

THE ART OF QUESTIONNAIRE DESIGN - A WORKBOOK

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1. Questionnaire design

A questionnaire is a **formalized set of questions** for obtaining information from respondents. It must translate the information needed into a set of specific questions that the respondents can and will answer. A questionnaire must **uplift, motivate, and encourage the respondent** to become involved in the interview, to cooperate, and to complete the interview. In order to minimize response error, a questionnaire should contain all necessary **instructions** (for the respondent, for the interviewer etc.) (Malhotra, 2010, p. 335).

Example:

Which of these best describes the main purpose of your trip today? Choose one purpose only!

INTERVIEWER: Read out all answer categories, ask to specify others and write down all mentions.



- | | |
|--|---|
| <input type="checkbox"/> Going for a walk | 1 |
| <input type="checkbox"/> Sitting and relaxing, enjoying the view | 2 |
| <input type="checkbox"/> Just passing through | 3 |
| <input type="checkbox"/> Visiting tourist/historic attractions | 4 |
| <input type="checkbox"/> Other: _____ | 5 |

In designing a questionnaire, the researcher should have sought out as much **previous research** on the topic or related topics as possible. Especially, if it is decided that the study at hand should have points of comparison with other studies, data need to be collected on a similar basis. **Questionnaires from previous studies** are always an important part of the input into the questionnaire design process (Veal, 2006, p. 249).

2. Questionnaire design process

The questionnaire design process consists of several steps, which will be discussed in the following subchapters:

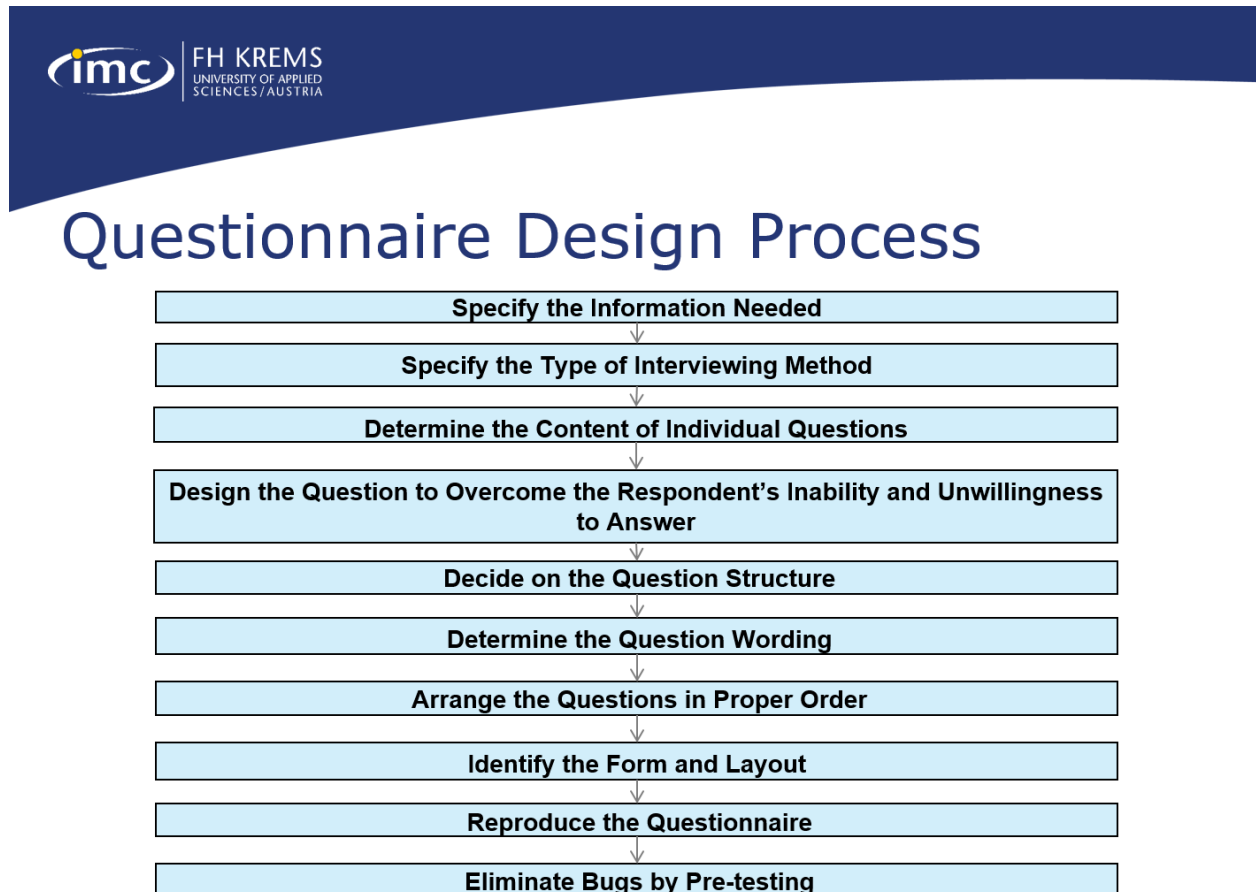


Figure 1: The questionnaire design process
Source: Malhotra, 2010, p. 336

2.1. Information need

In a first step you need to **specify the information needed**. Review the components of your **research problem** and the **research questions** and your **hypotheses**. Furthermore, it is important to have a clear idea of the target population. The characteristics of the respondent group have a great influence on questionnaire design and wording (Malhotra, 2010, p. 336).

Very often researchers move too quickly into questionnaire design mode and begin listing all the things that could be interesting to ask. It is not advisable to begin with this list of questions to be included in the questionnaire. The starting point must always be an examination of the objectives and research questions (Veal, 2006, p. 249).

