

# QUESTIONNAIRES PRETESTING IN MARKETING RESEARCH

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## Abstract

*Designing the perfect survey questionnaire is impossible. However, researchers can still create an effective research. To make your questionnaire effective, it is necessary to pretest it before actually using it. The following paper reveals some general guidelines on pretesting and what to do for a more effective marketing research giving the fact that the existing literature highlights the importance and indispensability of pretesting and on the other hand, does not provide sufficient information in terms of methodology about it. Also, we have tried to explain the importance of questionnaires pretesting before applying them in order to obtain the best results in marketing research and we've kept in mind that high quality in this domain means using new tools and improving the existing ones if one searches for efficient results.*

**Key words:** questionnaire, pretesting, focus group, cognitive interviews, behavior coding.

## 1. Introduction to questionnaires pretesting

Pretesting is one of the key stages of the survey questionnaire construction process, as shown in Figure 1, a stage of undisputed importance, without which even the most experienced researchers may come to administer uncertain instruments that will lead to the accumulation of doubts about the research results<sup>1</sup>.

A more careful examination of the literature on pretesting survey questionnaires reveals a paradox. On the one hand, pretesting is the only way to evaluate in advance whether a questionnaire poses problems for interviewers or respondents and, consequently, elementary textbooks and experienced specialists declare pretesting indispensable. On the other hand, most textbooks provide minimal, if any, guidance about pretesting methods, and survey reports usually provide no information about questionnaire pretesting, whether questionnaires were pretested, and if so, how, and with what results<sup>2</sup>. Moreover, until recently, there have been few methodological studies on pretesting. The universally acknowledged importance of pretesting has been, until now, honored more in theory than in practice; therefore, we know very little about the various aspects of pretesting, including the extent to which pretesting serves its intended purpose, and leads to improved questionnaires.

Pretesting is generally defined as the testing of a set of questions or a questionnaire on subjects from the target population, and dates back to the founding of the modern survey, in the mid 1930s.

We agree that designing a perfect questionnaire is impossible. Nevertheless, researchers can still conduct efficient research by designing an efficient questionnaire. In order to create such questionnaire, its pretesting is required before being actually used, activity that can help us determine the strengths and weaknesses of the survey questionnaire. Questionnaire pretesting enables us to identify inappropriate terms in question wording, an inappropriate order, errors in questionnaires

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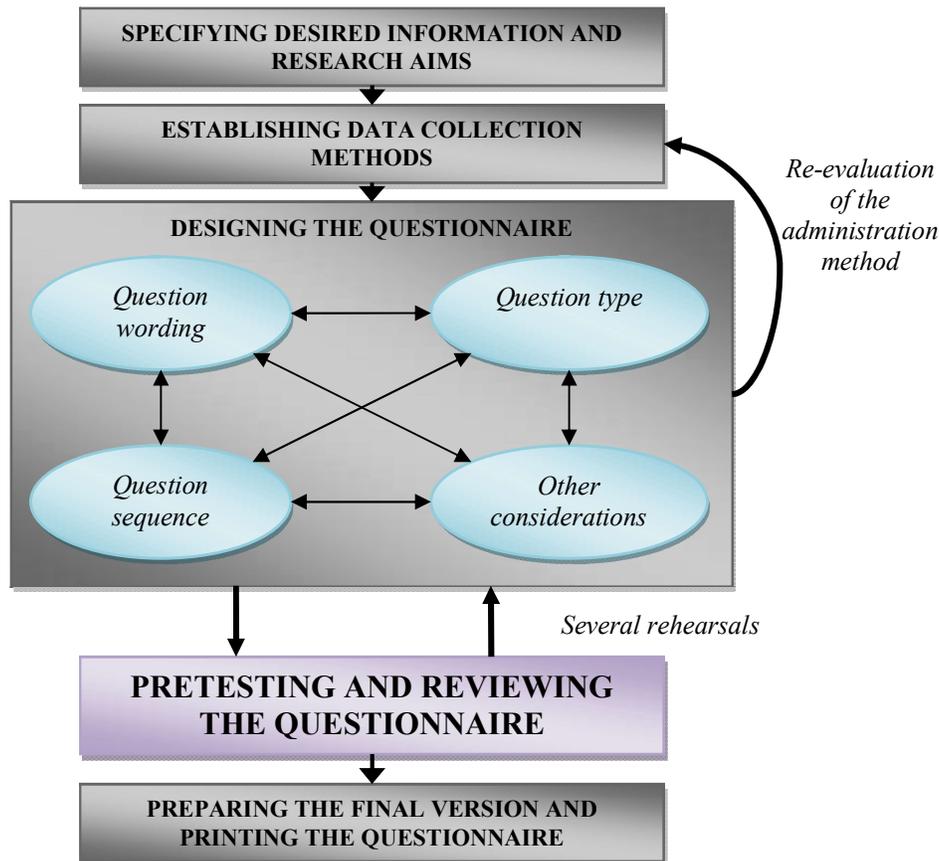
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<sup>1</sup> Voicu, M.C., „Questionnaire – tool in sample research”, *Romanian Statistical Review*, Supplement May 2008, pp.112-125, ISSN 1018-046x, category B+, CNCSIS, monitored ISI Thomson Philadelphia (SUA)

