sections making up the entire questionnaire. For example, a separate section/document may be necessary for each different person within the household who is to be interviewed.

Based on information obtained and decisions made at this stage, the designer can begin to draft the questionnaire. Writing the questions is a critical step because the results of the survey depend on the answers given to each question. The question wording must be clear and comprehensible to most respondents to minimize biasing of the survey results. In addition to writing the questions, the designer must sequence them in a natural order that will flow smoothly from one question to another.

To achieve the best results, the questionnaire draft should be subjected to extensive review by others who are involved with the survey or knowledgeable about topics covered. Several iterations of the questionnaire may be necessary before it is ready for testing. At this stage, it is imperative that the draft questionnaire be tested with the proposed survey population. Ideally, a series of tests should be planned so that changes made after one test can be evaluated in a subsequent test. Frequently, an informal test is the first step in a series followed by split-sample testing involving more sophisticated types of evaluation.

1.2. Identifying the Objectives of the Test

Informal testing could be considered a part of the preliminary design work, but it is conducted for a different purpose than the qualitative interviewing. The qualitative work provides a basis for developing the questions whereas informal testing provides a means of evaluating questions once they are drafted. As in preparing for the survey, preparations for an informal test should be guided by a clear statement of the test objectives.

Frequently, the objective of an informal test is to discover poor question wording or ordering, errors in questionnaire layout or instructions, and questions that a respondent cannot or is unwilling to answer. In addition, they can be used to assess the feasibility of using a particular concept in a questionnaire, to determine if the questions seem to elicit appropriate responses, and to suggest additional questions or response categories that can be precoded on the questionnaire. Other relevant objective information, which might affect the final questionnaire design, also can be obtained in a informal test–e.g., a preliminary indication of the interview length and refusal problems.

1.3. Selecting the Sample and Site for the Test

Usually, adequate subjective information can be obtained from 30 to 300 respondents. The objectives of the test help to determine the best size for the sample. If the objective is to discover wording and sequencing problems, only a minimum number of interviews may be required. More interviews (50–100) are generally necessary to determine precoded answer categories based on open-ended responses obtained in an informal test.

[3] See Approaches to Developing Questionnaires. Op cit pp. 11-27. See also Morton-Williams (1978).

And finally, the maximum number of interviews may be needed if the results will be used to select items for inclusion in attitude scales. See Courtenay (1978).

Regardless of the sample size, the respondents generally are selected purposively rather than randomly to achieve the desired objectives of the test. For example, if the survey will be conducted with a general population sample, representatives from a broad range of subpopulations should be included in the informal test. On the other hand, if the questions are directed at a specific subpopulation such as high-income persons, the entire test sample might be composed of representatives of that group to ensure adequate coverage with a small number of interviews. When this is the case, the site selection may depend on the location of the subpopulation or availability of high quality records for use in selecting a sample. If no such constraints exist, then convenience and low cost are the chief factors in selecting a location, which frequently results in the selection of a site or sites near the office conducting the work. Since informal tests are restricted to a few sites, the inferences drawn from the results do not necessarily apply to other sites or the Nation as a whole.

1.4. Considering the Design Issues

The study design for informal tests is probably more important than the number of interviews because subjective evaluations are not always improved by the quantity of observations. Compared to split-sample tests or the actual survey, however, the design of an informal test is usually relatively simple. In planning for one, the following factors should be considered:

a) The questionnaire composition
   The entire questionnaire or only a portion of it may be tested. When only one test is planned, it is advisable to use the entire questionnaire even if some of the questions were adopted from other surveys. These borrowed questions should be included in the test because they may be affected by the presence and order of the other questions. Also, the fact that a question has been used before does not assure that it is error-free.

   When a series of tests is planned, one or more of the informal tests may be devoted to a particular portion of the questionnaire that is expected to be troublesome. In such situations, the section tested might be relevant only for a particular subpopulation, making it feasible to limit the test sample to that population subgroup as discussed previously. The last test in the series should use the entire questionnaire to show how the various sections work together.

