Medical Education Research Booklet No. 4

Questionnaire construction and question writing for research in medical education

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Contents

Introduction 347
Part 1: Guide to questionnaire construction 348

Deciding to do a survey 349
Determining the questions to be asked 352
Structuring the questionnaire 354
Information for respondents about the study 355
Pretesting of questionnaires 356

Part 2: Writing good questions—a check-list 356

(1) Are the words simple, direct and familiar to all? 356
(2) Is the question as clear and specific as possible? 356
(3) Is it a double question? 356
(4) Does the question have a double negative? 357
(5) Is the question too demanding? 357
(6) Are the questions leading or biased? 358
(7) Is the question applicable to all respondents? 359
(8) Can the item be shortened with no loss of meaning? 359
(9) Is the question objectionable? 359
(10) Will the answers be influenced by response styles? 360
(11) Have you assumed too much knowledge? 361
(12) Have you assumed too much about the respondent’s behaviour and/or the situation? 361
(13) Is an appropriate time referent provided? 361
(14) Can the responses be compared with existing data? 362
(15) Does the question have several possible meanings? 362
(16) Have you exhausted the response alternatives? 362

References 362

Part 3: A short bibliography for further reading 363
Questionnaire construction and question writing for research in medical education

C. A. WOODWARD

Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario

Summary. This booklet describes the basic principles of questionnaire construction and design using examples applicable to research in medical education. It is intended for medical educators and researchers who plan to construct questionnaires to gather data about a course, curriculum component or medical education programme. An easy-to-use list of problems to consider when writing questions for a questionnaire is provided. As well, information is provided about the structure of a questionnaire and of the covering letter sent to potential respondents.

Key words: *questionnaires; *education, medical; research

Introduction

This booklet is part of a series published by the Association for the Study of Medical Education to help people carrying out educational research, and it introduces its readers to the basic elements of questionnaire construction and design. It also builds on, and contributes to our understanding of, the other booklets in the series, and should be read in conjunction with them (Coles & Gale Grant 1985; Harden 1986; Coles & Mountford 1988). While being comprehensive in itself, it does not, nor can it, tell its readers everything they need to know about educational research. Indeed, it does not even attempt to cover the important practical issues concerning the implementation of a wide-scale survey using a questionnaire. These matters will be found dealt with in other titles within the series.

The booklet is largely based on my experience in designing questionnaires to be used in studies of medical education and health-care services. In the early 1980s, responding to a need identified both by my graduate students in health-care research and by my medical colleagues who were discovering questionnaire development was a more arduous task than anticipated, we published a Guide to Questionnaire Construction and Question Writing (Woodward & Chamber 1983) targeted for an audience of health-care researchers. I had found that the literature in this methodologic area was widely scattered and that it was difficult to direct the novice to one source that would provide all the information necessary for good questionnaire development in an easily digestible form.

A brief glance at Medical Education or the Journal of Medical Education will confirm that questionnaires are also widely used in research in medical education. The quality of the questions asked, how the questionnaire is formatted, and the information presented to potential respondents about the survey are crucial determinants of the quality of the research. This booklet, directed to an audience of medical teachers and researchers in medical education, is a distillation of both my reading about questionnaire design and my experience with this methodology. I have tried to spell out the basic principles of

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questionnaire design using question examples that relate to issues in medical education. However, the principles described are universal and apply to questionnaire construction on any topic of interest.

Survey research techniques are widely used in medical education research to provide information useful to formative and summative evaluation of courses, blocks within a curriculum and curricula. Students may be asked to complete a questionnaire at the end of a learning experience or later be surveyed by mail regarding teaching/learning experiences. Information may also be gathered across faculty, programmes or schools on trends in medical education. Such methods provide an inexpensive way to collect information in a standardized fashion from a representative group of participants/informants.

Although questionnaire construction is central to such survey methods, often only a single sentence may be devoted to the development of the questionnaire in reporting survey results: ‘A 60-item questionnaire, developed to obtain feedback from students about the educational experience, was sent to all participants’. For the experienced educational researcher, such a statement will conjure up images of the arduous process of questionnaire construction while for the neophyte, it may convey the idea that questionnaires are casually constructed. This booklet is designed to acquaint the reader with the several steps in questionnaire development. It provides a guide to question construction and formatting of questionnaires. A bibliography is provided to allow interested readers to explore the topics presented in greater depth.