<sup>2</sup> Presser, S., Couper, M.P., Lessler, J.T., Martin, E., Martin, J., Rothgeb, J.M., Singer, E., „Methods for testing and evaluating survey questions”, *Public Opinion Quarterly* (2004), Vol. 68, No. 1, pp. 109-130, American Association for Public Opinion Research, <http://poq.oxfordjournals.org/cgi/reprint/68/1/109.pdf>

related to their layout and instructions, as well as problems caused by the respondents' inability or refusal to answer certain questions.

**Figure 1.** *Questionnaire design stages*



Source: adaptation from Synodinos, N., „The „art” of questionnaire construction: some important considerations for manufacturing studies”, *Integrated Manufacturing Systems* (2003), Vol. 14, No. 3/2003, pp. 221-237, ISSN 0957-6061; Cătoiu, I., Bălan, C., Popescu, I.C., Orzan, Gh., Vegheș, C., Dănețiu, T., Vrânceanu, D., *Marketing research*, Uranus Publishing House (2002), Bucharest, p.313

In this context, the questionnaire pretesting process must look for an answer to the following questions:

- Does every survey question measure what it should measure?
- Do respondents understand all the terms?
- Are questions interpreted in the same manner by all the respondents?
- Did closed questions provide at least one answer choice that would apply to every respondent?
- Does the questionnaire create a positive impression, thus motivating people to answer?

- Are the answer choices to be selected correct?
- Does any aspect of the questionnaire suggest any biasing attempt from the researcher?

## 2. Pretesting methods

Pretests can be applied in both field, and office or laboratory settings<sup>3</sup>. Most field pretests are conducted on the target population, using the procedures being considered for the main survey. The consensus among most researchers is that experienced interviewers should be used in the pretesting process, as they are more likely to notice errors and identify problems.

Furthermore, survey questionnaire pretests may have two forms: participating (declared) pretests, and undeclared pretests.

*Participating (declared) pretests* entail that the respondents are informed that this is a pretest. In this case, the idea is that instead of asking the respondents to simply fill in a questionnaire and that is all, the participants in the pretest should be involved in this activity, being asked to explain their reactions to the question format, wording and order. The respondent may also be asked to rephrase a question in his/her own words, to think aloud while trying to formulate his/her answer, or to do other things that will be briefly discussed. The goal of this pretesting method is to elicit the respondents' "immediate" thoughts and reactions to a survey question or problem, so that we can establish whether the questionnaire is understood.

On the other hand, when conducting an *undeclared pretest*, the respondents are not informed that they participate in a pretest. In this case, pretesting is conducted in a manner similar to that of the actual survey. The post-interview survey of the respondents can be carried out in connection with individual questions or replies, but the number and scope of the survey questions is much smaller and limited than in the case of a declared pretest. Its goal is to take the pulse of the dynamics of the entire interview, in other words, how well the survey questions "flow", whether the "skip" patterns work, what quantity of time is needed to conduct the interview and so on. This type of pretest enables us to verify whether our choice in respect of the analysis and standardization of the conducted survey is correct.

Specialists in the field recommend that, if the researchers have sufficient resources to carry out more than one pretest, they should first conduct a participating pretest, followed by an undeclared pretest.

