QUESTIONNAIRE DESIGN

Statistics Canada Course 410E

Instructors:

Allen Gower & Anna Paletta

Questionnaire Design Resource Centre

December 10-12, 1997

OBJECTIVE OF THE WORKSHOP OVER THE NEXT 3 DAYS:

To give you an overview of questionnaire design, including:

- Methods used to develop and test questionnaires
- Types of questions
- Wording and sequencing of questions
- Format and layout of questionnaires

PLANNING CONSIDERATIONS

1. **Biggest Challenge**

   - To translate a vaguely formulated concern into a well-conceptualized and methodologically sound study

2. **Objectives and Information Needs**

   - Consideration of the information need
   - Clarification and analysis of the information required
   - Specify what information is needed, from whom or where the information should be obtained, and how the information will be used

3. **The following questions should be addressed:**

   - What is the problem?
   - What do I need to know?
   - How will the information be used?
   - How accurate and timely does the information have to be?

4. **Means of Acquiring Information**

- In general, data may be obtained from three sources:

  - documents, records or other existing information

  - observation

  - questioning

5. ***Before* deciding to use a questionnaire to collect the information, ask yourself:**

- Is a questionnaire the best means to collect the data for the study?

6. **Typical Existing Sources**

- Administrative or operational records
- Previous research studies or surveys
- Reports
- Government statistical agencies
- Libraries
- Universities

Note: Take into consideration timeliness, scope of coverage of information and population, reliability of recording

7. Objectives

- Broad objectives - describe in broad terms the information needs, topic areas, and intended uses of the data
- Operational objectives - specify exactly what data are required
- Definitions and indicators - clarify meaning of concepts and terms

8. Planning the Survey Methodology / Survey Steps

- Objectives and data requirements
- Population - describe as clearly as possible
- Reference period - time period under consideration
- Frame (list of units to be sampled) - complete and up-to-date
- Sample design - census or sample
- Data collection method - face-to-face, telephone, mail
- Questionnaire - content, wording, format
- Field procedures - interviewer training, how to handle nonresponse
- Data processing - coding, editing
- Estimation
- Survey results - tabulations, analyses and reports
- Time and costs

METHODS OF DATA COLLECTION

1. Why is data collection important?

- High cost
- Requires extensive human and physical resources
- Time consuming
- Direct impact on data quality
- Image of the survey operation

2. Methods of Data Collection

- Face-to-face (personal) interview
  - Interviewer-administered
  - Structured or unstructured form of questioning
  - Computer-assisted personal interviewing (CAPI)
- Telephone interview
  - Interviewer-administered
  - Structured with a formal interview schedule
  - Computer-assisted telephone interviewing (CATI)
- Self-completed questionnaire
  - Completed by respondent without the aid of an interviewer
  - Highly structured
  - Types: mail, drop-off, diary

3. **How the collection methods compare in terms of cost, time, and response rates:**

Method of data collection	Face-to-face	Telephone	Mail
Cost	*high*	*medium*	*low*
Time	*medium*	*fast*	*slow*
Response rate	*high*	*medium-high*	*very low*

4. **Considerations when Selecting the Method of Data Collection**

- Cost
- Time Available
- Accessibility of population - are mailing addresses available?
  - are telephone numbers available?
- Type of population
- Amount of data required
- Type of data required - complexity, sensitivity
- Quality of data required - nonresponse
- Ease of administration

INTRODUCTION TO QUESTIONNAIRE DESIGN

Definition of a Questionnaire

A *questionnaire* (or *form*) is a group or sequence of questions designed to obtain information on a subject from a respondent. A questionnaire could simply be a list of topics for which information is required. Or, a questionnaire could be a structured set of questions with pre-coded answer categories.

A questionnaire may be interviewer-administered or respondent-completed. It may be administered using paper-and-pencil methods or non-paper modes such as computer-assisted interviewing.

Questionnaire Development

Before designing the questionnaire, many decisions have to be made by the survey team. These decisions affect the questionnaire, and should form part of the draft plan for the survey. The draft plan should address the following issues:

- Survey objectives and data requirements
- Analysis plan
- Survey population
- Method of data collection
- Size of the survey
- Data processing plans
- Budget
- Time frame
- Questionnaire testing

Questionnaires play a central role in the data collection process. They have a major impact on data quality and on the image that the survey organization projects to the public.

A well-designed questionnaire should collect data efficiently with a minimum number of errors. Moreover, well-designed questionnaires should facilitate the

coding and capture of data. They should minimize the amount of edit and imputation that is required, and lead to an overall reduction in the cost and time associated with data collection and processing.

When designing the questionnaire, it is important to keep in mind the objectives and data requirements as well as how the information will be collected and processed. The questions must relate to the information needs and provide useful information for analysis purposes. They must be asked of the right people, at the right time, and in the right place.

The method of data collection (*i.e.*, whether the questionnaire will be completed by the respondent or by an interviewer in person or over the telephone) will determine how the questions will be worded.

The question wording must be clear. The questions must be sequenced logically. The questions must be designed so that they are *easily understood and accurately answered* by respondents. The questionnaire should be tested before implementation.

The questionnaire should be *respondent-friendly*. If administered by an interviewer, it should be *interviewer-friendly*.

QUESTIONNAIRE DEVELOPMENT

- Define the objectives and information requirements
- Consult with data users
- Look at previous questionnaires on the same topics
- Focus groups
- Draft questions
- Cognitive techniques
- Review questionnaire/revise questions
- Test questionnaire/revise questions
- Format and print questionnaires

QUESTIONNAIRE DEVELOPMENT AND TESTING

1. Objectives, Data Requirements, and Analysis Plan

- **Define the objectives and information requirements.**

  Prepare a document that provides a clear and comprehensive statement of objectives, data requirements, and the analysis plan. This document is a necessary step that leads to the determination of the variables to be measured, and ultimately, the survey questions and response alternatives.

- **Ensure that the questions are relevant to the survey objectives and information requirements.**

  Establish the rationale for each question, how the information will be used, and whether the questions will be good measures of what is required.

2. Consultation

- In formulating objectives and preparing the analysis plan, consult with clients and data users to understand fully their requirements and expectations.

- Contact subject matter experts for advice and guidance.

- If possible, consult with members of the target population. This will help identify issues and concerns that are important to the target population, and may affect decisions regarding the content of the questionnaire.

3. Previous Questionnaires

Examine questions that were used in other surveys on the same or a similar topic. This provides a useful starting point in the formulation of questions.

In some situation (*e.g.*, for data comparability over time), the same questions may be used. Ensure that the questions provide, valid, consistent, and effective measures of what is required.

4. The Use of Focus Groups in Developing Questionnaires

- *Focus group:* An informal discussion of a selected topic by participants who are chosen from the population of interest. A focus group is led by a moderator who is knowledgeable about group interviewing techniques and the purpose of the discussion.

- A focus group provides insights into the attitudes, opinions, concerns, experiences, and suggestions of the participants.

  - Focus groups provide the opportunity to consult with the target population, data users, and interviewers.

  - In the early stages of developing a questionnaire, focus groups are used to clarify the survey objectives and data requirements, to identify salient research issues, and to clarify definitions and concepts.

  - Focus groups are useful in testing and evaluating questionnaires (see 7. *The Use of Cognitive Methods in Testing Questionnaires*). They are used to evaluate respondents' understanding of the language and wording used in questions and instructions, and to evaluate alternative question wordings and formats.