This step requires a lot of effort since you need to specify exactly what information is to be collected from each respondent. Poor judgment and lack of thought at this stage may mean that the results are not relevant to the research purpose or that they are incomplete. Both problems are expensive, and may seriously diminish the value of the study. Therefore, you need to **translate research objectives into information requirements and finally into questions** (see Figure 2) (Aaker, Kumar, Day, & Leone, 2011, p. 276-7).

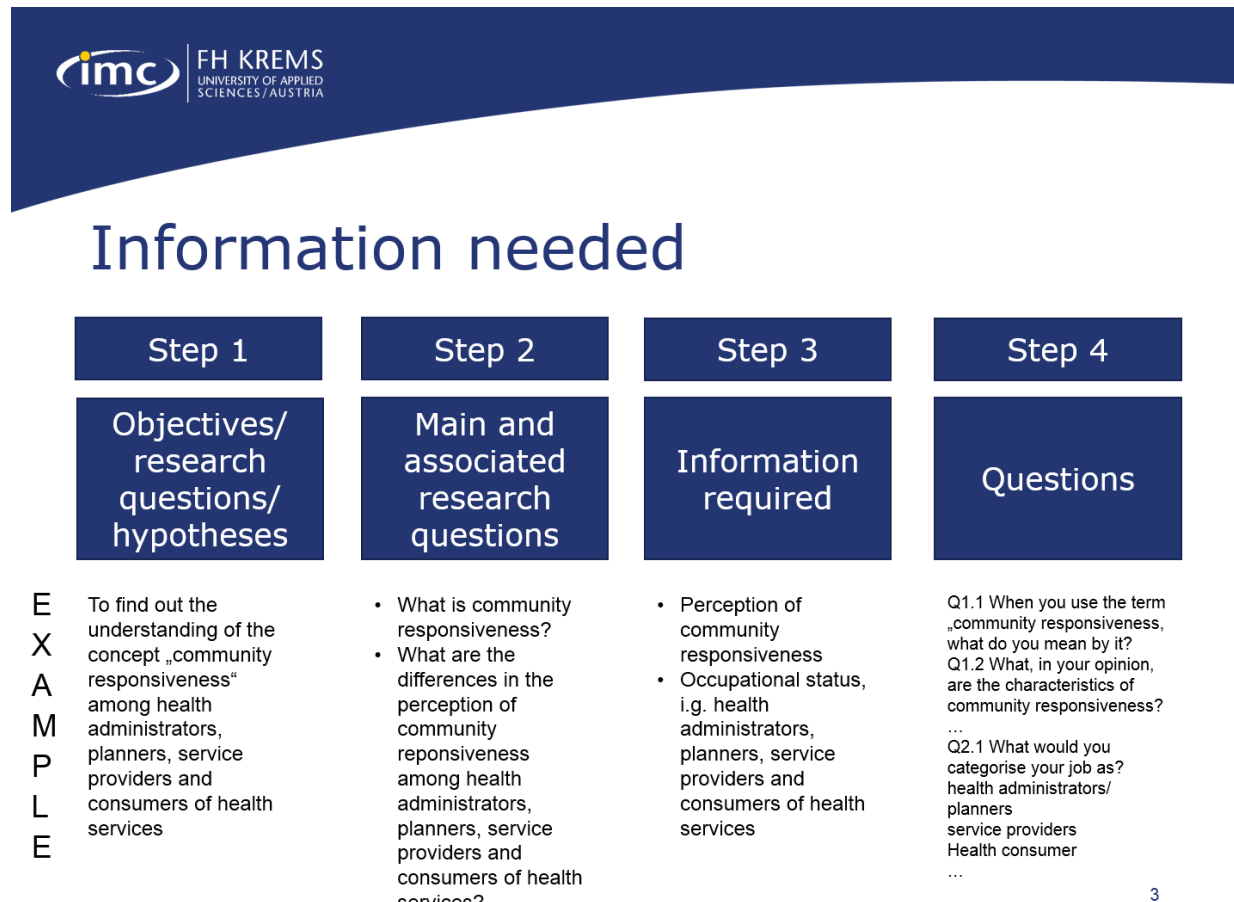


Figure 2: Information need
Source: Kumar, 2014, p. 190

When constructing a questionnaire, you need to be cognizant of your aims and hypotheses, then you can to consider the variables you are attempting to study and finally start to develop your questionnaire questions (Jennings, 2010, p. 247).

Exercise:

To specify the information needed try to answer the following questions:



What is your research problem?

What are your research questions / what should be answered by your research?

**What are your hypotheses
(= unproven statements about a
factor that is of interest to you
as a researcher)?**

What information is required?

2.2. Type of interviewing method

The **interviewing method** may **influence your questionnaire design** as the questionnaire may have to be administered differently for each method. In personal interviews respondents see the questionnaire and interact face to face with interviewer. This allows more complex, lengthy and varied questions. In telephone interviews respondents do not see the questionnaire, which means that questions should be very short and simple. Mail and internet questionnaire are self-administered. Therefore, questions must be simple and detailed instructions must be provided (Malhotra, 2010, p. 337).

Exercise:

To learn more about the specifications of your interviewing method, try to answer the following questions:



What kind of interviewing method will you apply?

What should you consider when using this type of interviewing method?

2.3. Content of questions

The next question you have to deal with is: What to include in individual questions?

2.3.1. Necessity of questions

Every question should **contribute to the information needed** or **serve some specific purpose**. If there is no satisfactory use for the data resulting from a question, this question should be eliminated. In certain situations, questions may be asked that are not directly related to the information that is needed (e.g. neutral questions at the beginning of the questionnaire when the topic of the questionnaire is sensitive, filler questions to disguise the purpose of the project) (Malhotra, 2010, p. 338).

2.3.2. Double-barreled questions

Sometimes, several questions are needed to obtain the required information in an unambiguous manner. Avoid double-barreled questions, where **two or more questions are combined into one**. To obtain the required information unambiguously, two distinct questions have to be asked (Malhotra, 2010, p. 339).