According to the specialists, in recent decades, a growing awareness of the draw-backs of conventional pretesting<sup>\*</sup> has led to changes in this field, as follows<sup>4</sup>:

- first, there has been a subtle shift in the goal of pretesting, from an exclusive focus on identifying and fixing the problems encountered by interviewers and respondents, to a broader concern for improving data quality so that measurements meet the survey's objectives;
- second, new testing methods have been developed or methods already in use have been adapted for other uses. These include: cognitive interviews<sup>5</sup> (method that has become common

<sup>3</sup> Czaja, R., „Questionnaire Pretesting Comes of Age”, *Marketing Bulletin* (1998), No. 9, pp. 52-66, Article 5, <http://marketing-bulletin.massey.ac.nz>

<sup>\*</sup> conventional pretesting is the process of conducting the survey on a small scale, in which the interviewer identifies problems related to the questionnaire; the specialists supporting conventional pretesting have established that conducting a survey by completing a set of 12-25 questionnaires is sufficient in order to realize the limitations and weaknesses of the questionnaire, and other specialists have established an interval of 20 to 50 questionnaires for pretesting.

<sup>4</sup> Presser, S., Couper, M.P., Lessler, J.T., Martin, E., Martin, J., Rothgeb, J.M., Singer, E., „Methods for testing and evaluating survey questions”, *Public Opinion Quarterly* (2004), Vol. 68, No. 1, pp. 109-130, American Association for Public Opinion Research, <http://poq.oxfordjournals.org/cgi/reprint/68/1/109.pdf>

<sup>5</sup> Noël, V., Prizeman, G., “Using cognitive question testing to pretest a questionnaire for a large-scale postal survey of nonprofit organizations”, *International Society for Third Sector Research/EMES* (2005), Paris, <http://www.cnm.tcd.ie/publications/GP,VN%20ISTR%20EMES%20April%2005.pdf>

practice in questionnaire pretesting), response latency, expert panel, behavior coding, vignette analysis, experiments, formal respondent debriefings and statistical modeling, reinterview and reconciliation method<sup>6</sup>, Three-Step Test-Interview<sup>7</sup> (used to pretest self-administered questionnaires) etc.

Qualitative research is frequently used in questionnaire testing, in order to determine how respondents react to the designed questionnaire<sup>8</sup>.

**The focus group** is a pretesting method that works best when applied in the first phases of questionnaire and question construction, and when a set of objectives and tasks that must be fulfilled is specified before the group meets. The focus group is the best method for determining:

- the respondents' level of understanding of key terms and concepts;
- how respondents recall the information;
- whether behavioral frequencies are numbered, estimated, or "calculated", using strategies of another nature;
- whether respondents understand the inquiry based on the current question wording;
- the frame of reference or the respondent's interpretation of the worded question.

One advantage of the focus group is the fact that its members may use other people's ideas and opinions in order to crystallize their own ideas. Moreover, the participants' observations and reactions may often provide valuable perspectives for the questionnaire and question review approaches. A very large quantity of information can be collected from a 90-minute focus group, which is audio or video recorded. The draw-backs of this method are due to the fact that it is very hard to work with its results, which are time consuming in respect of their interpretation, and that only a limited number of words, topics and problems can be discussed during a 90-minute session.

**Cognitive interviews** are face-to-face interviews between an interviewer and a respondent from the target population, which are usually conducted at the premises of a research organization. One of the cognitive interview techniques used is the "*think-aloud*" technique, which derives from psychological procedures described by Ericsson and Simon (1980). Consistent with this technique, respondents are instructed to think aloud or verbalize their thoughts in their attempt to understand the question, to recall relevant information and to formulate their answers. The interviewer interjects very little during the interview, except to say "tell me what you are thinking", when the subject pauses for long periods of time.

The "think-aloud" technique can be either concurrent, when probe questions are asked after the respondent answers the question, or retrospective, when probe questions are asked at the end of the interview. Interview sessions are usually taped so that non-participating staff can listen to the tapes and analyze such sessions. A major objective of this technique is to achieve a better comprehension of the cognitive processes that the interviewees go through while formulating the answer. A "think-aloud" interview does not observe the same pattern as a normal interview, and, therefore, it does not provide any indication of the existing problems in the common interview process. This happens because thinking aloud and probing for specific answers break the flow of questions, as well as the relationship between questions, thus affecting the answers given by respondents.