  - Focus groups vary in size from 6 to 12 persons. The optimum size is 7 to 9 persons.

  - Focus groups are audio-recorded (occasionally video-recorded). They are viewed by observers in an adjoining room behind a one-way mirror.

5. Considerations in Drafting the Questions:

- Objectives, data requirements, and analysis plan
- Method of data collection
- Respondents
- Availability of the data
- Response burden
- Complexity of the data to be collected
- Confidentiality and sensitivity of the information
- Comparability of results with other surveys
- Data reliability
- Nonresponse
- Interviewers
- Data processing
- Administrative requirements

6. The Response Process

- Responding to a question involves four distinct processes:

  - ***Understanding***
  - ***Retrieval***
  - ***Thinking/judging***
  - ***Communicating an answer***

- Respondents must first understand the question. They must then search their memories to retrieve the requested information. After retrieving the information, they must think about what the correct answer to the question might be and how much of that answer they are willing to reveal. Only then do they communicate an answer to the question.

- Surveys of businesses, farms and institutions involve the *use of records*. Respondents must normally access one or more external sources of information such as administrative or financial records. The ability of respondents to retrieve the requested information will depend upon their familiarity with and understanding of the external source of information. They must also understand the relationship between the survey questions and the external data source. Multiple sources of information may add to the difficulty or complexity of this task. Further complexities may be introduced if the respondent has to consult another individual who can provide the requested information and who, in turn, may have to use one or more data sources.

7. The Use of Cognitive Methods in Testing Questionnaires

Questionnaire testing is essential to developing questionnaires that collect useful data. Cognitive research methods, also referred to as qualitative testing, are especially useful in testing questionnaires.

Cognitive methods provide the means to examine respondents' thought processes as they answer the survey questions. They are used to ascertain whether or not respondents understand what questions mean. In this way, cognitive methods help assess the validity of questions and identify potential sources of measurement error.

Cognitive methods provide the opportunity to evaluate the questionnaire from the respondent's point of view. They focus on issues such as comprehension and reactions to the form. This brings the respondent's perspective directly into the questionnaire design process, and leads to the design of respondent-friendly questionnaires that can be easily and accurately completed.

Cognitive testing methods include:

- *Observation of respondents:* One-on-one or group observation of respondents completing the questionnaire. Observation provides information on respondents' behaviour as they complete the questionnaire. The observer notes areas of the form read, the sequence in which the questions are answered, reference made to instructions, types of records or other persons consulted, the time required to complete sections, and corrections or changes made to responses.

  Follow-up discussions are held with respondents to determine their reactions to the questionnaire, instructions, and individual questions.

- *Think-aloud interviews:* The respondent is asked to "think aloud" while answering the questions, commenting on each question, and explaining how the final response was chosen. An interviewer may probe the responses to get more information about a particular statement or to clarify the process through which a response was chosen. Think-aloud interviews help identify areas of the questionnaire where the respondent has difficulty and in understanding the process through which the questionnaire is completed.

- *Focus groups:* Used to evaluate respondents' understanding of the language and wording used in questions and instructions. The moderator reviews the questionnaire with the participants and discusses any problems or difficulties they may have encountered when completing the form. Focus groups are especially useful in providing suggestions and recommendations about how the questionnaire can be improved.

- *Paraphrasing:* Respondents are asked to repeat the instructions or the question asked in their own words, or to explain the meaning of terms and concepts. Paraphrasing helps determine whether respondents have read and understood instructions and questions correctly.

- *Confidence ratings:* Respondents rate the degree of confidence they have in the accuracy of their answers. This technique indicates to what extent respondents had difficulty in formulating an answer to a question and whether they were guessing.

8. Pretesting the Questionnaire

- *Pretesting* is a fundamental step in developing a questionnaire. It involves an informal testing of questionnaires. The entire questionnaire or only a portion of it may be tested. In general, pretesting is easy and inexpensive

- Pretests are used to:
  - discover poor question wording or ordering
  - identify errors in questionnaire layout or instructions
  - determine problems caused by the respondent's inability or unwillingness to answer the questions
  - suggest additional response categories that can be pre-coded on the questionnaire
  - provide a preliminary indication of the interview length and refusal problems

- The size of the pretest sample can range from 20 to 100 or more respondents. If the main purpose is to discover wording or sequencing problems, only a minimum number of interviews may be required. More interviews (50 to 100) are necessary to determine pre-coded answer categories based on open-ended responses obtained in a pretest. Respondents are generally selected purposively rather than randomly.

- The questionnaire should be administered in the same manner as planned for the main survey (*e.g.*, interviewer-administered in person or by telephone). A pretest of a mail questionnaire is more effective if interviewers are used.

- Pretesting only indicates that there is a problem. Without further investigation, it does not identify why there is a problem nor how it can be corrected.

- *Debriefing sessions with interviewers* often occur in conjunction with a pretest. Interviews can identify important problem areas where the questionnaire can be improved.

- *Behavioral coding* also can be conducted at the time of pretesting. The interview is audio-recorded, and the interviewer-respondent interaction is later analyzed. Behavioral coding helps identify problems such as the interviewer failing to read the question as worded or a respondent asking for clarification of the question or response task.

9. Formal Testing Methods

- Formal testing methods are designed to provide a statistical evaluation of how the questionnaire performs. Pilot studies and split sample testing are two types of formal testing methods. They are more suitable for large scale and continuing surveys because of the significant cost associated with a large sample size and the analysis of the results.

- *Pilot study:* Conducted in order to observe all operations working together, including the administration of the questionnaire. A pilot study is a "dress rehearsal." It duplicates the final survey design on a small scale from beginning to end, including plans for data processing and analysis. It allows the survey researcher to see how well the questionnaire performs in relation to the other phases of the survey. Normally, the questionnaire should be thoroughly pretested before a pilot test takes place.

- *Split sample test:* Conducted to determine the "best" of two or more alternative versions of the questionnaire. Split sample testing is sometimes called "split ballot" or "split panel" experiments. It involves an experimental sample design that is incorporated into the data collection process. In a simple split sample design, half of the sample receives one version of the questionnaire and half, the other.

10. Review and Revision of the Questionnaire

- It is useful to have your questionnaire reviewed by people who are not directly involved with your project. Reviewers could include subject matter experts or persons who have experience in designing questionnaires. They can provide helpful comments and suggestions.

- A review can take place at any or all stages of the questionnaire development process.

- The review and testing of the questionnaire design lead to revisions in the questions and response categories. Throughout the whole process of questionnaire development and testing, changes will continually be made to improve the questionnaire. In this way, questionnaire design is an iterative process. Objectives and information requirements are stated, evaluated and decided upon, data users and respondents are consulted, proposed questions are drafted and tested, questions are reviewed and revised, until a final questionnaire is developed.

Every questionnaire must be handcrafted. It is not only that questionnaire writing must be "artful"; each questionnaire is also unique, an original. A designer must cut and try, see how it looks and sounds, see how people react to it, and then cut again, and try again.

(Taken from: Converse, J. and S. Presser, *Survey Questions: Handcrafting the Standardized Questionnaire*, Sage Publications (1986), page 48)

TYPES OF QUESTIONS

1. Type of Information Required and Question Structure

- Factual information is sought

- The following examples illustrate the incorrect use of scale-type response format:

  (1) Did the accident happen in Canada, or not?

