Design of the Questionnaire: Fundamental Principles

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Abstract

The most critical aspect of investigative process, is the development of questions that correctly assess public perception, knowledge and behaviour. Precise random sampling and high answer rates are lost, if the information obtained is based on ambiguous or partial questions. Hence, in order to establish effective steps, a series of substantial questions are formulated and compiled in form of a Questionnaire.

Keywords: *Questionnaire Designing; Principles; Public health.*

Introduction

The design of the questionnaire is complex, because surveys can ask questions on various subject areas in varying degrees of detail and questions can be asked in various ways.[1] It is amulti-stage process that requires attention to several details at once. Researchers are also often keen to measure change over time and thus must pay attention to the measurement of opinions or behaviours in prior surveys.[2] Survey preparation is a key step, to assess how people respond to individual questions and in total. Surveyors have approached questionnaire design as an art, but substantial research over the past 30 years has shown that there is a lot of science involved in the development of a good survey questionnaire. In this paper, we discuss the shortcomings and best practices in the design of questionnaires.[3, 4, 5]

Question development: Developing a survey questionnaire involves various steps. The first is identifying what topics will be covered in the survey. Surveyors want to track changes in people's attitudes, opinions and behaviour over a period of time.[6] Change or variations in data is usually measured by asking questions at two or more proposed intervals. The cross-sectional design, the most common in public opinion research, surveys different people in the same populace, at multiple points in time. The panel or longitudinal design, often used in other types of social research, surveys the same people over time.[7,8]

When assessing the time-based improvements, it is necessary to retain the words of the question and regard the position of the questionnaire to deliver a similar result as when previously used. All the survey reports include a top-level questionnaire that provides the exact words and sequence of the question, together with the results of the current poll and the previous polls in which the question was asked.[9]

Open- and closed-ended questions: Some of the main decision-making factors that can affect how questions are answered is, whether the it is asked as an open question or whether respondents are answering themselves or whether they are asked to choose from a list of responses.

Structured closed questionnaires have the advantage of being focused and pertinent to the study objectives, easy to administer, uniform, pre-coded and thus easy to analyse in a short time. They are preferred in medical studies.[10]

Open-ended questionnaires are useful for social and anthropological investigations. Such questions permit the interviewee to discuss openly and thoroughly, but

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they can vary from the subject. At the end of the test, they need special coding, so that the research time is longer. Researchers will sometimes conduct a pilot study using open-ended questions to discover which answers are most common. They will then develop closed-ended questions that include the most common responses as answer choices. In this way, the questions may better reflect what the public is thinking or how they view a particular issue.[11,12,13]

When asking closed-ended questions, the choice of options provided, how each option is described, the number of response options offered and the order in which options are read can all influence how people respond.[14]The order of responses categories will affect how people answer closed questions in addition to the number and choice of response choices. Research indicates that respondents select things that are heard later on in a list more frequently in phone surveys (the "recency effect").[15]Due to concerns about the effects of the category order on responses to closed-ended questions, many sets of response options is programmed to be randomized (when questions have two or more response options) in order to ensure that options are not put in the same order for each respondent.[16] Randomization of response items does not eliminate order effects, but ensures that this type of bias is spread randomly.[17, 18]

Questions with ordinal response categories – those with underlying order (e.g. excellent, good, only fair, poor OR very favourable, mostly favourable, mostly unfavourable, very unfavourable) – are generally not randomized because the order of categories conveys important information to help respondents answer the question.[19] Generally, these types of scales should be presented in order to make it easy for respondents to place their responses along the continuum, but the order can be reversed for some respondents. Again, reversing the order does not eliminate the recurrence effect, but distributes it randomly across the population.[20]

Question Wording: The choice of words and phrases in a question is critical in expressing the meaning and intent of the question to the respondent and ensuring that all interpret the question the same way.Even small wording differences can substantially affect the answers people provide.

A considerable amount of research has been conducted to assess the impact of different ways of asking questions and how to minimize differences in the way, respondents interpret what is being asked. The issues related to the wording of the question are numerous which can be adequately addressed in this short space of time. This paper discusses some of the important issues to consider in the development of survey questions:[13, 17, 21]

First, it is important to ask questions that are clear and specific, and that each respondent will be able to answer. If a question is open-ended, it should be evident to respondents that they can answer in their own words and the type of response they should provide (an issue or problem, a month, number of days, etc.). Closed-ended questions should include all reasonable responses (i.e., the list of options is exhaustive) and the response categories should not overlap (i.e., response options should be mutually exclusive).[12,13]

It is also important to ask only one question at a time. Questions that ask respondents to evaluate more than one concept (known as double-barreled questions) are difficult for them to answer and often lead to responses that are difficult to interpret. It would be more effective to ask two separate questions, one about domestic policy and another about foreign policy.[22]