Part I: Guide to questionnaire construction

Deciding to do a survey

Educational researchers should be able to state clearly the intent of the survey to be done. This will help delimit the types of information sought. This process of defining the domain is often not so obvious as it appears. Ideas that seem crystal clear in everyday conversation are likely to become much more murky when subjected to careful scrutiny. For example, you may have decided to survey students about their elective experiences during medical school. When you begin to think carefully about it, you quickly realize that there are at least five elective periods, each of which may be broken down into smaller subunits when selecting electives. Students may take electives at their home university, within the country or outside the country. Perhaps bursaries are only available for electives in the final year. Students may have multiple reasons for selecting an elective (e.g. experience in a particular clinical field, opportunity to travel), opportunity to evaluate their level of competence compared to students from other medical schools, exploration of a particular setting as a site of postgraduate training, financial constraints, etc.) which may colour their choice and evaluation of the elective.

The survey domain is usually defined by gathering information from as many relevant sources as possible. In the elective example cited, it would be important to do a literature search to find out whether others have explored the role of electives in medical education. Information should also be gathered from the elective office, from teachers who are often elective supervisors and from students. The information gathered from all relevant sources must be categorized by the investigator and evaluated as to the importance of its inclusion in the survey to allow an adequate understanding of the nature and role of elective experiences.

The terms of reference of the survey will become much clearer if this process is carried out well. For example, you may now wish to limit the survey group to students in their final year of medical school. Conversely, you may wish to focus on a particular type of elective, in emergency medicine, and inquire across years about the students’ learning objectives in choosing this elective, the factors that influenced their choice of site of the elective and their evaluation of the learning experiences offered. You may now have several hypotheses about the types of students who choose this elective. By the end of the process of defining the domain, you should be able to state concisely to yourself the intent of the survey.

This exercise should also have clarified whether a survey is the best method to collect data for your study. For example, you may have discovered that the elective office keeps detailed records of student
electives, including a written statement of the students' learning objectives, the type, timing and length of each elective and a written evaluation by the students after they complete the elective. Statistical compilation of this information may have answered the original question you posed.

On the other hand, your initial explorations may have led to considerable refinement of your initial question. You may now wish to explore the role of electives in planning students' subsequent career paths and whether or not some students perceive themselves to be more constrained in their choices of electives than others because of family or financial considerations. You may have decided to include both selective experiences (where students' choices were constrained) and elective experiences (where few constraints were imposed on choice of topic).

**Determining the questions to be asked**

The types of questions must be determined before the questionnaire is drafted. Most questionnaires contain a variety of question types, depending on the information sought. Items in a questionnaire are categorized according to the kind of information sought.

Basically, questions can elicit four types of responses: about attitudes, beliefs, behaviour or attributes.

1. **Attitudes**: What people say they want.

   Do you tend to agree or disagree with this statement? The choice of topics for elective periods during the first two years of medical school should be more carefully supervised by the student's academic advisor.

   1. Agree strongly
   2. Agree
   3. Disagree
   4. Disagree strongly

2. **Beliefs**: What people think is true.

   Taking an elective in a field of medicine is a good way of deciding whether or not you should pursue a medical career in this field.

   1. Yes, always
   2. Yes, usually
   3. Sometimes
   4. Seldom
   5. Almost never
   6. Never

3. **Their behaviour**: What people do.

   Did you take an elective during medical school in the field of medicine you are now pursuing?

   1. No
   2. Yes
(4) Attributes: What people are.

Are you currently married?
1 No
2 Yes

What is your present age?

——— years

Again, the reader will note that clarity in the purpose of the questionnaire assists in determining whether the questions are to be used to examine attitudes, beliefs, behaviour and/or attributes. When a question seems likely to be sensitive to variations in wording, it is advisable to ask another or perhaps several questions. In particular, attitude questions may elicit quite different responses depending on their wording. At the other extreme, it is seldom necessary to ask for information on attributes in more than one way (e.g. age in years is sufficient without asking year of birth). Belief and behaviour questions fall between these two extremes. In general, more than one question in the same topic permits verification (checks on internal consistency or validity of response).

Questions also differ in the extent to which the response given is constrained by the investigator.

(1) Open-ended questions have no answer choices from which respondents select their responses. Instead, the respondents must 'create' their own answers and state them in their own words.