  DEFINITELY NOT IN CANADA ( ) ( ) ( ) ( ) ( ) *DEFINITELY IN CANADA*

  (2) What is your marital status now?

  UNMARRIED ( ) ( ) ( ) ( ) ( ) *MARRIED*

2. Types of Questions

- There are two main types of questions: ***open*** and ***closed questions.*** They are sometimes called open-ended and closed-ended questions.

- ***Open questions*** are answered in the respondent's own words. An open question allows the respondent to interpret the question and answer anyway that he/she wants. The respondent writes the answer or the interviewer records verbatim what the respondent says in answer to the question. Blank spaces are left in the questionnaire after the question for the response to be written in.

- ***Closed questions*** are answered by checking a box or circling the proper response from among those that are provided on the questionnaire. A closed question restricts the respondent or interviewer to select from the answers or response options that are specified.

3. Open Question

- ***What is the most important problem facing Canada?***

4. **Closed Question**

- *Which of these is the most important problem facing Canada?*

  - ○ Unemployment
  - ○ Economy/recession
  - ○ Federal deficit
  - ○ Taxes
  - ○ National unity
  - ○ Crime and violence
  - ○ Environment
  - ○ Other

5. **Example Demonstrating the Continuum from Open to Closed Questions**

- *There has been a lot of concern about crime lately. What do you think about the problem?*
- *There has been a lot of concern about crime lately. During the last year, have you or has anyone living with you had any crime happen to them? If yes, please tell me what happened.*
- *There has been a lot of concern about crime lately. Here is a list of some of the crimes that happen to people. In the past year, has anything like this happened to you or to anyone living with you?*

  - ○ House broken into or robbed
  - ○ Pocket picked or purse snatched
  - ○ Car stolen
  - ○ Property damaged or destroyed
  - ○ People attacked or beaten up
  - ○ Other *(please specify)* _____
  - ○ Nothing

6. Applications of Open Formats

- Qualitative research
- To obtain "natural" wording
- To provide the opportunity for self-expression or elaboration
- To obtain exact numerical data
- To add variety to the questionnaire

7. Difficulties with Open Questions

- For the RESPONDENT:
  - Demanding
  - Time-consuming
- For the RESEARCHER:
  - Recording the response
  - Coding
  - Analysis and interpretation

8. Types of Closed Questions

- Two-choice
- Multiple choice
- Checklist
- Ranking format
- Rating scale

Closed questions provide respondents with definite choices. The respondent indicates which choice is appropriate.

9. **Two-choice Question**

- ***Did you have a job at any time during the last 12 months?***

  ○ NO ⇒ Skip to Question 6

  ○ YES
  ⇓

10. **Multiple-choice Question**

- ***What type of dwelling is this? (Check one only)***

  ○ Single house

  ○ Double (side-by-side)

  ○ Garden home, town house or row house

  ○ Duplex (one-above-another)

  ○ Low-rise apartment (less than 5 stories)

  ○ High-rise apartment (5 stories or more)

  ○ Other *(please specify)* _____

11. **Checklist Question**

- ***In what types of accommodation did you stay? (Check as many as apply)***

  ○ Hotel (including tourist home)

  ○ Motel

  ○ Camping or trailer park

  ○ Home of friends or relatives

  ○ Private cottage or vacation home

  ○ Commercial cottage or cabin

  ○ Other (hostels, universities, etc.)

12. Ranking Question - Example 1

- ***Here is a list of some of the ways that people go about finding jobs. Please rank them in order of effectiveness by placing the number "1" beside the method you think would be most helpful, a "2" beside the method you think would be second most helpful, and so on.***

____ Mailing out résumés

____ Newspaper or magazine ads

____ Canada Employment Centres

____ Checking with friends

____ A private placement service

____ Direct contact with employers

____ Other *(please specify)* _____

13. Ranking Questions

- Respondents often find it difficult to do rankings, especially if the items to be ranked are very different from one another.

- Ranking of preferences is easiest when respondents can see or remember all items.

- The sizes of the rank intervals are unknown and unlikely to be equal. Hence, the interval between 1 and 2 cannot be assumed to be the same as that between 2 and 3.

- Respondents sometimes rank two or more items the same. For example, a respondent might rank both "Newspaper or magazine ads" and "Canada Employment Centres" as 1.

14. Ranking Question - Example 2

- ***Please rank the 5 most important factors that influence your company's choice of a transportation carrier. This information will help us to focus our attention and resources on areas that are critical to meeting your service needs.***

  Please rank their importance by placing the number "1" beside the factor that you think is the most important, a "2" beside the factor that you think is the second most important, and so on.

  ____ Damage-free transportation

  ____ Price

  ____ Marketing and sales representatives

  ____ Customer service representatives

  ____ Prompt resolution of service problems

  ____ Freight claims handling

  ____ Service consistency

  ____ Service frequency

  ____ Transit time

  ____ Timely notification of service delays

  ____ Invoicing accuracy

  ____ Other *(please specify)* _____

15. Rating Question - Example 1

- ***How satisfied are you with our customer service?***

  ○ Very satisfied

  ○ Satisfied

  ○ Dissatisfied

  ○ Very dissatisfied

16. Rating Question - Example 2 (with a middle alternative)

- ***How satisfied are you with our customer service?***

  ○ Very satisfied

  ○ Satisfied

  ○ Neither satisfied nor dissatisfied

  ○ Dissatisfied

  ○ Very dissatisfied

17. Issues in the Design of Rating Questions

In formulating rating questions, the following issues need to be addressed:

- How many response categories should there be?
- Should there be a middle alternative?
- Should a "Don't know/No opinion" or "Not applicable" response category be provided?

The answer to these questions will depend on the survey objectives, the item to be rated, the method of data collection, and the questionnaire designer's own preferences.

18. Rating Question - Example 3

- ***Most people feel differently about their physical looks. How would you rate your looks on a scale of "1 to 10", with "1" being the lowest rating and "10" the highest rating?***

1 Lowest	1%
2	1%
3	1%
4	3%
5	24%
6	17%
7	27%
8	17%
9	4%
10 Highest	6%
No opinion (volunteered)	2%

Mean rating = 6.59

(Source: The "Maclean's" Poll, January 7, 1985)

19. Rating Question - Example 4

- ***Please rate the quality of our customer service for each of the following items by circling the appropriate number.***

	Excellent	*Good*	*Fair*	*Poor*
▸ Availability of service representatives	1	2	3	4
▸ Promptness	1	2	3	4
▸ Courtesy	1	2	3	4
▸ Resolving your service needs	1	2	3	4
▸ Overall quality of service	1	2	3	4

20. Rating Question - Example 5

- Compare to the ranking question on page 44.

- ***Listed below are a number of factors that influence a company's choice of a transportation carrier. Some may be more or less important to your company than others. According to your company's priorities, please rate the importance of each factor from 1 to 10.***

  Use the scale below where 1 means "Not at all important" and 10 means "Extremely important," or you can choose any number in between.