Example:

~~Do you think Coca-Cola is a tasty and refreshing soft drink?~~



2.4. Overcoming the respondent's inability and unwillingness to answer

A researcher should not assume that respondents can provide accurate or reasonable answers to all questions. Certain factors may limit the respondents' ability to provide the desired information (Malhotra, 2010, p. 339).

2.4.1. Overcoming inability to answer

- Make sure that the respondents only have to answer **questions on which they are informed**. Research has shown that respondents will often answer questions even though they are uninformed! In such situations, **filter questions** have to be included to enable the researcher to filter out respondents who are not adequately informed. Furthermore, a **"don't know" option** should be provided when the researcher expects that respondents may not be adequately informed about the subject of the question (Malhotra, 2010, p. 340).
- Questions may **exceed the ability of the respondents to remember**. The inability to remember leads to errors of **omission** (inability to recall an event that actually took place), **telescoping** (when an individual telescopes or compresses time by remembering an event as occurring more recently than it actually occurred) or **creation** (when a respondent "remembers" an event that did not actually occur) (Malhotra, 2010, p. 340f).

Example:

~~How many gallons of soft drinks did you consume during the last four weeks?~~



- Respondents may be **unable to articulate certain types of responses**. Then they are likely to **ignore the question** and may **refuse to respond** to the rest of the questionnaire. Thus respondents should be given aids, such as pictures, maps and descriptions to help them articulate their responses (Malhotra, 2010, p. 341).

Example:

~~Please describe the atmosphere in this store!~~



2.4.2. Overcoming unwillingness to answer

Even if respondents are able to answer a question, they might be unwilling to do so.

- Most respondents are unwilling to devote a lot of effort to provide information. Hence, the researcher should **minimize the effort required of the respondents** (Malhotra, 2010, p. 341).

Example:

~~Please list all the departments from which you purchased merchandise on your most recent shopping trip to a department store.~~



- Some questions may seem appropriate in certain **contexts**, but not in others. Respondents are also unwilling to give information that they do not see as serving a legitimate purpose. The researcher should therefore provide context information and legitimate the purpose (Malhotra, 2010, p. 342).
- Respondents are unwilling to disclose **sensitive information** because this may cause embarrassment or threaten the respondent's prestige or self-image. Sensitive topics include money, family life, political or religious beliefs, and involvement in accidents or crimes. The approaches described in the next section can help to increase the likelihood of obtaining information that respondents are unwilling to give (ibid.).
- The **willingness of respondents** to provide information can be increased by the following techniques (Malhotra, 2010, p. 342f):
 - Place sensitive topics at the end of the questionnaire, as initial mistrust has been overcome by then.
 - Use the third-person technique. Phrase the question as if it referred to other people.
 - Hide the question in a group of other questions that respondents are willing to answer.
 - Provide response categories rather than asking for specific figures.

2.4.3. Gamification approaches

Gamification approaches can especially help to **overcome unwillingness to participate in a survey**. Gamification tries to design more effective research as respondents are less and less willing to participate in a survey. Furthermore, it seeks to increase survey experience and makes survey completion more fun and entertaining. Gamification can therefore act as motivator and enhance response rates, as respondents spend longer time on answering the questions and quality of data produced is increased (Puleston, 2014).

- **Rethink question wording:** Avoid overblown phrasing of questions, especially if you can offer visual cues (Puleston, 2014, p. 261f).

Example:

~~On a scale of 1 to 10, how much do you agree or disagree with these statements where 1 means you completely disagree and 10 means you completely agree and 5 means you neither agree nor disagree.~~



- **Change question style:** Use a more engaging approach through personalization, emotionalization and projection (Puleston, 2014, p. 263f).

Examples:

Personalization

~~Which of these paint colours do you like best?~~

Better: If you had to paint your room in one of these colours, which one would you pick?

Emotionalization

~~Which clothing style do you prefer?~~

Better: What would you wear on a first date?

Projection

~~What do you think about this new product?~~

Better: Image you are the boss of a company. Your job is now to evaluate the new product.



- **Apply rules** to question design: Rules can turn questions into mental puzzles, that are more interesting and challenging to answer (Puleston, 2014, p. 265).

Example:

~~Please describe yourself!~~

Better: Please describe yourself using ONLY 7 words!



- **Turn questions into quest:** Re-word questions to seem more like quests and missions (Puleston, 2014, p. 267).

Example:

~~How much do you like these musical artists?~~

Better: Image you owned your own radio station and could play any music you liked. Which of these artists would you place on your play list?



- **Use scenarios:** Change a question to evoke a process like scenario planning, using "what if" questions and imaginary situations (Puleston, 2014, p. 269).

Example:

~~What words would you use to describe this brand?~~

Better: Imagine this brand was a human being; what words would you use to describe this person?



- **Add a competitive element:** Add any form of competition to a survey such as challenges and time limits or ask people to guess what other people think.

Examples:

~~Please write down all insurance companies you can recall.~~

Better: We challenge you to write down the names of as many insurance companies as possible within the next 2 minutes.

~~Please write down the words you associate with brand X?~~

Better: What are the top five words people associate with brand X? What do guess?



Exercise:

What kind of gamification approaches could you use to overcome unwillingness to participate in a survey and unwillingness to answer your questions? Try to develop 2 different approaches for your questionnaire.



2.5. Question structure

A question may be **unstructured or structured** (see Figure 3). Both types have their advantages and disadvantages.