In your opinion, what is the biggest barrier to free choice of elective experiences? (Belief)
What problem or problems, if any, have you encountered in planning an elective? (Behaviour)

Open-ended questions have several advantages. They stimulate free thought, solicit suggestions, probe people's memories, clarify positions. Such questions are usually indispensable for exploratory studies in which the medical education researcher's main purpose is to find the most salient aspects of the topic under scrutiny, perhaps in preparation for developing closed-ended (limited choice) questions for a later survey.

The disadvantages of open-ended questions are also several. Such questions require the respondent to recall past experiences, reorganize them and find terms to express them. The request to create and articulate responses places a greater burden on the respondent. Probing of answers is often necessary to avoid incomplete, uninterpretable or irrelevant answers. This makes them generally unsuitable for mailed surveys but useful in direct interview surveys and telephone surveys where clarification can be requested. Open-ended questions are also more difficult to analyse statistically. Responses must be read and categories developed based on answers received before coding can proceed. Illegible handwriting may pose a problem.

(2) Closed-ended questions provide the respondents with answer choices which may be ordered or unordered. Ordered choices are provided when respondents are asked about a behaviour, attitude, attribute or belief and their task is to find the most appropriate place on an implied continuum for their response.
What is your present age?
1 Under 20
2 20–24
3 25–29
4 30–34
5 Over 35

Electives of 2 or less weeks' duration do not provide the student with an adequate learning experience.
1 Strongly agree
2 Agree
3 Can’t decide
4 Disagree
5 Strongly disagree

What, in your experience, is the optimal length of an elective experience?
1 Two weeks or less
2 Two to four weeks
3 Four to six weeks
4 Six to eight weeks
5 Eight to ten weeks
6 More than ten weeks

Closed-ended questions with unordered responses also provide answer choices, but no single dimension underlies them. Respondents must choose from among discrete, unordered categories by independently evaluating each choice and selecting the one that best reflects their situation.

What were the most influential reasons for choosing an elective in emergency medicine? (Put the appropriate number in each box.)

☐ Most influential
☐ Second most influential
☐ Third most influential

1 Opportunity to explore this field as a career option
2 Availability of elective slot
3 Convenience of elective posting for me/my family
4 Opportunity to work with a particular professor
5 Opportunity to see high volume of patients
6 Clinical skills teaching offered by elective
7 Reports of students who had previously taken the elective

(3) Most questionnaires also contain some partially closed-ended questions. Such questions provide a compromise for both the investigator and the respondent. Although some answer choices are given, the respondents have the option of creating their own. In the example given above, where respondents were asked to indicate reasons influencing choice of elective, the investigator might wish to include the response option 'Other reason, please describe ___________________________' to allow other important reasons, not known to the investigator, to be mentioned.
Which of the following areas should have the highest priority for improvement of the elective programme office? (Circle only 1 please.)

1. Increase in the number of elective listings
2. Better information on the opportunities for financial aid during electives
3. More information about previous students' experiences with this elective
4. Other, please describe _______________________

Your final questionnaire may have several components (e.g. sociodemographic questions, attitudural questions, scales to measure important behavioural constructs, etc.). If you plan to compare your results with previous studies, it is important to use the same questions (identical wording) as was used in the previous work whenever possible. This procedure has the added bonus of reducing the number of new questions that you must create. Further, you may wish to scan the literature for existing scales that have been developed to measure important behavioural constructs. For example, you may be interested in whether a new course in community and preventive medicine changes students' attitudes towards social issues in medicine. A brief literature search will identify the Attitudes Towards Social Issues in Medicine (ATSIM) questionnaire developed by Parlow & Rothman (1974). Several measures exist for such constructs as anxiety (e.g. Academic Anxiety Test: Alpert & Haber 1960) and depression (e.g. Beck Depression Inventory: Beck et al. 1961).

At the end of questionnaire construction, be sure to check that questions are asked about each of the survey topics and that no extraneous questions, irrelevant to your objectives, are included. Careful matching of the questions on the near final questionnaire with study objective will often identify gaps in questions coverage and/or areas in which the number of questions posed can be reduced. The few minutes it takes to develop a table that links questionnaire items to the initial objectives of our survey will ensure no information is gathered that cannot be used (economy of questions) and no information needed to address your objectives is lacking.

Structuring the questionnaire

Physical layout of the questionnaire. Questionnaires should be attractive (e.g. carefully chosen paper, neat, balanced on the page), convenient for the respondent to use (e.g. good paper, binding, short), and easy to identify, code and store. A booklet format makes it easy to read and turn pages. This prevents lost pages and allows both sides of the paper to be used.