Extremely important			Somewhat important				Not at all important		
10	9	8	7	6	5	4	3	2	1

Importance Rating

_____ Damage-free transportation

_____ Price

_____ Marketing and sales representatives

_____ Customer service representatives

_____ Prompt resolution of service problems

_____ Freight claims handling

_____ Service consistency

_____ Service frequency

_____ Transit time

_____ Timely notification of service delays

_____ Invoicing accuracy

21. THURSTONE SCALE: A Composition of Two-Choice Questions

- The respondent is presented with a list of statements, each of which he/she is asked to either endorse or reject.
- Statements are selected to represent several different "positions" on the issue in question. Each statement should be clear, brief, and easy to understand. It should be relevant to a respondent's overall attitude to the issue. As a package, the statements should represent the whole range of possible opinions about the attitude variable. The package of statements is called an *attitude scale.*

22. Example: *Thurstone Scale*

	Agree	*Disagree*
▸ The physical surroundings at your work are pleasant	○	○
▸ There is a lot of freedom to decide how to do your work	○	○
▸ You do the same things over and over	○	○
▸ Your job requires a high level of skill	○	○
▸ The pay is good	○	○
▸ Your chances for promotion or career advancement are good	○	○

23. LIKERT SCALE: A Composition of Multiple-Choice Questions

- The Likert scale is a collection of statements. The respondent considers each statement and reports how closely it reflects his/her own opinion.

- The main difference between Thurstone and Likert scales is the number of response alternatives for each statement. For Thurstone scales, there are two response alternatives. For Likert scales, there usually are at least five. The respondent indicates not only whether he/she agrees or disagrees, but *how much* he/she agrees or disagrees. "Agreement" is not the only response dimension that can be used. Other response dimensions include "satisfaction," "usefulness," "importance," *etc.* Degrees of frequency are another possibility.

24. Example: *Likert Scale*

	Strongly agree	*Agree*	*Neither agree nor disagree*	*Disagree*	*Strongly disagree*
▸ The police are doing a good job of enforcing the law	○	○	○	○	○
▸ The police respond quickly to calls in my neighbourhood	○	○	○	○	○
▸ The police are approachable and easy to talk to	○	○	○	○	○

25. Advantages of Closed Questions

- For the RESPONDENT:
  - Easier to answer
  - Faster to answer
- For the RESEARCHER:
  - Easier to code
  - Easier to analyze
  - Cheaper
  - Consistent response categories
- Closed questions are an advantage when:
  - You can anticipate all (or most) of the responses
  - An exact value is not needed

26. Limitations of Closed Questions

- More effort is required to develop closed questions than open questions
- May elicit an answer where no knowledge or opinion exists (including a "Don't know" or "No opinion" response option may help)
- May oversimplify an issue
- May force answers into an unnatural mold
- May not be in the same format as the respondent's record-keeping practices
- May be boring to answer
- Response categories must be inclusive and non-overlapping

CONSIDERATIONS IN QUESTION DESIGN AND WORDING

1. <u>Ensure that questions and instructions are easy to understand</u>

   - **Avoid abbreviations and jargon:**

     Do you know the location of the nearest PFRA office?

     Are you aware that NSC Week was held recently?

   - **Do not use words and terminology that are too complex:**

     Are you aware of the impending amalgamation of surrounding constituencies into the "New Metro" area?

     How would you rate the usefulness of the provision of information on the psychological and sociological aspects of transition such as access to the computerized interactive vocational counselling program provided by the departmental regional office to retiring employees where available and as determined by the regional personnel officer?

     Grants: *Report only grants considered as revenue earned in the reporting period (i.e., do not include revenues deferred to the following year and include grants awarded in the previous year and not recognized as earned revenue the previous year but are treated as revenue this year).*

     Land and depreciable assets - gross: *Include real estate and ground rents, machinery, equipment, buildings, leasehold improvements for own use and vehicles and equipment in the hands of lessees under operating leases; before deduction of accumulated depreciation and amortization, and encumbrances.*

2. Specify the frame of reference

Example 1:

What is your income?

- "Your" - respondent personally, family, household
- Time reference - income last week, last month or last year
- "Income" - salary and wages only, tips, income from other sources

Better: *What was your household's total income from all sources before taxes and deductions in 1994?*

or: *In 1994, what was your total household income before deductions? Include income that you received from wages, salaries, and all other sources.*

Example 2:

Please report sales and receipts.

- Specify time reference period - financial year, calendar year, or other time period
- Specify what to include or exclude

Better: *Please report sales and receipts for the 1994 calendar year. Exclude GST and all other taxes collected by you for remittance to a government agency.*

or: *Please report sales and receipts for your most recent fiscal year ending no later than March 31, 1995.*

Note: Respondents find it difficult to combine data from two fiscal years to coincide with a fixed time frame.

3. Specificity: Make the questions as specific as possible - Example 1

- Respondent is shown a bottle of orange drink.
  How much orange juice do you think it contains?

  Results:

  One orange and a little water and sugar
  25% orange and 75% carbonated water
  Juice of one-half dozen oranges
  3 ounces of orange juice
  Full strength
  A quarter cup of orange juice
  None
  Not much
  A small amount of orange juice
  One-fourth orange juice
  Very little, if any, orange juice
  Don't know
  Not very much
  3 to 4 ounces of orange juice
  A pint
  Most of it
  A little water mixed with orange juice
  About a glass and a half

  This example is taken from U.S. vs. 88 cases "Bireley's Orange Beverage," Civil Action 47LL (1945) (U.S. D.C. N.J.).

- Better ways to word the question might have been:

  This bottle holds 300 ml of a drink. How many millilitres of that would you say is orange juice?

  What percentage of this drink would you say is orange juice?

  What part of this drink - a quarter, a half, three-quarters, or what - would you say is orange juice?

4. Make the questions as specific as possible - Example 2

The question needs to be understood by all respondents in the same way. Respondents can interpret even a simple question in different ways.

- *How much diesel fuel did your farm operation use during the last year?*

Possible answers:

900 gallons
4,091.4 litres
$1,700 month
more than last year

A better way to ask the question could be:

- *How much did your farm operation spend on diesel fuel during the last year?*

$

5. Ensure that the questions can be answered by all respondents

- Are the questions relevant?

  What is your present occupation?

- Do respondents know enough about the subject to answer the question knowledgeably?

  Do you think that incineration at 1600 °C for 30 minutes is an adequate way to dispose of polychlorinated biphenyls?

6. Avoid double-barrelled questions

- *Do you plan to leave your car at home and take the bus to work during the coming year?*

- *Does your company providing training for new employees and retraining for existing staff?*

- *During 1992, did this farm operation invest any money in capital items or improvements, receive any money from the sale of capital items, or receive any capital through gifts or inheritances?*

- *What is the language you first learned in childhood and still understand?*

7. Impact of Question Wording

- *In your opinion, should Sunday shopping be allowed in Ontario; that is, should stores that want to stay open on Sunday be allowed to stay open on Sundays if they want to?*

  Results: 73% In favour of Sunday shopping
  25% Opposed to Sunday shopping
  2% No opinion

- *In your opinion, should a Sunday pause day be adopted in Ontario; that is, should the government make Sunday the one uniform day a week when most people do not have to work?*

  Results: 50% Opposed to a Sunday pause day
  44% In favour of a Sunday pause day
  6% No opinion

Source: Toronto Area Survey (1991), an annual survey conducted by the Institute for Social Research at York University. 535 residents of Metropolitan Toronto participated in a 30-minute telephone survey. Each version of the question was administered to a random half-sample of the survey's respondents. (Reported in Newsletter, York Institute for Social Research, September 1991, Vol. 6, No. 3)

8. Implied Alternative

- *Do you think most manufacturing companies that lay off workers during slack periods could arrange things to avoid layoffs and give steady work right through the year?*

  Results: 63% Companies could avoid layoffs
  22% Companies could not avoid layoffs
  15% No opinion

- *Do you think most manufacturing companies that lay off workers during slack periods could avoid layoffs and provide steady work right through the year, or do you think layoffs are unavoidable?*

  Results: 35% Companies could avoid layoffs
  41% Companies could not avoid layoffs
  24% No opinion

9. Considerations in Question Wording

✓ Are the words simple, direct and familiar to all respondents?