   Two or more versions of the question (or answer) wording or order may be tested also. Although this is perhaps more common in split-sample testing, it can be used effectively in an informal test to make a quick comparison of the alternatives. The information obtained in this way should help in structuring more rigorous tests of the alternatives.

b) The interviewing method
   Again, the choice of interviewing procedures is affected by whether a series of tests is planned. If the informal test will be the only test, the questionnaire probably should be administered in the same manner selected for the survey (e.g., interviewer-administered in person or by telephone). However, as part of a series in which the informal test will be used only for a preliminary indication, a different method may be justified to save time and/or costs. Also, as previously mentioned, an informal test of a mail survey usually is more effective if interviewers are used at this stage.

c) The selection and training of interviewers
There are advantages in selecting skilled, experienced interviewers for informal tests. With such interviewers, it is more likely that question misunderstandings or difficulties will be due to questionnaire design deficiencies rather than to the interviewer. They also can provide considerable assistance in improving the questionnaire based on their experiences with other surveys. There are some disadvantages, however; e.g., they may be able to handle situations that will cause problems for less experienced interviewers in the actual survey. Also, they may be more efficient, resulting in misleading estimates of the length of the interview. Thus, the use of interviewers with varying experience and skill levels may be the best choice for an informal test.

The interviewers should be well-trained on how to obtain information that will be useful in refining the questionnaire. They should know the purpose of the test, and that they are expected to be critical of the questionnaire. Also, they should be thoroughly instructed on the concepts and definitions used in the questionnaire, as well as on the proper way to administer the questionnaire. With a better understanding of the rationale and logic behind the questions, the interviewer should be able to make a more significant contribution to the evaluation.

Another option is for the questionnaire designers and researchers to serve as interviewers. This ensures that the persons doing the interviewing are thoroughly familiar with the aims and objectives of the test. This familiarity may be a drawback, however, because there could be a tendency to make the questionnaire successful by overlooking or minimizing problems. One solution is to use both designers and interviewers to obtain a more balanced picture.

Questionnaire designers and researchers performing this role need to be trained as interviewers. Without proper training on interviewing techniques, they could adversely affect the test results. Such training should make them more sensitive, in general, to the problems questionnaires can cause interviewers.

1.5. The Observational Feedback System

The most important element in the test design could be the system developed to capture subjective observations on the performance of the questionnaire. Although the questionnaire designers should observe as many interviews as possible, there are a number of other ways of providing feedback for use in evaluating a questionnaire. Several techniques will be briefly described here. Anyone who is planning an informal test should refer to other sources of information written about these techniques[4].

a) Frame-of-reference probing
One technique is to have the interviewers probe to ascertain whether certain words, phrases, or situations are understood by different respondents in the manner intended by the questionnaire designers. This involves asking respondents some additional questions, which may be structured or unstructured, to investigate the meaning of their original responses to the questionnaire.

Unstructured questionning usually works best at the end of the interview, whereas, structured questions may be incorporated into the questionnaire in the appropriate place or asked at the end. Usually, a respondent will only tolerate

[4] For more details on each of these techniques, see Approaches to Developing Questionnaires. Op cit pp. 89-135.

probes on a few questions (2–4); the number of probes per question must also be limited. Consequently the choice of which words, phrases, or concepts to probe is important since it is limited. Probing is particularly useful for understanding responses to questions that might be affected by emotions. The results of probing are commonly recorded by using a tape recorder or by having someone other than the interviewer take notes. When structured, printed probes are used, precoded answers may be developed to aid in recording the answers.

b) Observation of interviews

Observation of face-to-face interviews or monitoring of telephone interviews is one of the most easily employed evaluation techniques. Observers are extremely helpful because they can watch (or listen) to the interaction between the interviewer and respondent to detect problems that might not be apparent to the interviewer. Another option besides observing "live" interviews is to tape record interviews for later analysis. Regardless of the method, a variety of interviewers and observers should be used to avoid biasing the results.

Observers must be instructed on specific points to look for such as whether the interviewer asked the question exactly as worded and in the correct sequence, or omitted the question; whether the respondent needed an explanation, answered adequately, and so forth. They may be provided with a form to use in recording observations or they may write notes directly on the questionnaire. In addition, observers should write a report summarizing their observations.