In general, questions that use simple and concrete language are more easily understood by respondents. It is especially important to consider the education level of the survey population when thinking about how easy it will be for respondents to interpret and answer a question. Double negatives (e.g., do you agree or disagreethat dental treatment is traumatic) or unfamiliar abbreviations or jargon (e.g. NAD or no abnormalities detected) can result in respondent confusion and should be avoided.[22]

One of the most common formats used in survey questions is the "agree-disagree" format. In this type of question, respondents are asked whether they agree or disagree with a particular statement. Research has shown that, while comparing the better educated and better informed, the less educated and less informed respondents have a greater tendency to agree with such statements. This is sometimes called an "acquiescence bias" (since some kinds of respondents are more likely to acquiesce to the assertion than are others). A better practice is to offer respondents a choice between alternative statements. [12, 18]

One other challenge in developing questionnaires is

"social desirability bias." People have a natural tendency to want to be accepted and liked, and this may lead people to provide inaccurate answers to questions that deal with sensitive subjects.[23] Research has also shown that social desirability bias can be greater when an interviewer is present (e.g., telephone and face-to-face surveys) than, when respondents complete the survey themselves (e.g., paper and web surveys).[11]

Question Order: Once the questionnaires have been created, attention should be directed towards the order of the questions. The placement of a question may have a greater impact on the outcome than the specific choice of words used in the question.[24]

When determining the order of questions, surveyors must be careful how the initial questions may have unintended effects on how respondents reply to the questionnaire. Researchers have shown that the order in which questions are asked can influence how people respond; earlier questions – in particular those directly preceding other questions – can provide a context for the questions that follow. (these effects are called "order effects").[21,24]

One kind of order effect can be seen in responses to open-ended questions. Research surveys generally ask open-ended questions about national problems, opinions about leaders and similar topics at beginning. If closed-ended questions that relate to the topic, they are placed before the open-ended question, so that respondents are much more likely to mention concepts or considerations raised in those earlier questions while responding to the open-ended question.[13,14]

There are two main types of order effects on closed opinion questions: comparison effects, where the order results in greater differences in responses and assimilation effects, where the responses in their order are more similar.[25] Assimilation is done if two questions are answered more consistently and/or closer together. When tracking patterns over time, the order issues are of particular importance. Therefore, care should be taken to ensure every time a question is posed that the meaning is identical. Any changes detected over time can be clarified by adjusting the context of the topic.[26]

A questionnaire, like a conversation. It should be categorised by topics and unfolded in a logical order. It is often helpful to begin the survey with simple questions, so that respondents will find it interesting and engaging in order to help for establishing rapport and motivating them to continue the survey. Throughout the survey, an effort should be made to keep the survey interesting and not overburden respondents with several difficult questions right after one another. Demographic questions such as income, education or age should not be asked at the beginning, unless they are needed to determine eligibility for the survey or for routing respondents through particular sections of the questionnaire. Although it is best to precede such items with more interesting and engaging questions.

Pilot tests and focus groups: Pilot tests are used, to determine how a survey population sample responds to the questionnaire. For a pilot project, surveyors typically contact several individuals to examine possible variations within groups. Further, the complete implementation procedures (eg contact notes, benefits, callbacks) are evaluated through pilot test for several surveys. Pilot tests are usually conducted sometime before the survey is carried out to allow more adjustments to the questionnaire or procedure. Pilot tests are especially useful as researchers check new questions or make major adjustments to questionnaires, evaluate new approaches or different forms of carrying out surveys like the Census.[27]

Focus groups are somewhat different from pilot projects because people address the survey subject or answer specific questions in a group environment, often in person. The survey involves individual people or a group. Focus groups may be especially helpful to collect information prior to creating a survey questionnaire to see which topics affect people, how people are aware of a subject area and how people perceive questions (particularly how the topic or question can affect answers in different ways). Focus groups can be used for some projects in conjunction with the survey questionnaire to give people the opportunity to speak more deeply or intensely about subjects than possible in the interview.[28]

Pre-tests: The pre-testing with a small number of people in the survey community is one of the most important ways to decide whether interviewees' answers are as intended and influenced by the order of the questions. The pre-test is conducted using the same protocol and environment as the survey and is usually performed after the questionnaire and procedures are completed. Pre-test information is crucial as final survey questionnaire decisions are made.[29]

Conclusion

A successful survey requires a well-designed questionnaire. Nevertheless, the researcher must establish his own sense of "effective design" because no questionnaire theory is there to direct them. A good questionnaire helps directly to accomplish the study goals, offers reliable and complete details. It is simple to answer, sound analysis and interpretation is accessible for both the interviewer and the respondent in a precise format. To concise, the initial information is determined by organising various parameters and constraints, to define the target respondents and a methodology to follow in order to reach them. Furthermore, the contents of the questions are determined to form a precise and on-point questionnaire, maintaining an appropriate length. Thus the its pre-tested and the final questionnaire is produced.

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