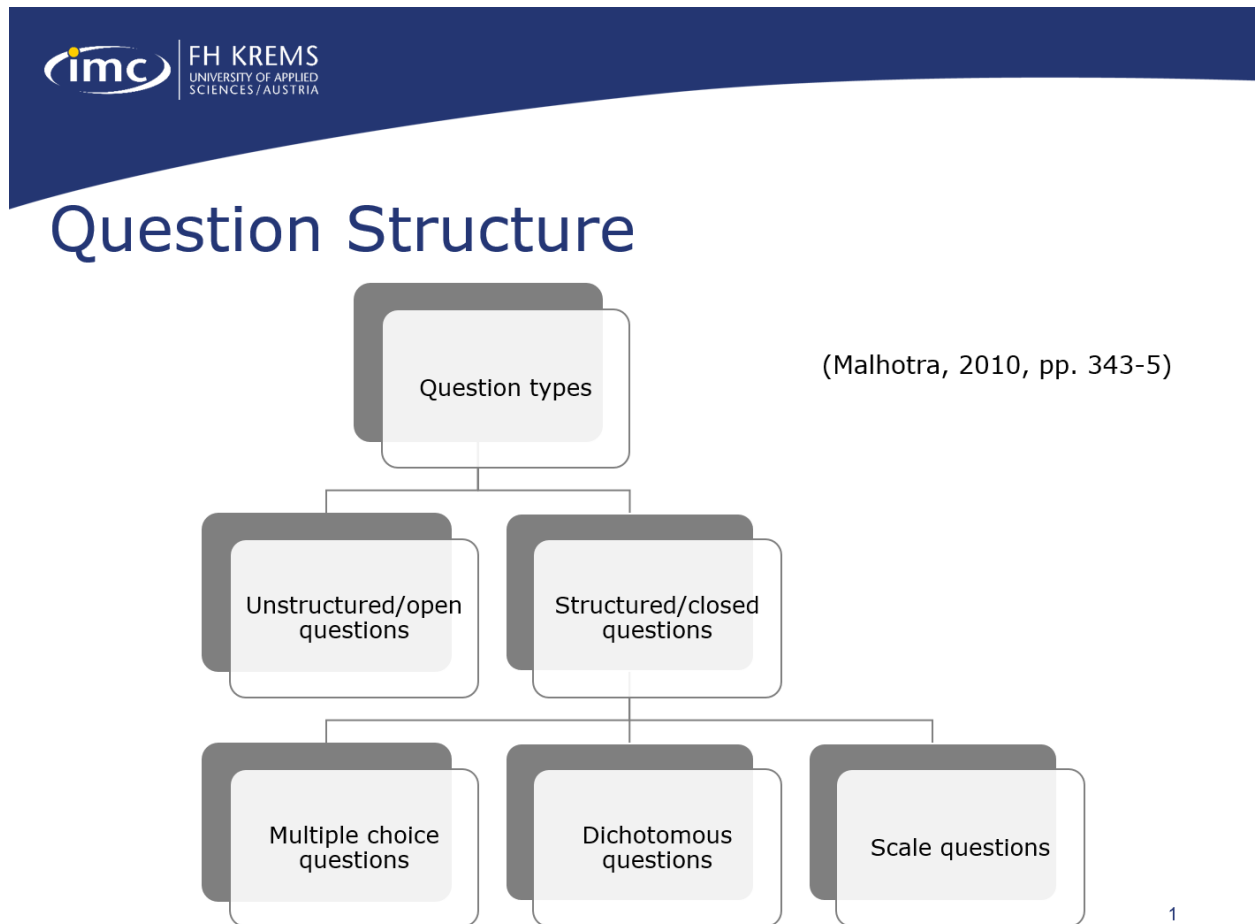


Figure 3: Question structure
Source: Malhotra, 2010, p. 343-5

Unstructured questions are open-ended questions that respondents **answer in their own words**. These free-response or free-answer questions are good as first questions on a topic. They enable the respondents to express general attitudes. Unstructured questions have much less biasing influence on responses. However, the potential for interviewer bias is very high and coding of responses is costly and time-consuming (Malhotra, 2010, p. 343).

Example:

What are the main reasons for your visit to this destination?



Structured questions specify the **set of response alternatives and the response format**. A structured question may be multiple choice, dichotomous or a scale (Malhotra, 2010, p. 344).

Multiple choice questions provide a **choice of answers** and respondents are asked to select **one or more of the alternatives** given.

Example:

What are the main reasons for your visit to this destination?

- ☐ Recreation
- ☐ Business
- ☐ Sightseeing
- ☐ ...



Dichotomous questions have only **two answer alternatives** (yes/no, agree/disagree, etc.).

Example:

Is this your first visit to this destination?

- ☐ Yes
- ☐ No



Scale questions offer the respondent a scale for his/her answer. Scaling involves the **creation of a continuum** upon which measured objects are located. The scaling techniques commonly employed in marketing research can be classified into **comparative and noncomparative scales**. Comparative scales involve the direct comparison of objects (e.g. brand A vs. brand B). In noncomparative scales each object is scaled independently of the others in the stimulus set. Comparative scales are for example paired comparison scales, rank order scales and constant sum scales. Examples of noncomparative scales are continuous rating scales and itemized rating scales such as Likert or semantic differential scales (Malhotra, 2010, p. 282ff).

Example:

Please think of United Airlines and its characteristics. Please tick the box that best indicates how accurately one or the other adjective describes your picture of United Airlines.



<i>Pleasant</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Unpleasant</i>
<i>Unreliable</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Reliable</i>
<i>Modern</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Old-fashioned</i>



In general, the **number of points along the scale should be limited**. Common practice is **five or fewer points for unipolar scales** (scales that measure along one dimension such as from "poor" to "excellent") and **seven or fewer points along a bipolar scale** (scales that measure in two directions, for example from "very dissatisfied" to "very satisfied") (Taylor-Powell, 2008).

Regarding **odd or even point scales**, there is no preferred or better choice. An odd number of points allows people to select a middle option. An even number forces respondents to take sides. An even number is appropriate when you want to know what direction the people in the middle are leaning. However, forcing people to choose a side, without a middle point, may frustrate some respondents (Taylor-Powell, 2008).