The main advantages of the "think-aloud" technique are due to the fact that:

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<sup>6</sup> see Morton, J.E., Mullin, P.A., Biemer, P.P., „Using Reinterview and Reconciliation Methods to Design and Evaluate Survey Questions”, *Survey Research Methods* (2008), Vol.2 , No.2, pp. 75-82, ISSN 1864-3361, European Survey Research Association

<sup>7</sup> Hak, T., Kees van der Veer, Jansen, H., „The Three-Step Test-Interview (TSTI): An observation-based method for pretesting self-completion questionnaires”, *Survey Research Methods* (2008), Vol.2, No.3, pp. 143-150, ISSN 1864-3361, European Survey Research Association

<sup>8</sup> *Statistics Canada Quality Guidelines*, Fourth Edition – October 2003 ,Statistics Canada – Catalogue no. 12-539 –XIE, page 27

- the interviewer contributes little other than the reading of the survey question, except to occasionally prompt the subject to state what he/she is thinking, therefore, the subject's responses are very little biased;

- the interviewer mainly reads survey questions, and then listens to what the interviewee has to say; therefore little training or special expertise is usually necessary;

- the interviewee's verbalization is guided only minimally, therefore, he or she may provide information that is unanticipated by the interviewer. Consequently, "think-aloud" interviewing is especially valuable when the subject is outgoing, articulate, and has had significant experience with the topics covered by the survey questions.

On the other hand, the "think-aloud" technique also has several disadvantages, namely<sup>9</sup>:

- because thinking aloud is somewhat unusual for most people, this technique typically requires significant training of the subjects to be interviewed, in order to elicit a sufficient amount of think-aloud behavior. The subjects' preliminary training may eat into the amount of productive time that can be devoted to the interview;

- despite all preliminary training in the activity, many individuals tend to simply answer the questions, without further elaboration, as necessary;

- this technique places the main burden of the interview on the subject;

- the subject controls the nature of much of the elaborative discussion. Therefore, it is very easy for an interviewee to wander off of the important topic, and to spend a significant amount of time on one question, often delving into irrelevant areas, so that the interviewer must struggle to "bring the subject back". In general, the think-aloud technique results in relatively few survey questions being tested within a particular amount of time.

- by its nature, thinking-aloud forces subjects to invest a considerable amount of mental effort into processing the survey questions, relative to what they do when simply answering the questions. This technique entails more intensive effort, and more justification of each answer, than when one simply provides an answer such as "yes", "no" or "I agree". Therefore, it is very possible that the activities associated with this technique might contaminate the cognitive processes used in formulating the answer to the question.

The second form of cognitive interviews is *retrospective probing*, when the interviewer asks probe questions to the respondent, after the latter answers a survey question or a series of survey questions. Retrospective probing means that respondents are asked to either interpret a key phrase, or define one term used in a particular question, or justify a particular aspect of their answer, or evaluate the clarity of a phrase or a concept, or identify words or phrases that are difficult to understand. The goal of this method is to identify terms or concepts that respondents do not understand or interpret differently than what the researcher intended, and to determine whether respondents lose sight of important words or qualifiers that are part of the question.

**Response latency** is a less common undeclared pretesting technique, which can be used in combination with the cognitive interview method or as a method in itself, particularly in computer-assisted surveys. The time delay before a respondent starts to answer a question is most often measured with the help of computers from tapes of cognitive interviews. Unusually long delays may mean that the question is too complex, or that respondents have difficulties in recalling the information they need to formulate their answers. Otherwise, unusually quick answers may indicate that respondents did not understand the questions.

**The expert panel** often consists of a small group of persons (3 to 8 persons), which examines the questionnaire from various perspectives. This method makes it possible to detect problems that could not be identified through the other techniques. The main advantage of this method is that it is relatively cheap. The panel consists of experts in the field and professionals with expertise in survey

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<sup>9</sup> Willis, G.B., *Cognitive Interviewing – A „How To” Guide*, short course presented at the 1999 Meeting of the American Statistical Association

planning, data collection, coding and data analysis. In a work session, the panel examines the questionnaire, question by question. The strength of this approach stems from the variety of expertise and interaction taking place during the panel meeting. Expert panels are often used before conducting a field pretest and, again, during the questionnaire review process carried out after field pretesting.

**Behavior coding** is the undeclared pretesting technique developed by Charles Cannell and his colleagues at the University of Michigan (1996), which can be used to evaluate both interviewer behavior and survey questions. This method relies on the assumption that any deviation from the ideal model, in which the interviewer reads a question exactly as written and the respondent provides a full answer, indicates that there is a problem with that question. Behavior coding involves conducting of taped interviews during an undeclared field pretest, and then coding, for each question, the frequency of occurrence of one of the following interviewer or respondent behaviors:

- The interviewer makes a minor change in wording when reading the question;
- The interviewer makes a significant change in wording when reading the question;
- The respondent interrupts the reading of the question in order to provide his/her answer;
- The respondent requests clarifications;
- The respondent's initial answer is inadequate;
- The respondent provides an "I don't know" answer;
- The respondent refuses to answer the question.