General rule: Paper and printing costs should always be weighed against the quality of information obtained.

Identification: Each form should contain one or more unique identifying numbers.
Size: Leave sufficient space between items. Do not crowd questions.
Numbering: Each item should be numbered consecutively.
Space: Err on the side of more rather than less space between items. Space for open-ended questions should not be excessive. Do not split questions between pages.
Paper: Heavy paper should be used to withstand handling by many people. Ballpoint pens should not penetrate or easily tear the paper. Varied colours enhance readability and ability to distinguish between different forms of the questionnaire.
Type-faces: Instructions should be clearly distinguishable from questions and response alternatives. The easiest method is to use different type sizes. Use underlining to emphasize the most salient parts of the question. Printing (as opposed to typing) increases the options of sizes and shades of type. Mechanical devices such as arrows, boxes, asterisks and other symbols can be used to simplify questionnaires.
Precoding: Assignment of questions and response categories to computer column codes which are recorded on the questionnaire beside their respective questions facilitates coding. This saves a processing step and thereby a potential source of error before data analysis.

Format. The way a questionnaire is laid out may affect response rate and the accuracy of the responses given. Formats that are easy to follow and pleasing to the eye make completing the questionnaire less of a chore. Examples of two formats are given to illustrate how important format is.

(1) Skip patterns. In many cases, some questions do not apply to and should not be answered by all respondents. Clear, graphic instructions help direct respondents to the appropriate items.

**Poor**

Q-1 Since entering medical school, have you ever left active involvement in medicine (excluding normal vacation time)?
1 No
2 Yes

Q-2 (If you have taken time off from medicine, answer these questions. If you haven’t, skip straight to Q-10 on page 3.)

Please give the year(s) and duration of the period(s) when you were not actively involved in medicine.

<table>
<thead>
<tr>
<th>Period</th>
<th>During 19-</th>
<th>for a total of- months</th>
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</thead>
<tbody>
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<td>4</td>
<td></td>
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</tbody>
</table>

**Acceptable**

Q-1 Since entering medical school, have you ever left active involvement in medicine (excluding normal vacation time)?
1 No → Please go to page 3, Question 10.
2 Yes

Q-2 Please give the year(s) and duration of the period(s) when you were not actively involved in medicine.

<table>
<thead>
<tr>
<th>Period</th>
<th>During 19-</th>
<th>for a total of- months</th>
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(2) Transition statements. There are several circumstances in which transition statements should be used.

(a) When a new line of inquiry is started (as a signalling device).
(b) At the start of new pages. Transitions are used to help convince the respondent the questionnaire is well thought out, reasonable and that each question has a purpose—to sustain motivation to respond. A questionnaire with too many transitions may be just as annoying as one without them.
(c) To break up the monotony of long series (to help add a conversational tone to the question).
The words used in transitions and their length are just as important as whether transitions are included.

(a) Poorly worded transitions can produce bias or non-response.

(i) Do not suggest how the respondent's answers to the questions that follow will affect other behaviours you have asked about.

Students' marital status affects how they feel about electives. So, next we want to ask you about your marital status during medical school.
Revision: Socio-demographic information.

(ii) Excessively long transitions are not read carefully.

People are different with respect to their reasons for choosing electives. Some use electives to explore a new topic, others to review previously learned material while others to pursue areas of weakness. Those undecided about the field of medicine that they would like to pursue use electives to help make this decision. Some find family or financial obligations constrain their choices. Regardless of your situation and preferences, we would like to learn more about them. So, next we want to ask you several questions about the reasons behind your elective choices.
Revision: Factors influencing elective choices.

(iii) Inappropriately demanding transitions turn people off.

Now we want you to answer some questions about your final-year elective.
Revision: Thinking now about your final-year elective . . .

(iv) People can readily detect transition statements which imply a false sense of importance.

It is essential for this study that we learn about medical students' attitudes towards their electives.
Revision: The next few questions are about factors influencing choice of electives.

(b) Transitions should fit the situation. A minor change in type of question should be preceded by a short transition while a longer transition may be used to indicate a major change in topic.
(c) Preface requests for personal information at the end of the questionnaire with a short transition.