Usually it is helpful for the respondent to provide **graphical aids and configuration** (see Figure 4).

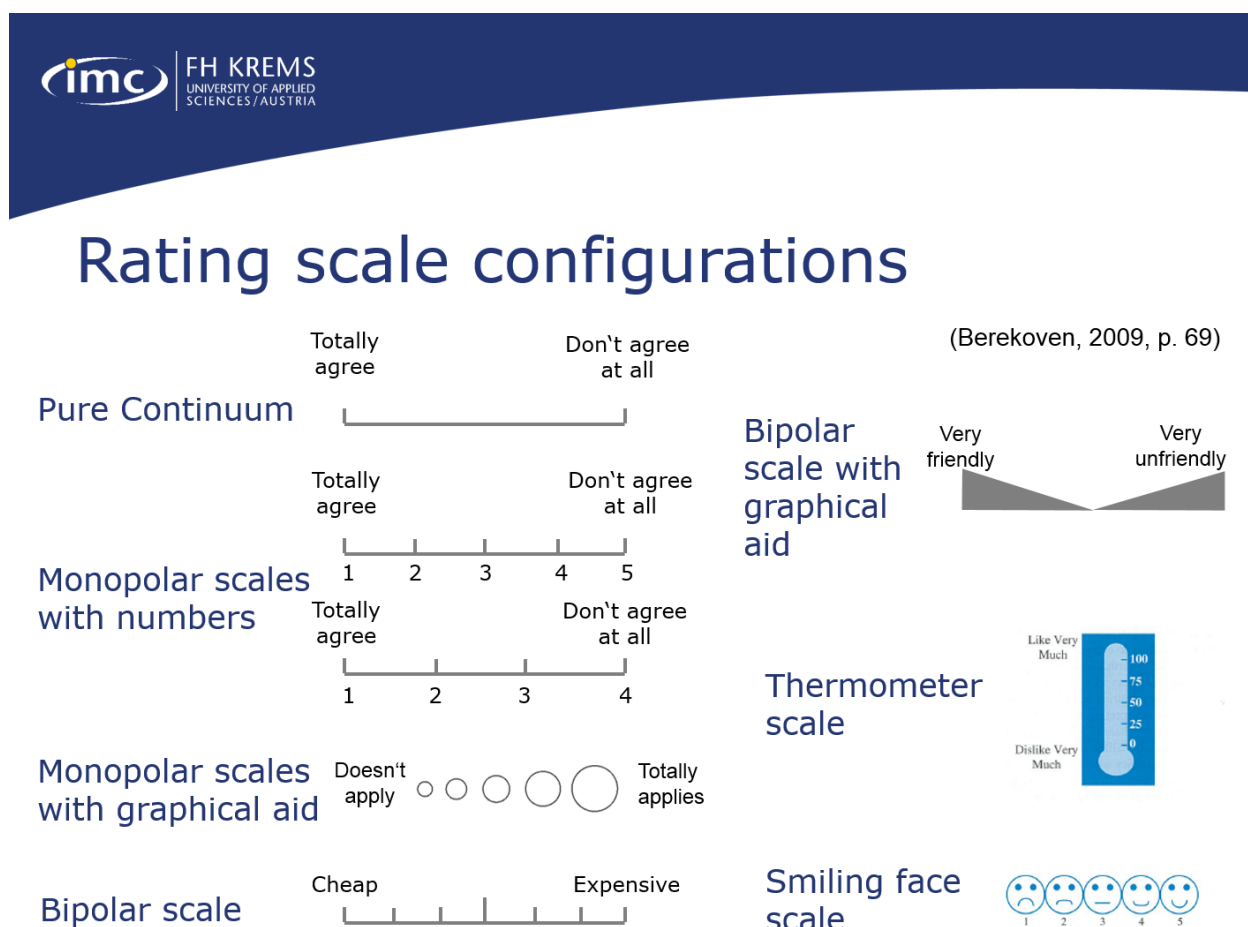


Figure 4: Rating scale configurations
Source: Berekoven, 2009, p. 69

Providing a word label over each point better ensures that everyone interprets the points similarly reducing measurement error. Also, few people express their opinions in numerical terms so numbers have less meaning to respondents. Numbers may confuse respondents or have unintended meaning so numbers can be removed from the scale (Taylor-Powell, 2008). Commonly used scale descriptors can be found in Figure 5.

Examples of commonly used scales and descriptors

Construct	Scale Descriptors				
Attitude	Very bad	Bad	Neither bad nor good	Good	Very good
Importance	Not important at all	Rather not important	Neutral	Rather important	Very important
Satisfaction	Very Dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied
Interest	Not interested at all	Slightly interested	Moderately interested	Very interested	Extremely interested

Figure 5: Examples of scales descriptors

Exercise:

What kind of scales do you need for your questionnaire? Develop your scales and their descriptors.



2.6. Question wording

Question wording is the translation of the desired question content and structure into words that respondents can **clearly and easily understand** (Malhotra, 2010, p. 346). To avoid problems, the following guidelines should be followed:

- A question should **clearly define the issue** being addressed. Define the issue and be specific: who, what, when, where and why? (Malhotra, 2010, p. 346).

Example:

~~Which countries do like as holiday destinations?~~



- **Don't use technical terms**, always try to use ordinary words (Malhotra, 2010, p. 347).

Example:

~~Do you think the distribution channels of soft drinks are adequate?~~



- Use **unambiguous words** which don't have different meanings to different people (ibid.).

Example:

~~How often do you play football?~~

- ☐ Never
- ☐ Occasionally
- ☐ Sometimes
- ☐ Often
- ☐ Regularly



- **Avoid leading or biasing questions** (as respondents have the tendency to agree - „Yea-Saying“) (Malhotra, 2010, p. 348).