Tape recordings of interviews allow for more detailed analysis. Cannell et al. (1975) and Morton-Williams (1979) developed a coding scheme for recorded interviews to classify different types of interviewer and respondent behaviors called verbal interactions. Several codes are used to describe an interaction on one question; e.g., a code to indicate whether clarification was necessary and a code to indicate whether the question was asked properly. The codes make it easier to analyze a problem objectively and attempt to diagnose it. It is, however, a complex technique that is expensive and time consuming.

c) Debriefings

Two other techniques can be used to obtain evaluation information from interviewers: i) interviewer debriefings, and ii) structured post-interview evaluations. An interviewer debriefing is an organized discussion of the questionnaire involving the interviewers and designers/researchers. Individual interviewer debriefings may be held but group debriefings are more common. The group should not exceed approximately 15 persons, however. If more persons are involved in the test, several small groups should be arranged.

Debriefings may be held on a daily basis throughout a test or a single debriefing may be conducted at the end of the test. More frequent debriefings allow suggested changes to be implemented throughout the testing. To ensure that the discussion covers relevant questionnaire problems, an outline should be prepared to guide the discussion. The discussion leader also plays an important role in keeping the discussion on track. Interviewers may be given the outline in advance to help them organize their thoughts and prepare appropriate comments. Digressions from the outline are to be expected, however, because the group atmosphere should stimulate new ideas and topics for discussion.

Debriefing sessions are frequently tape recorded for later analysis. Even when it is taped, however, a designated person should take notes during the debriefing. It is generally easier to prepare a report from the notes and memory; transcription of the entire tape is very time consuming. However, the tape can be very useful for reviewing parts of the session that were unclear in the notes.

d) Post-interview evaluations
Structured post-interview evaluations are the final technique to be covered here. These evaluations are frequently called "ratings" and rely on questionnaires administered to the interviewers to obtain information about possible interviewer biases and perceptions of the respondents' attitudes and behaviors. The questionnaires are usually self-administered and are given to every interviewer who participated in the test. The interviewer may be requested to fill out one form for each interview or one form that summarizes observations from all of the interviews. The interviewers' responses to these questionnaires are analyzed in light of the respondents' responses in the test. The results might show, for example, that interviewers with certain attitudes get more nonresponses to a particular question. With this information, such biases might be diminished by designing interviewer training to address this problem.

2. The Operations and Evaluation of the Test

2.1. Operational Issues

The evaluation of an informal test can be hindered if steps are not taken to ensure that the questionnaire is administered properly. The persons conducting and observing interviews should understand the objectives of the test and the importance of not *arbitrarily* varying the questionnaire wording and administration. However, they occasionally may need to reword questions or ask other questions when it is suspected that a response is inaccurate, inappropriate, or insufficient. Guidance should be provided on using this technique and, when used, it should be noted as part of the feedback system to provide further insight into potential questionnaire problems.

One major advantage of an informal test is the possibility of making "on the spot" revisions to the questionnaire as a result of the feedback. Because of the small number of people and questionnaires involved, any problems uncovered can be discussed at the end of one day's interviewing and changes made before interviewing begins the next day. These changes and the rationale for making them should be recorded for later use in evaluating the questionnaire's performance. Finally, the lines of communication between the questionnaire designers, observers, interviewers, and other project staff should be well established to enhance the feedback during the test. Personnel involved in the evaluation should actively participate in the operational phase of the test, and the entire process should be carefully documented throughout the testing.

2.2. Evaluating the Results

Much of the evaluation in an informal test is simply the use of common sense in reacting to problems identified by the feedback system. The lack of objective criteria for evaluating the questionnaire responses may be seen as a disadvantage of this type of testing. However, some quantification of the responses may be possible; e.g., tabulations of the number of Don't Know, Refused, or Not Applicable responses to a question. These types of responses, in addition to inconsistent and missing responses, often identify various questionnaire problems. These tabulations

usually can be performed clerically because of the small number of cases. Verbal interaction coding, mentioned previously, is another way of quantifying problems for analysis.