✓ Are the questions as clear and as specific as possible?

✓ Are the questions applicable to all respondents?

✓ Are any of the questions double-barrelled?

✓ Are the response categories mutually exclusive and exhaustive?

✓ Are any questions leading or loaded?

✓ Do the questions read well?

SEQUENCING OF QUESTIONS

1. Issues in Sequencing

- Introduction
- The opening questions
- The location of sensitive items
- The location of demographic items
- The flow of the items

The order of the questions should be designed to:

✓ Encourage respondents to complete the questionnaire and to maintain their interest in it

✓ Facilitate respondents' recall

✓ Appear sensible to the respondents

✓ Focus on the topic of the survey

✓ Follow a sequence that is logical to the respondents

✓ Flow smoothly from one question to the next

2. The Introduction

- ✓ Provide the title or subject of the survey
- ✓ Identify the sponsor
- ✓ Explain the purpose of the survey
- ✓ Request the respondent's co-operation

Respondents frequently question the value of information to themselves and to users. Some like to receive feedback about the survey.

Therefore:

- ✓ Explain why it is important to complete the questionnaire
- ✓ Ensure that the value of providing information is made clear to respondents
- ✓ Explain how the survey data will be used
- ✓ Explain how respondents can access the data

Also:

- ✓ Indicate the degree of confidentiality and any data sharing arrangements
- ✓ In mail surveys, provide the return address and the date for return

3. The Opening Questions

The opening questions should establish respondents' confidence in their ability to answer the remaining questions. If necessary, the opening questions should establish that the respondent is a member of the survey population.

The opening questions should:

- ✓ Relate to the introduction and the survey objectives
- ✓ Be applicable to all respondents
- ✓ Be easy and interesting to answer

4. The Location of Sensitive Questions

- ✓ Introduce at the point where the respondent is likely to have developed trust and confidence
- ✓ Locate sensitive questions in a section where they are most meaningful in the context of other questions
- ✓ Introduce gradually by warm-up material that is less threatening
- ✓ Other solutions include:
  - · Self-enumeration
  - · Anonymous questionnaire
  - · Careful wording of questions
  - · Use ranges for response categories

5. The Location of Demographic and Classification Data

- ✓ Place at the end of the questionnaire
- ✓ Locate in relevant sections

6. The Flow of the Items

- ✓ Follow the logic of the respondent
- ✓ Ensure that time reference periods are clear to the respondent
- ✓ Group questions similar in content together
- ✓ Provide titles or headings for each section of the questionnaire.

Example:

INFORMATION FOR RESPONDENTS
- Survey objective
- Confidentiality
- Instructions and definitions

SECTION 1: General Information
- Main activity
- Reporting year
- Type of organization

SECTION 2: Statement of Income
- Revenue
- Expenses

SECTION 3: Capital Expenditures
- Buildings and structures
- Machinery and equipment

SECTION 4: Labour Force
- Number of employees
- Hours worked

SECTION 5: Comments

- ✓ Use transitions for continuity

Example: ☞ Part A - Let's talk about your education . . .

☞ Part B - Let's talk about your work experience . . .

7. Instructions

Respondents read only what they think is necessary to read. They read the boldface print first, and then decide whether they should read further.

Respondents rarely read the instructions, and proceed directly to the questions. They only refer to the instructions when they think they need help. As a result important instructions and definitions may be missed.

Errors in reporting often are due to a lack of instructions or in misunderstanding what to include or exclude.

Therefore:

- ✓ Ensure that instructions are short and clear
- ✓ Tell the respondent where to find the instructions
- ✓ Provide definitions at the beginning of the questionnaire or in specific questions as required
- ✓ Use **boldface print** to emphasize important items such as the reference or reporting period
- ✓ Specify "include" or "exclude" in the questions and items themselves (not in separate instructions)

LAYOUT OF THE QUESTIONNAIRE

1. General Guidelines

- ✓ The questionnaire should appear interesting and easy to complete.
- ✓ The questionnaire should be respondent-friendly.
- ✓ The cover letter and front cover should create a positive first impression.
- ✓ If administered in person or over the telephone, the questionnaire should be interviewer-friendly.
- ✓ The instructions and answer spaces should facilitate proper answering of the questions.
- ✓ Illustrations and symbols (such as arrows and circles) should be used to attract attention and guide respondents or interviewers.
- ✓ The last page or end of the questionnaire should provide space for additional comments by respondents.
- ✓ Include an expression of appreciation (thank you).

2. Typography

Considerations in organizing the printed word on a page include:

- ✓ Typeface/font
  - · ensure consistency
  - · use **bold face print** to highlight important instructions or words
- ✓ Form title
- ✓ Section headings
- ✓ Questions
- ✓ Question numbers
- ✓ Data entry or processing codes
  - · should not take precedence over nor conflict with the question numbers

3. **Other Layout Considerations**

- ✓ Front cover
- ✓ Paper
- ✓ Size of page
- ✓ Page margins
- ✓ Number of pages
- ✓ Colours and shading - text and background
- ✓ Ruled lines
- ✓ Response (check) boxes and circles
- ✓ Graphics
- ✓ Translation into other languages

4. **Ways to Improve the Respondent-Friendliness of Questionnaires**

- ✓ Provide a respondent-friendly introduction and front cover
- ✓ Tell the respondent where to begin and how to complete the form
- ✓ Guide the respondent step-by-step through the questionnaire
- ✓ Ensure that instructions are short and clear

The benefits of respondent-friendly questionnaires include:

- ✓ Improved respondent relations and cooperation
- ✓ Improved data quality
- ✓ Reduced response burden
- ✓ Reduced cost

RESPONSE ERRORS

1. Response Errors

   - ***Response error*** - difference between the true answer to a question and the respondent's answer to it
   - Can occur anywhere during the question-answer-recording process
   - Two types: (1) *Random errors* - variable; tend to cancel out

     (2) *Biases* - tend to create errors in the same direction

2. **Sources of Response Error**

   - Questionnaire design
     - wording, complexity and order of the questions
     - question structure
     - complicated skip patterns
     - length of the questionnaire
   - Respondent problems of understanding, recall, judgment, motivation, and reporting
     - social desirability bias
     - questions requiring recall
   - The interviewer

3. Social Desirability Bias

- ***Social desirability bias*** - the tendency to choose those response options which are most favourable to one's self-esteem or most in accord with social norms, at the expense of expressing one's own position.

- Examples of sensitive questions that may result in social desirability bias:

  Have you ever driven a motor vehicle after having had too much to drink?

  In the past 12 months, what is the highest number of drinks you can recall having on any one occasion?

  Have you ever used any of the following?
  Marijuana or hash, Cocaine or crack, LSD, Heroin

  Have you ever shoplifted anything?

4. Techniques for Handling Sensitive Questions and Countering Social Desirability Bias

✓ Self-enumeration

✓ Anonymous questionnaire

✓ Careful wording of questions

✓ Use ranges for response categories

✓ *Randomized response* - In the simplest form of the randomized response technique, the respondent answers one of two randomly selected questions without revealing to the interviewer which question is being answered. One of the questions is on a sensitive topic; the other question is innocuous. Since the interviewer records a "yes" or "no" answer without ever knowing which question has been answered, the respondent should feel free to answer honestly.