Example:

~~Do you think that patriotic Americans should buy imported automobiles when that would put American labor out of work?~~



- **Avoid implicit alternatives** or implicit assumptions (ibid.).

Example:

~~Are you in favor of a balanced budget?~~



- **Avoid generalizations** and estimates (Malhotra, 2010, p. 349).

Example:

~~What is the annual per capita expenditure on groceries in your household?~~



- Word statements both **positively and negatively** (ibid.).

Example:

	1	2	3	4	5
	Strongly agree				Strongly disagree
United Airlines has a poor in-flight service.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
United Airlines charges fair prices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like to fly with United Airlines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Exercise:

Try to state improved versions of the following questions:



Bad example	Improved version
What is your frequency of utilisation of public means of transport?	
Do you go to the cinema or theatre very often?	
Are you against the extension of the airport?	
Do you use the local arts centre, and if so what do you think of its facilities?	
Which shampoo do have at home?	
How often do you visit a leisure park? - Often - Sometimes - Rarely - Never	

Exercise:

Develop three questions for your questionnaire following all rules for question wording. Don't forget to reconsider your information need.

A wooden clipboard with a silver clip, holding a blank white sheet of paper, oriented vertically.A wooden clipboard with a silver clip, holding a blank white sheet of paper, oriented vertically.A wooden clipboard with a silver clip, holding a blank white sheet of paper, oriented vertically.

2.7. Arranging the questions

After proper questions wording, it is necessary to determine the order of questions.

- **Opening questions:** The opening questions are crucial in gaining the confidence and cooperation of respondents. Opening questions should be interesting, simple, and nonthreatening. In some cases, it is necessary to screen the respondents or determine whether the respondent is eligible to take part in the survey. Here, the qualifying questions serve as the opening questions (Malhotra, 2010, p. 349ff).
- **Type of information:** Basic information (core questions to answer the research problem) should be obtained first, followed by classification information (socioeconomic and demographic characteristics) and, finally, identification information (name, address, telephone number, etc.) (ibid.).
- **Difficult questions:** Difficult questions or questions that are sensitive, embarrassing, complex, or dull should be placed late in the sequence (ibid.).
- **Effect on subsequent questions:** Sequencing questions is a critical task since it can lead to order bias, where responses to earlier questions influence the later ones (Mayo, 2014, p. 182). As a rule of thumb, general questions should precede specific ones (funnel approach) (Malhotra, 2010, p. 350f).
- **Logical order:** All questions dealing with a particular topic should be asked before beginning a new topic. When switching topics, brief transitional phrases should be provided. Branching questions shall be used to guide through a survey by directing to different spots on the questionnaire depending on the answers given. As skip patterns can be quite complex, a flowchart of all logical possibilities to go through a questionnaire should be created (ibid.).

A useful tool for planning questionnaires is the diagram. Some researchers feel comfortable using **flowcharts** (see Figure 6) as a planning tool, where a diagram shows the key pathway for the respondent answers (Bradley, 2013, p. 207).