Information for respondents about the study

In mailed surveys, a covering letter is used to introduce the study to potential respondents, solicit their support of the study and encourage a prompt reply. In my experience, researchers are likely to spend months designing and developing the questionnaire that they plan to use. Often, the covering letter is left for last and treated as an afterthought. Since the covering letter is usually the first part of the mail-out package to be examined by the respondents, equal attention should be paid to its development. The covering letter should anticipate respondents' questions about the survey and answer them well. It should be pretested along with the draft questionnaire. (See following section.)
Covering letters should not exceed one page in length. Thus, each sentence must be carefully framed and serve a distinct purpose. The content of the letter should:

1st paragraph  
(1) explain the purpose of the study;
(2) attempt to convince respondent that the study is useful;
(Caution: if the study is being done by or for an organization, focus on benefit(s) to people served by an organization or members of the organization (respondent) rather than the organization)
(3) avoid any hint of bias;

2nd paragraph  
(4) make respondent feel important to the success of the study;

3rd paragraph  
(5) include information regarding confidentiality of individual responses and anonymity of respondents if applicable;
(6) re-emphasize the basic justification for the study;

4th paragraph  
(7) availability of the study results (may include offer of copy to respondents);

Last paragraph  
(8) thank the respondent.

Pretesting of questionnaires

A pretest is an evaluation of the questionnaire, including the specific questions, format, sequence, instructions, etc. before use in the main survey. Usually, the investigator at least tries out the questionnaire on a population similar to the ultimate study population. For example, we pretest new questions for our exit survey of final-year medical students on recent graduates and members of the class below the final year. Pretests are essential for mail questionnaires, as there are no interviewers who can report difficulties in administering the questionnaire and no changes can be made once the mailing occurs. The time and cost are well worth the effort.

A pretest should elicit general impressions of the questionnaire (including covering letter, transition statements, skip patterns initiated by screen questions, etc.) as well as comments on the content and wording of individual questions. Questions addressed by a pretest include:

Is each of the questions measuring what it is intended to measure?
Are all the words understood?
Are questions interpreted similarly by all respondents?
Does each closed-ended question have an answer that applies to each respondent?
Do the questionnaire and covering letter create a positive impression, one that motivates people to reply?
Are questions answered correctly? (Are some missed, and do some elicit uninterpretable answers?)
Does any aspect of the questionnaire suggest bias on the part of the researcher?

The questionnaire used for pretesting should look in final form if at all possible. More than one pretest may be required.

Three types of people should be used to scrutinize the questionnaire during pretesting:
(1) Colleagues (fellow researchers) should be used to evaluate how well the questionnaire will accomplish the study objectives.
(2) Potential users of the information generated by the questionnaire (people with substantive knowledge of the survey topic) should check the questionnaire for accuracy, and lack of bias (leading questions).
(3) Lastly, a cross-section of potential respondents (diverse in terms of backgrounds, etc. as applicable) should fill out the questionnaire in the presence of the investigator. This is necessary to obtain verbal and non-verbal feedback about the clarity of instructions and questions, the exhaustiveness of alternatives, the readability of the questionnaire, etc. and probes regarding the meaning of
key questions should be used. Pretests with potential respondents can also be done in small
groups.

Pretesting does not obtain information on the reliability of responses of the questions asked.
Reliability is usually assessed within the main study by such tactics as (1) examining the internal
consistency of responses and (2) repeated administration of the questionnaire on two or more occasions.
Most books on educational or psychological measurement will prove information on the assessment of
reliability of a measure (e.g. Cronbach 1970, especially chapter 6.)

Part 2: Writing good questions—a check-list

(1) Are the words simple, direct and familiar to all?
   (a) Keep words as simple as possible.
       (Caution: Substituting simple for complex words can have the paradoxical effect of turning
       simple sentences into complex ones.)
   (b) Tailor the wording of questions to your respondents.
   (c) Use full abbreviations judiciously and only after using the full name in conjunction with the
       abbreviation on the same page.
   (d) Avoid foreign phrases and slang expressions.

(2) Is the question as clear and specific as possible?
   (a) Vague questions produce vague answers.

   Poor: Have you completed an elective recently?

   (b) Questions can be so precise that people cannot answer them.

   Poor: How many times did you visit the electives office in your final year of medical school?

(3) Is it a double question?
   It is tempting to save time and space with questions that cover two or more issues at once. The
   answers obtained are not readily interpretable.

   Poor: The pace and content of this lecture were good.