Unfortunately, the test often only indicates that there is a problem; it does not provide the "correct" solution. For example, if a given question is not answered frequently in a test, there may be a problem with the wording. However, unless the interviewers or observers found out why the question was not answered, the questionnaire designer might not have enough information to rephrase the question in a way that will elicit more responses.

Whenever substantial changes are made in the questionnaire as the result of testing, it is essential to conduct another test to evaluate the new questionnaire. Because informal test conclusions are not reached on the basis of statistical evidence, such tests are frequently the first step in a process leading to split-sample tests from which more reliable inferences can be made. Consequently, thorough documentation of the evaluation process and resulting questionnaire changes should be made for use by future researchers.

3. Time and Cost Considerations

3.1. Time

The amount of time required to conduct an informal test varies according to a number of factors, including: i) the number of cases and interviewers; ii) the length of the interview; iii) the distance between sample households in face-to-face interviewing; iv) whether materials must be sent to a printing company; v) whether interviewer instructions, training materials, debriefing guides, and observer forms need to be written (the larger the number of sample cases, the more likely it is that these materials will be put in writing); and vi) whether materials have to be mailed to the interviewing site. The work schedule should always allow time to incorporate feedback into the questionnaire and for possible delays due to unexpected problems.

3.2. Costs

Relative to split-sample field tests, informal tests are inexpensive data collection efforts. This, in addition to the relative speed with which they are conducted, contributes to their usefulness as tools for questionnaire design.

The factors that contribute to the costs include: i) interviewing and field staff salaries, (which are the major cost; ii) other salaries e.g, for questionnaire designers, observers; iii) travel and expenses for interviewers and observers; iv) forms design and/or reproduction of questionnaires; and v) postage if materials need to be mailed to the field and telephone charges for telephone interviews.

4. Informal Test Example

4.1. Introduction

An informal test was conducted prior to the 1980 National Survey of Fishing, Hunting, and Wildlife Associated Recreation (FHWAR) to refine the proposed questionnaire. Although this survey had been conducted at 5-year intervals since 1955, it was acknowledged that the previous questionnaires contained some weaknesses. Specifically, better data was needed on "nonconsumptive users" of wildlife resources. Whereas, many of the questions for fishers and hunters had been used in the previous surveys, the questions for wildlife photographers, bird-watchers, and other observers of nature were relatively untested. The Bureau of the Census conducted the test and the survey for the Fish and Wildlife Service (FWS) of the Department of the Interior. This test was selected as an example here because it points out several different types of questionnaire problems that can be detected during informal testing. The cost of this test was approximately $20 000,

and it took a little over 3 months to plan, conduct, and evaluate.

4.2. Technical and Operational Considerations

The test was designed to use the basic methodology proposed for the survey, namely, a telephone screening interview with a household respondent, which was followed by a detailed personal interview with each household member who was identified as a hunter, fisher, or nonconsumptive user. Three questionnaires were used in this process: i) a screening questionnaire to identify persons for further questioning; ii) a detailed questionnaire for hunters and/or fishers; and iii) a detailed questionnaire for nonconsumptive users. Persons who were hunters/fishers *and* nonconsumptive users were administered both detailed questionnaires.

The methodology for the test varied from the survey in that a judgmental (nonprobability) sample was selected to provide a sufficient number of participants for personal interviews. The survey used a probability sample. The sample was selected from a list of respondents who had been in a survey conducted by the Michigan State Department of Natural Resources in 1979 and who were licensed to hunt or fish at that time. It was assumed that it would be impossible to reach many of these persons by telephone (wrong number, no answer, etc.) and that some of those reached would not be identified as hunters, fishers, or nonconsumptive users. Also, of those identified, some would be unavailable for a personal interview. Therefore, approximately 400 persons were initially selected from the list to ensure that at least 100 persons would be identified for a detailed interview.

Ten experienced Census Bureau interviewers were selected to enable the test to be completed within 5 days. A self-study guide was sent to interviewers to familiarize them with the questionnaire content. Then, classroom training was held to discuss the test procedures and provide practice in administering the questionnaires in mock interview situations. In addition, the Census Bureau prepared a Reference Manual to assist the interviewers in administering the questionnaire.