Flowchart for questionnaire design

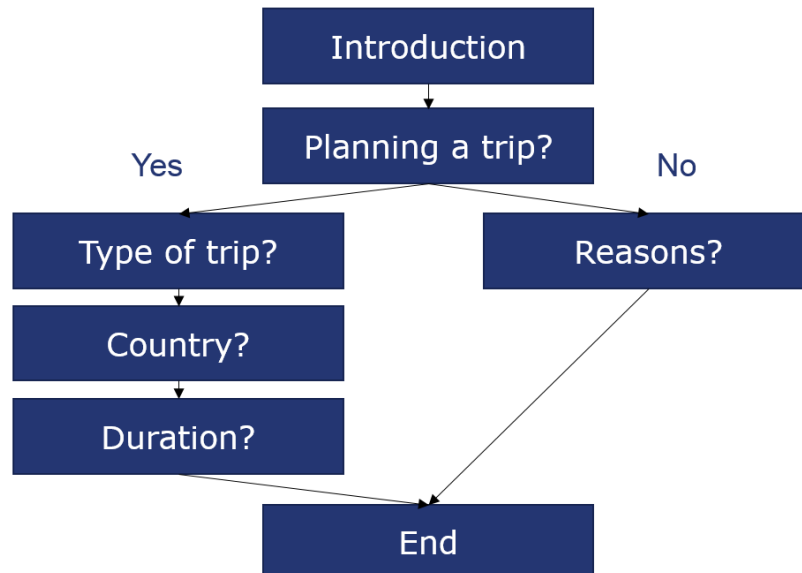
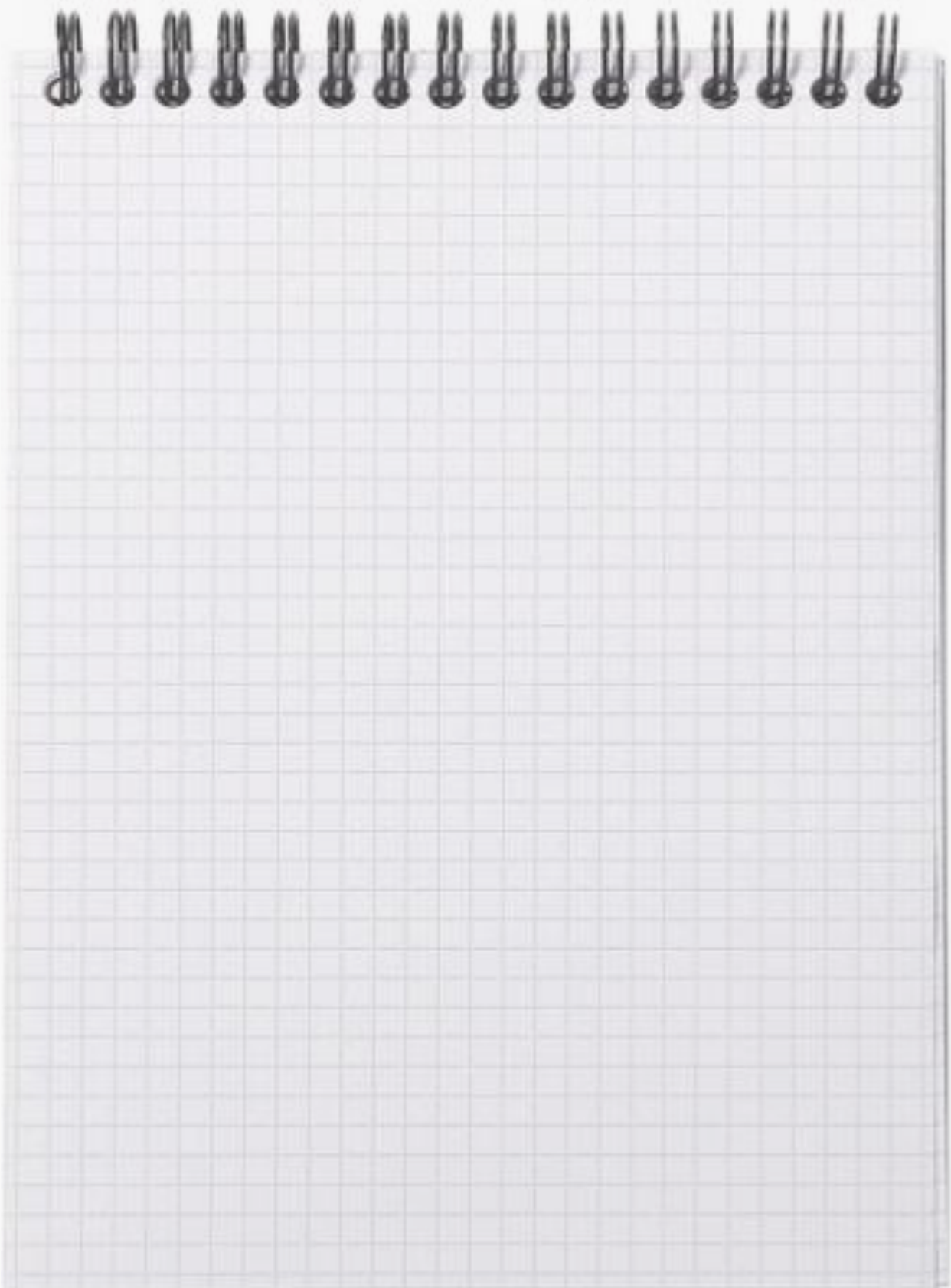


Figure 6: Example of flowchart for questionnaire design

Each questionnaire (part) needs a **set of instructions** regardless of whether it is self-completion or interviewer administered, especially when questions are inappropriate (due to filtering or different paths through a questionnaire). Respondents or interviewers need to be told to "skip and go to" the next relevant question. The absence of an interviewer causes particular problems for self-completion questionnaires. Consequently the questionnaire must not only capture the interest of the respondent but should also contain clear instructions on how to complete it (Finn, Elliott-White, & Walton, 2000, p. 101).

Exercise:

Develop a flowchart for your questionnaire:



2.8. Form and layout

The format, spacing and positioning of questions can have a significant effect on the results. It is good practice to **divide** a questionnaire **into several parts**. The questions in each part should be **numbered**, particularly when branching questions are used. The questionnaires should preferably be **precoded**. The questionnaires themselves should be **numbered serially**. This facilitates the control of questionnaires (e.g. to control if questionnaires have been lost) (Malhotra, 2010, p. 352).

2.9. Reproduction of questionnaires

How a questionnaire is reproduced can influence the results. For example, if the questionnaire is reproduced on poor-quality paper or is shabby in appearance, the respondents will think the project is unimportant and the quality of response will be adversely affected. The questionnaire should therefore have a **professional appearance**. Questionnaires should take the form of a **booklet** rather than a number of sheets. **Grids** are useful when there are a number of related questions that use the same set of response categories. The tendency to crowd questions together to make the questionnaire look shorter should be avoided. **Directions or instructions** for individual questions should be placed as close to the questions as possible (Malhotra, 2010, p. 353).

2.10. Pre-testing

Pretesting refers to the testing of the questionnaire on a small sample of respondents to identify and **eliminate potential problems**. A questionnaire should not be used in the field survey without adequate pretesting. All aspects of the questionnaire should be tested, including question content, wording, sequence, form and layout, question difficulty and instructions (Malhotra, 2010, p. 354).

The respondents for the pretest and for the actual survey should be drawn from the same population. Pretests are best done by personal interviews, even if the actual survey is to be conducted by mail, telephone, or electronic means, because interviewers can observe respondents' reactions and attitudes. After the necessary changes have been made, another pretest could be conducted by mail, telephone, or electronic means if those methods are to be used in the actual survey. A variety of interviewers should be used for pretests. The pretest sample size varies from 15 to 30 respondents for each wave. Respondent shall be asked to "think aloud" while answering the questionnaire. Finally, the responses obtained from the pretest should be coded and analyzed to check adequacy of data and data analysis (ibid.).

3. Ethics in questionnaire design

Several ethical issues may have to be addressed in questionnaire design. Of particular concern are the use of overly long questionnaires, asking sensitive questions and deliberately biasing the questionnaire (Malhotra, 2010, p. 359-60).

Respondents are volunteering their time and should **not be overburdened by soliciting too much information**. The researcher should avoid overly long questionnaires. Usually questionnaires that take more than 30 minutes to complete are generally considered overly long and will adversely affect the quality of responses. Similarly, questions that are confusing, exceed the respondents' ability, are difficult, or are otherwise improperly worded should be avoided (Malhotra, 2010, p. 359).