   Strongly agree  Agree  Undecided  Disagree  Strongly disagree

   Acceptable: The pace of this lecture was good.

   Strongly agree  Agree  Undecided  Disagree  Strongly disagree
The content of this lecture was appropriate.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

(4) *Does the question have a double negative?*

Two negatives in a sentence are confusing.

Please indicate the extent to which you agree with each of the following statements:

*Poor:* Lack of bursaries for medical students to use for out-of-town electives is not a problem at this medical school.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

*Acceptable:* Lack of travel bursaries for out-of-town electives limits the choice of electives for medical students at this school.

(5) *Is the question too demanding?*

A request to rank 25 factors in order of importance will try the patience of even the most enthusiastic respondent. Other formats that can be used include:

*Acceptable:*

**CHOICE OF PRACTICE LOCALE**

Which of the following factors were important to you in deciding your current location? (Please check as many as applicable.)

- (a) Income potential
- (b) Climate or geographic features of area
- (c) Have been brought up in such a community
- (d) Payment of 'forgiveness loan'
- (e) Influence of partner (his/her desires, career, etc.)
- (f) High medical need in area
- (g) Having gone through medical school, internship and/or residency near here (circle all that apply)
- (h) Organized efforts of community to recruit doctors
- (i) Recruited by colleagues
- (j) Opportunities for social life
- (k) Recreational and sports facilities
- (l) Quality of educational system for children
- (m) Prospect of being more influential in community affairs
- (n) Cultural advantages
- (o) Preference for urban or rural living
☐ (p) Availability of clinical support facilities and personnel
☐ (q) Availability of good social service, welfare or home care services
☐ (r) Opportunity for regular contact with medical school or medical centre
☐ (s) Opportunity for regular contact with other doctors
☐ (t) Opportunity to join desirable partnership or group practice
☐ (u) Proximity to family of origin

Of all the factors checked above, choose the three that were most important in attracting you to the location you selected and rank them below according to the letter of the alphabet in front of each factor.

Rank
1—(Most important) = ____________
2—(Second) = ____________
3—(Third) = ____________

If none very important—please state major reason ____________________________

Or:

CHOICE OF PRACTICE LOCALE

In the following section, please indicate the importance of each factor to your location decision. (Circle the appropriate number.)

Acceptable:

<table>
<thead>
<tr>
<th></th>
<th>VERY IMPORTANT</th>
<th>IMPORTANT</th>
<th>NOT IMPORTANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Income potential</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b</td>
<td>Climate or geographic features</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c</td>
<td>Have been brought up in such community</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>etc.</td>
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</tbody>
</table>

(6) Are the questions leading or biased?
(a) Mentioning only some alternative answers can create a bias. Either mention all alternative answers or none.

Poor: How should electives be evaluated, by supervisor rating forms, or by what?

(b) Using emotionally charged words creates a bias.

Poor: The government should provide health insurance coverage for people who don't work.

(c) Avoid appeals or threats to self-esteem.
Questionnaires in research in medical education

Most men would find it more embarrassing to say 'No' to 'Do you work?' than 'Do you have a job at present?'

(d) Beware of personalization.

For example, satisfaction with health care and its delivery is usually higher when people are directly asked about their experience with their doctor, than when asked about their satisfaction with doctors.

(7) Is the question applicable to all respondents?

Inapplicable questions are irritating and confusing to respondents. They may also cause misleading information to be collected. Respondents can be asked to omit inapplicable questions by use of a skip pattern.

Acceptable:
1. Have you visited the anatomy self-teaching laboratory in the past two weeks?
   - NO Please go to Question 5 on page 2
   - YES

2. How long did you spend at the anatomy lab on your last visit?
   - □ less than 30 minutes
   - □ 30–59 minutes
   - □ 60–119 minutes
   - □ more than 120 minutes

(8) Can the item be shortened with no loss of meaning?

Long-winded questions sometimes leave respondents wondering what the real question is. However, the opposite, cryptic questions, must also be avoided because they impart too little information to the respondent.

(9) Is the question objectionable?

(a) Personal questions, questions which convey negative implications and incriminating questions should be avoided.

(b) If you must ask an objectionable question:
   (i) Leave the question to late in the questionnaire.
   (ii) Ask for response in broad categories.
   (iii) Establish a context which softens the impact.
   (iv) Use a series of questions to overcome the objectionable nature of a question.

Poor: Did you ever cheat in an exam during medical school?