To aid in the test evaluation, Census Bureau and FWS staff members accompanied the interviewers to observe and report on the detailed interviews. In addition, the interviewers were encouraged to report any problems in a debriefing session following the interview period. The questionnaire data were not processed; however, some clerical tallies were made for evaluation purposes.

4.3. Results

The test results indicated that the screening interview could be used to identify hunters and/or fishers and nonconsumptive users who were eligible for the detailed interview. There were two major findings, based on subjective evaluations, regarding the adequacy of the screening questionnaire. First, it was observed that length was affecting cooperation. In the test, 10 out of 100 respondents refused to allow a personal visit interview because of the time it had taken to complete the screening questionnaire. Therefore, a recommendation was made to shorten the screening questionnaire by dropping several questions that were unnecessary for screening purposes.

The second major finding was that household respondents had more trouble identifying nonconsumptive users than hunters/fishers. It was thought that the loose definition of nonconsumptive users might be the cause and could be resolved by clarifying those screener questions.

Based on subjective observations, the observers and interviewers thought there were several problems with the detailed questionnaires used in the personal interviews. In general, the questions seemed repetitious and

wordy. To help the flow of the interview, changes in the interviewing techniques, skip patterns, and questionnaire format were suggested. Problems with specific questions included: i) confusing wording; ii) deficient visual aids; iii) vague terms and concepts; and iv) missing answer categories. Again, appropriate improvements were suggested where possible. Clerical tallies of item nonresponses were also used to identify problems with specific questions, and efforts were made to change the questions and interviewer training to elicit more answers to these questions.

Overall, it was noted that the structure of the detailed questionnaires led to potential double reporting of information; e.g., three reports of one trip that involved hunting, fishing, and nonconsumptive activities or three reports of the same trip by three family members who went as a group. On the other hand, trips originating from a vacation home were probably missed because of the wording of the introduction to this set of questions. This resulted in some suggestions for restructuring the questionnaire and rewording the introduction.

The revised questionnaire was used in the survey, which was completed in 1981. The FWS used the results to prepare a national report and individual state reports for the 50 States. The national report was released in November 1982, and the primary users, namely, fish and wildlife planners and managers at all levels of government, have found these data generally accurate and useful. These favorable results were probably due, in part, to questionnaire improvements arising from the informal test.

5. References

5.1. *References Cited in the Text*

Cannell, C.F., Lawson, S.A., and Hausser, D.L. (1975): A Technique for Evaluating Interviewer Performance. Survey Research Center, University of Michigan, Ann Arbor.

Courtenay, G. (1978): Questionnaire Construction. In Hoinville, G., Jowell, R., and Associates: Survey Research Practice. Heinemann Educational Books, London, pp. 51–53.

Morton-Williams, J. (1978): Unstructured Design Work. In Hoinville, G., Jowell, R., and Associates: Survey Research Practice. Heinemann Educational Books, London, pp. 9–26.

Morton-Williams, J. (1979): The Use of "Verbal Interaction Coding" for Evaluating a Questionnaire. Quality and Quantity, Vol. 13.

Payne, S. (1965): The Art of Asking Questions. Princeton University Press, Princeton, N.J.

Sirken, M.D. (1972): Designing Forms for Demographic Surveys. Laboratory for Population Statistics, Manual Series No. 3.

Sudman, S., and Bradburn, N.M. (1982): Asking Questions: A Practical Guide to Questionnaire Design. Jossey-Bass Publishers, San Francisco.

5.2. *References Not Cited in the Text*

Belson, W.A. (1981): The Design and Understanding of Survey Questions. Gower Publishing Co., Ltd., London.

Babbie, E.R. (1973): Survey Research Methods. Wadsworth Publishing Company, Belmont, CA., pp. 205–221.

Cannell, C.F., and Robinson, S. (1971): Analysis of Individual Questions. Working Papers on Survey Research in Poverty Areas, Survey Research Center, University of Michigan, Ann Arbor.

Goode, W.J., and Hatt, P.K. (1952): Methods in Social Research. Mc Graw-Hill Book Company, New York.

Moser, Sir Claus, and Kalton, G. (1972): Survey Methods in Social Investigation. Basic Books, New York, pp. 47–51.

Received August 1984
Revised February 1985