5. Questions Requiring Recall of a Past Event or Behaviour

- Recalling an event or behaviour can be difficult if:
  - the decision was made almost mindlessly in the first place
  - the event was so trivial that people have hardly given it a second thought since it occurred
  - the questions refer to events that happened long ago
  - the questions require the recall of many separate events.
- Examples:

  In the last 12 months, how many times did you visit a medical doctor?

  During the last month, which magazines have you read?

  During the last week, which TV programs did you watch?

  During the last year, how much did you spend on fuel purchases for your car?

6. Memory Errors

- ***Recall error*** - respondents may fail to report certain events or fail to report them accurately
  - leads to the under-reporting of events
  - generally speaking, the longer the reference period, the greater is the recall loss
- ***Telescoping error*** - some events may be reported that actually occurred outside the reference period
  - leads to the over-reporting of events
  - generally speaking, a shorter reference period tends to increase telescoping errors

7. Techniques to Reduce Memory Errors

✓ Shorten the reference period

- helps control recall errors, but may increase telescoping errors

✓ Bounded recall

- respondents are interviewed at the beginning and end of the reference period
- events identified at the time of the first interview can be discounted if they are reported again during the second interview
- aims at eliminating telescoping errors

✓ Use of records

✓ Aided recall

- use of memory cues
- tends to increase reported activity, but also may increase telescoping errors

✓ Ensure that the time reference periods are clear to the respondent

✓ Diary

- the respondent records the event at the time, or shortly after, it happens
- used for surveys on household expenditures, food consumption, time use, TV viewing, and radio listening

✓ Long vs. short questions (interviewer-administered questionnaires):

Short question: *What health problems have you had in the past year?*

Long question: *The next question asks about health problems during the past year. This is something that we ask everyone in the survey. What health problems have you had in the past year?*

Research suggests that the longer question may stimulate the respondent to talk more, and that this additional talk may also aid the respondent's recall. On the other hand, it may give the respondent more time to think and to provide a more complete answer.

COMPUTER-ASSISTED INTERVIEWING

1. Computer-Assisted Interviewing Methods

   - Computer self-administered questionnaire
   - Computer-assisted personal interviewing (CAPI)
   - Computer-assisted telephone interviewing (CATI)

2. **Advantages of Computer-Assisted Interviewing**

   - Automatic branching
   - Inserting text in questions
   - Randomizing order of questions and response categories
   - On-line editing and consistency checking
   - Automatic scheduling of callbacks

3. **Considerations**

   - The questionnaire is restricted to size of video screen
   - Response time for screen replacement
   - Each new screen must be immediately comprehensible
   - Avoid crowding the screen
   - Nonstandard movement (backing up to a previous question, changing an answer)
   - Open-ended questions
   - Computer program
   - Costs and timeliness

OMNIBUS SURVEYS

1. Omnibus Surveys

- Shared cost
- "Piggy-backing" of questions
- Questionnaires consist of several modules or sections, each dealing with a different topic and each conducted for a separate organization
- Organizations are charged on the basis of their level of participation in the omnibus survey:
  - number of questions (open-ended questions are more expensive)
  - sample size (*e.g.*, full or half sample, males or females)
- An effective means of reducing the major costs associated with carrying out a survey
- Useful for a researcher who has only a few questions to ask.

2. Omnibus Surveys - Design

- Frequency: monthly, quarterly
- Method of data collection: face-to-face, telephone
- Sample design:
  - Random sample of Canadians 15 or 18 years of age and older
  - Representative of age, gender, and community size
- Sample size: 500 to 2,000 interviews
- Standard classification data: age, gender, region, community size, family income, occupation, education, and mother tongue

PRETESTING QUESTIONNAIRES

Based on the paper "Informal Testing as a Means of Questionnaire Development" by Dawn D. Nelson (U.S. Bureau of the Census, Demographic Surveys Division). Published in Statistics Sweden's Journal of Official Statistics (Vol. 1, No. 2, 1985, pp. 179-188).

General

- A pretest involves a relatively small number of field interviews carried out for the purpose of detecting and correcting problems in a proposed questionnaire and depends mainly upon subjective evaluations for suggestions on improving the questionnaire.

- Pretesting is a fundamental step in the process of developing a questionnaire.

- Pretesting is a relatively simple and inexpensive technique of improving questionnaires.

Use of Pretests

- Pretests are particularly useful for discovering poor question wording or ordering, errors in questionnaire layout or instructions, and problems caused by the length of the questionnaire or the respondent's inability or unwillingness to answer the questions.

- Pretests also are 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 pre-coded on the questionnaire.

- Pretests can obtain relevant information which might effect the final questionnaire design (*e.g.*, a preliminary indication of the interview length and refusal problems).

The Sample for the Pretest

- The pretest sample can range in size from 20 or 25 respondents to 100 or more respondents.

- If the main purpose of the pretest is to discover wording or 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 a pretest.

- The maximum number of interviews may be needed if the results will be used to select items for inclusion in attitude scales.

- Respondents generally are selected purposively rather than randomly.

- Convenience and low cost are usually the main factors in selecting a location for the pretest.

Design Issues

(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.

- When a series of tests is planned, one or more of the pretests may be devoted to a particular portion of the questionnaire that is expected to be troublesome. 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.

(b) The interviewing method

- If there is to be only one test, the questionnaire probably should be administered in the same manner as planned for the main survey (*e.g.*, interviewer-administered in person or by telephone). Interviewers and observers can be used as a source of feedback.

- As part of a series of tests in which the pretest will be used only for a preliminary indication, a different method may be justified to save time and/or costs.

- A pretest of a mail questionnaire is more effective if interviewers are used. Interviewers could be used to deliver the questionnaire and, afterwards, to discuss any problems.

(c) The selection and training of interviewers

- There are advantages in selecting skilled, experienced interviewers for pretests. 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 can also provide considerable assistance in improving the questionnaire based on the experiences with other surveys.

- There are disadvantages in using experienced interviewers. For example, 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. Interviewers with varying experience and skill levels may be the best choice for a pretest.

- The interviewers should be well-trained on how to obtain information that will be useful in refining the questionnaire. 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.

- The questionnaire designers and researchers sometimes serve as interviewers.

Observational Feedback

The questionnaire designers should observe as many interviewers as possible. Other ways of providing feedback for use in evaluating a questionnaire include:

(a) Frame-of-reference probing

- The interviewers probe to ascertain whether certain words, phrases or situations are understood by different respondents in the manner intended by questionnaire designers.
- Involves asking respondents some additional questions, which may be structured or unstructured, to investigate the meaning of their original responses to the questionnaire.
- Unstructured questioning usually works best at the end of the interview, while structured questions may be incorporated into the questionnaire in the appropriate place or asked at the end.
- Usually a respondent will only tolerate probes on a few questions (2 to 4); the number of probes per question must also be limited.

(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.
- Observers look for 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, etc.
- A variety of interviewers and observers should be used to avoid biasing the results.
- An alternative method is to tape record interviews. This allows for more detailed analysis.