   NO ............................................................... 1
   YES ............................................................. 2

Acceptable: As you may know, there is now a great deal of discussion about academic dishonesty among students at this university and questions as to how it should be handled. Academic dishonesty includes such things as handing in an assignment that someone else has done for you, obtaining the answers to a test in advance, bringing study notes to an examination, etc. Some people feel it is a serious problem about which something should be done, others feel it is not a serious problem. How about
yourself? Do you consider academic dishonesty to be a serious, moderate, slight, or no problem at all in our medical school?

- SERIOUS ............................................ 1
- MODERATE ............................................ 2
- SLIGHT ............................................ 3
- NOT AT ALL ............................................ 4

During the past few years do you think the frequency of academic dishonesty has increased, stayed about the same, or decreased among students in this medical school?

- INCREASED ............................................ 1
- STAYED ABOUT THE SAME .................... 2
- DECREASED ............................................ 3
- DON'T KNOW ............................................ 4

During the first three years as a medical student, do you recall personally knowing anyone who was academically dishonest?

- NO ............................................ 1
- YES .................................................. 2
- DON'T RECALL ............................................ 3
- REFUSED ............................................ 4

How about yourself? Did you ever consider being academically dishonest?

- YES ............................................ 1
- NO .................................................. 2
- REFUSED ............................................ 3

(10) Will the answers be influenced by response styles?
A response style is a tendency to choose a response category regardless of an item’s content.

(a) Acquiescence—the tendency to agree

Poor: Do you agree or disagree that assignments in this course are too long?

agree disagree

Acceptable: In your opinion, are assignments in this course too short, too long or a reasonable length?

Too short Too long Reasonable length Can’t decide
(b) Social desirability

Very few honest answers would be obtained if you asked:

<table>
<thead>
<tr>
<th>Poor: I often go to my doctor with trivial complaints</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] True</td>
</tr>
<tr>
<td>[ ] False</td>
</tr>
</tbody>
</table>

(c) Ordinal or position bias

To check for this bias, use two forms of the questionnaire—one with the order of answer alternatives reversed or randomized (if not ordered choices).

(11) \textit{Have you assumed too much knowledge?}

Some students don’t know how many patients they saw during a week in a doctor’s surgery. Many may have no opinion on a particular issue. Scrutinize each question to see whether an ‘I don’t know’ response should be offered. Coding must allow for no opinion, not applicable and I don’t know responses.

(12) \textit{Have you assumed too much about the respondent’s behaviour and/or situation?}

<table>
<thead>
<tr>
<th>Poor: When you go to visit your family doctor, how far in advance do you make an appointment?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable: Have you visited your family doctor in the past year?</td>
</tr>
<tr>
<td>[ ] No</td>
</tr>
<tr>
<td>[ ] Yes</td>
</tr>
</tbody>
</table>

Do you usually have an appointment ahead of time when you go to see the doctor?

| [ ] No |
| [ ] Yes |

Except for emergency visits, how long do you usually wait to get an appointment with the doctor?

[ ] days

(13) \textit{Is an appropriate time referent provided?}

If the questionnaire is to be fielded for several months (e.g. November-January), references to ‘This year’ may create problems. If no time referent is provided, responses may be hard to interpret. The time
C. A. Woodward

referred to depends on the saliency of the topic. For example, the number of dying patients a student has encountered will be remembered more accurately than how many times they have encountered a patient with hypertension.

(14) Can the responses be compared with existing data?

Always check the way in which questions were posed in other surveys if you want to compare your results with other data sources.

(15) Does the question have several possible meanings?

The meaning assigned to a word in a question may differ and alter the meaning of the question for subgroups in the sample, causing a systematic error. Similarly, different people across groups may assign different meanings to a question causing random error. Careful pretesting is usually needed to spot this problem. For example, ‘saw’ can mean observed or visited a doctor. See Payne’s Rogues Gallery of Problem Words (Payne 1965).

(16) Have you exhausted the response alternatives? (for closed-ended questions only)

Unless you are sure that a set of response options completely covers all the options, use a partially closed-ended question.

Acceptable: How did you find out about opportunities for electives?

1 Recommended by another student

2 Recommended by faculty advisor

3 Electives office bulletin board

4 Other, please describe________________________

References†


†Only references directly cited in the text are included in this list. Obviously, the points made draw on wider reading, including the references cited in the bibliography.
Part 3: A short bibliography for further reading