Sensitive questions deserve special attention. The researcher should **not invade respondents' privacy or cause stress**. To minimize discomfort, it should be made clear at the beginning of the interview that respondents are not obligated to answer any question that makes them uncomfortable (ibid.).

Finally, the researcher has the ethical responsibility of designing the questionnaire so as to obtain the required information in an **unbiased manner** (e.g. stating leading questions or giving inappropriate or leading examples how to answer a question) (Malhotra, 2010, p. 360).

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Annex – Questionnaire Design Checklist

TABLE 10.1

Questionnaire Design Checklist

- | | |
|--------|---|
| Step 1 | Specify the information needed. |
| | <ol style="list-style-type: none"> 1. Ensure that the information obtained fully addresses all the components of the problem. Review components of the problem and the approach, particularly the research questions, hypotheses, and the information needed. 2. Prepare a set of dummy tables. 3. Have a clear idea of the target population. |
| Step 2 | Specify the type of interviewing method. |
| | <ol style="list-style-type: none"> 1. Review the type of interviewing method determined based on considerations discussed in Chapter 6. |
| Step 3 | Determine the content of individual questions. |
| | <ol style="list-style-type: none"> 1. Is the question necessary? 2. Are several questions needed instead of one to obtain the required information in an unambiguous manner? 3. Do not use double-barreled questions. |
| Step 4 | Design the questions to overcome the respondent's inability and unwillingness to answer. |
| | <ol style="list-style-type: none"> 1. Is the respondent informed? 2. If respondents are not likely to be informed, filter questions that measure familiarity, product use, and past experience should be asked before questions about the topics themselves. 3. Can the respondent remember? 4. Avoid errors of omission, telescoping, and creation. 5. Questions that do not provide the respondent with cues can underestimate the actual occurrence of an event. 6. Can the respondent articulate? 7. Minimize the effort required of the respondents. 8. Is the context in which the questions are asked appropriate? 9. Make the request for information seem legitimate. 10. If the information is sensitive: <ol style="list-style-type: none"> a. Place sensitive topics at the end of the questionnaire. b. Preface the question with a statement that the behavior of interest is common. c. Ask the question using the third-person technique. d. Hide the question in a group of other questions that respondents are willing to answer. e. Provide response categories rather than asking for specific figures. f. Use randomized techniques, if appropriate. |
| Step 5 | Decide on the question structure. |
| | <ol style="list-style-type: none"> 1. Open-ended questions are useful in exploratory research and as opening questions. 2. Use structured questions whenever possible. 3. In multiple-choice questions, the response alternatives should include the set of all possible choices and should be mutually exclusive. 4. In a dichotomous question, if a substantial proportion of the respondents can be expected to be neutral, include a neutral alternative. 5. Consider the use of the split ballot technique to reduce order bias in dichotomous and multiple-choice questions. 6. If the response alternatives are numerous, consider using more than one question to reduce the information-processing demands on the respondents. |
| Step 6 | Determine the question wording. |
| | <ol style="list-style-type: none"> 1. Define the issue in terms of who, what, when, where, why, and way (the six Ws). 2. Use ordinary words. Words should match the vocabulary level of the respondents. 3. Avoid ambiguous words: usually, normally, frequently, often, regularly, occasionally, sometimes, etc. 4. Avoid leading questions that clue the respondent to what the answer should be. 5. Avoid implicit alternatives that are not explicitly expressed in the options. 6. Avoid implicit assumptions. 7. Respondents should not have to make generalizations or compute estimates. 8. Use positive and negative statements. |

TABLE 10.1**Questionnaire Design Checklist (continued)**

- Step 7 Arrange the questions in proper order.
1. The opening questions should be interesting, simple, and nonthreatening.
 2. Qualifying questions should serve as the opening questions.
 3. Basic information should be obtained first, followed by classification, and, finally, identification information.
 4. Difficult, sensitive, or complex questions should be placed late in the sequence.
 5. General questions should precede the specific questions.
 6. Questions should be asked in a logical order.
 7. Branching questions should be designed carefully to cover all possible contingencies.
 8. The question being branched should be placed as close as possible to the question causing the branching, and the branching questions should be ordered so that the respondents cannot anticipate what additional information will be required.
- Step 8 Identify the form and layout.
1. Divide a questionnaire into several parts.
 2. Questions in each part should be numbered.
 3. The questionnaire should be precoded.
 4. The questionnaires themselves should be numbered serially.
- Step 9 Reproduce the questionnaire.
1. The questionnaire should have a professional appearance.
 2. Booklet format should be used for long questionnaires.
 3. Each question should be reproduced on a single page (or double-page spread).
 4. Vertical response columns should be used.
 5. Grids are useful when there are a number of related questions that use the same set of response categories.
 6. The tendency to crowd questions to make the questionnaire look shorter should be avoided.
 7. Directions or instructions for individual questions should be placed as close to the questions as possible.
- Step 10 Eliminate bugs by pretesting.
1. Pretesting should be done always.
 2. All aspects of the questionnaire should be tested, including question content, wording, sequence, form and layout, question difficulty, and instructions.
 3. The respondents in the pretest should be similar to those who will be included in the actual survey.
 4. Begin the pretest by using personal interviews.
 5. Pretest should also be conducted by mail, telephone, or electronic interviewing if those methods are to be used in the actual survey.
 6. A variety of interviewers should be used for pretests.
 7. The pretest sample size is small, varying from 15 to 30 respondents for the initial testing.
 8. Use protocol analysis and debriefing to identify problems.
 9. After each significant revision of the questionnaire, another pretest should be conducted, using a different sample of respondents.
 10. The responses obtained from the pretest should be coded and analyzed.

Source: Malhotra, 2010, p. 355-6