(c) Interviewer debriefings

- An interviewer debriefing is an organized discussion of the questionnaire involving the interviewers and the designers/researchers. Individual interviewer debriefings may be held but group briefings are more common.
- Debriefings may be held on a daily basis throughout a pretest, or a single debriefing may be conducted at the end of the test. More frequent debriefings allow changes to be made throughout the testing.

Operational Issues

- The questionnaire must be administered properly.

- The persons conducting and observing interviews should understand the objectives of the pretest and the importance of not *arbitrarily* varying the questionnaire wording and administration. However, they may need to reword questions or to ask other questions when it is suspected that a response is inaccurate, inappropriate, or insufficient. This should be noted as part of the feedback system to provide further insight into potential questionnaire problems.

- "On the spot" revisions to the questionnaire can be made. 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.

- The lines of communication among the questionnaire designers, interviewers, observers, 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.

Evaluating the Results

- Much of the evaluation in a pretest is simply the use of common sense in reacting to problems identified by the feedback system.

- Tabulations of the number of "Don't Know," "Refused" or "Not Applicable" responses to a question, in addition to inconsistent and missing responses, often identify various questionnaire problems.

- The pretest often only indicates that there is a problem; it does not provide the "correct" solution. For example, if a question is not answered frequently in a pretest, there may be a problem with the wording. 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.

- Thorough documentation of the evaluation process and resulting questionnaire changes should be made for use by future researchers.

Time and Cost Considerations

- The amount of time required to conduct a pretest varies according to a number of factors, including:

  (i) the number of cases and interviewers;

(ii) the length of the interview;

(iii) the travel distance between respondents 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; and

(vi) whether materials have to be mailed to the interviewing site.

- The following factors contribute to the cost of the pretest:

(i) interviewing and field staff salaries;

(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.

REFERENCES ON QUESTIONNAIRE DESIGN

Belson, W.A. (1981), The Design and Understanding of Survey Questions, Gower, Aldershot, England.

Biemer, P.P., R.M. Groves, L.E. Lyberg, N.A. Mathiowetz and S. Sudman [eds.] (1991), Measurement Errors in Surveys, John Wiley & Sons, Inc., New York.

Very informative book. Contains monograph papers presented at the International Conference on Measurement Errors in Surveys, Tucson, Arizona, 1990. Includes papers on questionnaire design, data collection methods, interviewers, respondents and the response process.

Bishop, George F. (1987), "Experiments with the Middle Response Alternative in Survey Questions," Public Opinion Quarterly, Vol. 51, pp. 220-232.

Bishop, George F., Robert W. Oldendick and Alfred J. Tuchfarber (1982), "Effects of Presenting One Versus Two Sides of an Issue in Survey Questions," Public Opinion Quarterly, Vol. 46, pp. 69-85.

Bradburn, N., S. Sudman and Associates (1979), Improving Interview Method and Questionnaire Design: Response Effects to Threatening Questions in Survey Research, Jossey-Bass, San Francisco.

Bureau, Marcel (1991), "Experience with the Use of Cognitive Methods in Designing Business Survey Questionnaires," Proceedings of the Section on Survey Research Methods, American Statistical Association, pp. 713-717.

Converse, Jean M. (1984), "Strong Arguments and Weak Evidence: The Open/Closed Questioning Controversy of the 1940s," Public Opinion Quarterly, Vol. 48, pp. 267-282.

Converse, Jean M. and Stanley Presser (1986), Survey Questions: Handcrafting the Standardized Questionnaire, Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-063, Sage Publications, Thousand Oaks, California.

Highly recommended.

DeMaio, T.J. [ed.] (1983), Approaches to Developing Questionnaires, Statistical Policy Working Paper 10, Office of Management and Budget, Washington, D.C.

Very good review of procedures and techniques for developing questionnaires.

Dillman, Don A. (1978), Mail and Telephone Surveys: The Total Design Method, Wiley, New York.

Very popular, contains practical recommendations for achieving a good response rate.

Dillman, Don A., Michael D. Sinclair and Jon R. Clark (1993), "Effects of Questionnaire Length, Respondent-friendly Design, and a Difficult Question on Response Rates for Occupant-addressed Census Mail Surveys," Public Opinion Quarterly, Vol. 57, No. 3, pp. 289-304.

Edwards, W.S. and D. Cantor (1991), "Toward a Response Model in Establishment Surveys," in Measurement Errors in Surveys, Paul P. Biemer et al. [eds.], John Wiley & Sons, New York, pp. 211-233.

Esposito, James L., Pamela C. Campanelli, Jennifer M. Rothgeb and Anne E. Polivka (1991), "Determining Which Questions are Best: Methodologies for Evaluating Survey Questions," Proceedings of the Section on Survey Research Methods, American Statistical Association, pp. 46-57.

Fowler, Floyd J. (1992), "How Unclear Terms Affect Survey Data," Public Opinion Quarterly, Vol. 56, pp. 213-231.

Fowler, Floyd J., Jr. (1995), Improving Survey Questions: Design and Evaluation, Applied Social Research Methods Series, Vol. 38, Sage Publications, Thousand Oaks, California.

Fowler, Floyd J., Jr., and T.W. Mangione (1990), Standardized Survey Interviewing, Applied Social Research Methods Series, Vol. 18, Sage Publications, Thousand Oaks, California.

Fowler, Floyd J., Jr. (1988), Survey Research Methods, Applied Social Research Methods Series, Vol. 1, Sage Publications, Thousand Oaks, California.

Gilljam, Mikael and Donald Granberg (1993), "Should We Take Don't Know for an Answer?", Public Opinion Quarterly, Vol. 57, No. 3, pp. 348-357.

Gower, Allen R. (1994), "Questionnaire Design for Business Surveys," Survey Methodology, Statistics Canada, Vol. 20, No. 2, pp. 125-136.

Gower, Allen R. (1993), "Questionnaire Design for Establishment Surveys," Proceedings of the International Conference on Establishment Surveys (Survey Methods for Businesses, Farms, and Institutions), Alexandria, Virginia: American Statistical Association, pp. 950-956.

Gower, Allen R. (1991), "The Questionnaire Design Resource Centre's Role in Questionnaire Research and Development at Statistics Canada," presented at the 48th Session of the International Statistical Institute, Cairo, Egypt, published in Bulletin of the International Statistical Institute, Contributed Papers, Book 1, pp. 267-268.

Gower, Allen R. and Ruth Dibbs (1989), "Cognitive Research: Designing a Respondent-Friendly Questionnaire for the 1991 Census," Proceedings of the Fifth Annual Research Conference of the U.S. Bureau of the Census (ARC V), pp. 257-266.

Gower, Allen R. and Mukund S. Nargundkar (1991), "Cognitive Aspects of Questionnaire Design: Business Surveys versus Household Surveys," Proceedings of the 1991 Annual Research Conference, Washington, DC: United States Bureau of the Census, pp. 299-312.

Gower, Allen R. and Peter D. Zylstra (1990), "The Use of Qualitative Methods in the Design of a Business Survey Questionnaire," Contributed Paper, International Conference on Measurement Errors in Surveys, Tucson, Arizona.

Groves, R.M. (1979), "Actors and Questions in Telephone and Personal Interview Surveys," Public Opinion Quarterly, Vol. 43, pp. 190-205.

Groves, R.M. and R.L. Kahn (1979), Surveys by Telephone: A National Comparison with Personal Interviews, Academic Press, New York.

Hunt, S.D., R.D. Sparkman Jr. and J.B. Wilcox (1982), "The Pretest in Survey Research: Issues and Preliminary Findings," Journal of Marketing Research, Vol. 19, pp. 269-273.

Kalton, G. and H. Schuman (1982), "The Effect of the Question on Survey Responses: A Review," Journal of the Royal Statistical Society, Vol. 145, Part I, pp. 42-73.

Reviews the effects of the wording, form and placement of questions on the response obtained.

Kalton, G., J. Roberts and D. Holt (1980), "The Effects of Offering a Middle Response Option with Opinion Questions," The Statistician, Vol. 29, pp. 11-24.

Lawrence, David and Frances Laffey (1993), "Qualitative Testing of the Farm Financial Survey Questionnaire," Proceedings of the International Conference on Establishment Surveys, Alexandria, Virginia: American Statistical Association, pp. 939-944.

Mingay, D.J. and Greenwell, M.T. (1989), "Memory Bias and Response Order Effects," Journal of Official Statistics, Vol. 5, pp. 253-263.

Nelson, D.D. (1985), "Informal Testing as a Means of Questionnaire Development," Journal of Official Statistics, Statistics Sweden, Vol. 1, No. 2, p. 179-188.
A very good paper on the pretesting of questionnaires. Other good articles on questionnaire design also can be found in the same issue of Statistics Sweden's Journal of Official Statistics.

Oppenheim, A.N. (1966), Questionnaire Design and Attitude Measurement, Basic Books, New York.
A classic in the field of questionnaire design.

Oppenheim, A.N. (1992), Questionnaire Design, Interviewing and Attitude Measurement (New Edition), Pinter Publishers, London.
A revised edition of Oppenheim's earlier book.

Payne, S.L. (1951), The Art of Asking Questions, Princeton University Press, Princeton, New Jersey
Another classic in the questionnaire design field.

Platek, R., F.K. Pierre-Pierre and P. Stevens (1985), Development and Design of Survey Questionnaires, Statistics Canada, Ottawa (Catalogue no. 12-519E).

Presser, S. and J. Blair (1994), "Survey Pretesting: Do Different Methods Produce Different Results?", Sociological Methodology, Vol 24, pp. 73-104.

Redding, Charles W. (1982), How to Conduct a Readership Survey, Lawrence Ragan Communications, Inc., Chicago.
A well-written guide to designing readership surveys.

Schuman, H. and S. Presser (1981), Questions and Answers in Attitude Surveys: Experiments on Question Form, Wording and Context, Academic Press, New York.
Highly recommended.

Schuman,H. and S. Presser (1979), "The Open and Closed Question," American Sociological Review, Vol. 44, pp. 692-712.

Smith, Tom W. (1987), "The Art of Asking Questions, 1936-1985," Public Opinion Quarterly, Vol. 51, pp. S95-S108.

Statistics Canada (1980), Social Concepts Directory, Ottawa (Catalogue no. 12-560).

Statistics Canada (1979), Basic Questionnaire Design, 2nd Edition, Ottawa.

Sudman, Seymour (1980), "Reducing Response Error in Surveys," The Statistician, Vol. 29, pp. 237-273.

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

Sudman, Seymour and Norman M. Bradburn (1973), "Effects of Time and Memory Factors on Response in Surveys," Journal of the American Statistical Association, Vol. 68, pp. 805-815.

Sudman, Seymour and Norman M. Bradburn (1974), Response Effects in Surveys, Aldine Publishing Company, Chicago.

Tanur, Judith M. [ed.] (1991), Questions about Questions: Inquiries into the Cognitive Bases of Surveys, Russell Sage Foundation, New York.

Tourangeau, R. (1984) "Cognitive Sciences and Survey Methods," in T. Jabine, E. Loftus, M. Straf, J. Tanur, and R. Tourangeau [eds.], Cognitive Aspects of Survey Methodology: Building a Bridge Between Disciplines, Washington, DC: National Academy of Science.

REFERENCES ON FOCUS GROUPS

Advertising Research Foundation (1985), Focus Groups: Issues and Approaches, Advertising Research Foundation, Inc., 3 East 54th Street, New York, N.Y. 10022.
Recommended reading: can be ordered from the above address.

Bellenger, D.N., K.L. Bernhardt and J.L. Goldstucker (1976), "Qualitative Research Techniques: Focus Group Interviews," Qualitative Research in Marketing, American Marketing Association, Chicago, pp. 7-28.

Calder, Bobby J. (1977), "Focus Groups and the Nature of Qualitative Marketing Research," Journal of Marketing Research, Volume XIV, pp. 353-364.

Carlson, Lynda T., John L. Preston and Dwight K. French (1993), "Using Focus Groups to Identify User Needs and Data Availability, Proceedings of the International Conference on Establishment Surveys, Alexandria, Virginia: American Statistical Association, pp. 300-308.

Desvousges, William H. and James H. Frey (1989), "Integrating Focus Groups and Surveys: Examples from Environmental Risk Studies," Journal of Official Statistics, Statistics Sweden, Vol. 5, No. 4, pp. 349-363.

Goldman, Alfred E. and Susan Schwartz McDonald (1987), The Group Depth Interview: Principles and Practice, Prentice-Hall, Englewood Cliffs, N.J.
Recommended reading.

Greenbaum, T.L. (1987), The Practical Handbook and Guide to Focus Group Research, Lexington Books, Lexington, Massachussetts.

Keer, David W., Barbara J. Stein and Monroe G. Sirken (1991), "Strategies to Recruit Subjects for Questionnaire Design Laboratories," Proceedings of the Section on Survey Research Methods, American Statistical Association, pp. 490-495.

Krueger, Richard A. (1997), Analyzing and Reporting Focus Group Results, Focus Group Kit, Volume 5, Sage Publications, Thousand Oaks, California.

Krueger, Richard A. (1997), Developing Questions for Focus Groups, Focus Group Kit, Volume 3, Sage Publications, Thousand Oaks, California.

Krueger, Richard A. (1988), Focus Groups: A Practical Guide for Applied Research, Sage Publications, Newbury Park, California.
Highly recommended.

Krueger, Richard A. (1997), Involving Community Members in Focus Groups, Focus Group Kit, Volume 5, Sage Publications, Thousand Oaks, California.

Krueger, Richard A. (1997), Moderating Focus Groups, Focus Group Kit, Volume 4, Sage Publications, Thousand Oaks, California.

Morgan, David L. (1988), Focus Groups as Qualitative Research, Qualitative Research Methods, Vol. 16, Sage Publications, Newbury Park, California.

Morgan, David L. (1997), Planning Focus Groups, Focus Group Kit, Volume 2, Sage Publications, Thousand Oaks, California.

REFERENCES ON FOCUS GROUPS (continued)

Morgan, David L. [ed.] (1993), Successful Focus Groups: Advancing the State of the Art, Sage Publications, Newbury Park, California.

Includes a collection of papers and articles on focus group methodology.

Morgan, David L. (1997), The Focus Group Guidebook, Focus Group Kit, Volume 1, Sage Publications, Thousand Oaks, California.

O'Brien, Kerth (1993), "Improving Survey Questionnaires through Focus Groups," in Successful Focus Groups, David L. Morgan [ed.], Sage Publications, Newbury Park, California, pp. 105-117.

Stewart, D.W. and P.N. Shamdasani (1990), Focus Groups: Theory and Practice, Applied Social Research Methods Series, Vol. 20, Sage Publications, Newbury Park, California.