Oksenberg and his colleagues<sup>10</sup> (1991) suggested that, when one of the abovementioned behaviors occurs in at least 15% of the pretest interviews, it is likely that the question will pose problems during the data collection process.

Behavior coding is a simple and cheap technique designed to analyze conventional pretest interviews, and to identify problem questions. Although the most important draw-back of this technique is that it fails to indicate the source of the problem identified in the questionnaire, the research cited by Fowler and Cannell (1996) attempted to correlate various behavior codes with certain types of problems. These authors synthesized the preliminary general findings of this research, as follows:

- the questions that are not read as formulated indicate the fact that they are clumsily worded or they contain words which are difficult to pronounce;
- the questions that are misinterpreted and frequently interrupted often provide unrelated explanations at the end;
- the questions that result in clarification requests often elicit answers which do not suit the respondent's experience or frame of reference;
- the questions that require clarification are often vague or contain a badly defined term or concept;
- the questions that result in inadequate answers often request a greater level of detail than the respondent can possibly offer.

**Vignette analysis.** Vignettes are hypothetical scenarios used to determine whether respondents understand and apply a key concept or phrase in the manner intended by researchers. The goal of this method is to evaluate the respondent's level of understanding, especially how he/she defines and applies key phrases or terms in the process of providing answers to questions. One of the draw-backs of this method is that it requires the interviewer to be aware of the terms or expressions that are likely to present difficulties, so that appropriate vignettes can be designed in order to test alternative question wordings.

**Experiments.** The aforementioned pretesting methods identify questionnaire problems, and, implicitly, lead to revisions designed to address the problems. To determine whether the revisions are

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<sup>10</sup> Oksenberg, L., Cannell, C.F., Kalton, G., „New strategies for pretesting survey questions”, *Journal of Official Statistics* (1991), No.7 (3), pp. 349-365

improvements, however, there is no substitute for experimental comparisons of the original and revised survey items. Such experiments are of two kinds. First, the original and revised items can be compared using the pretesting method(s) that identified the problem(s). Thus, if cognitive interviews showed respondents had difficulty with a survey item, the item and its revision can be tested in another round of cognitive interviews in order to confirm that the revision shows fewer such problems than the original. Second, original and revised items can be tested to examine what, if any, difference they make for a survey's estimates. Fowler (2004) illustrates, in his studies, how cognitive interviews and experiments are complementary: the former identify potential problems and propose solutions, and the latter test the impact of the solutions. As he argues, experimental evidence is essential in estimating whether different question wordings affect survey results, and if so, by how much.

**Statistical modeling.** Questionnaire design and statistical modeling are usually thought of as worlds apart. This is unfortunate, as researchers who specialize in these two fields should work together for survey research to progress. One specific statistical modeling instrument, called "latent class analysis", is used to estimate the error associated with questions when the question has been asked of the same respondent two or more times. The specific statistical modeling methods require large numbers of cases, and thus are relatively expensive to conduct.

### 3. Pretesting perspectives in marketing research

The development of these methods has raised issues of how they might best be used in combination, as well as whether they in fact lead to improvements in survey measurement. The amount and type of pretesting that is necessary depends, of course, on research objectives and complexity and on the number of new questions. Specialists in the field recommend using a variety of techniques to evaluate survey instruments in various stages. In addition to informal testing of questions on colleagues, students or other persons, in the initial stages of questionnaire construction, one can use focus groups, cognitive interviews, and expert panels, and in the subsequent stages, field pretesting may include behavior coding and/or vignette analysis. The final stage should consist of a pilot study on a sample selected from the target population, and should imitate, as much as possible, the procedures that are being considered for the main survey.

In addition, the adoption of computerized questionnaire administration modes poses new challenges for pretesting, as do surveys of special populations, such as children, companies and organizations, and those requiring questionnaires in more than one language - all of which have greatly increased in recent years.

The proliferation of data collection modes has at least three implications for the evaluation and testing of survey instruments. Pretesting methods must take into consideration the question delivery mode. A second implication is that survey instruments consist of much more than words therein, e.g., their layout and design, logical structure and architecture, and the technical aspects of the hardware and software used to deliver them. All of these elements need to be tested, and their possible effects on measurement error explored. A third implication is that survey instruments are ever more complex and demand ever-expanding resources for testing. The older methods that relied on visual inspection to test flow and routing are no longer sufficient. Newer methods must be found to facilitate the testing of instrument logic, quite aside from the wording of individual questions. As Hansen and Couper (2004) argue, computerized questionnaires require interviewers to manage two interactions, one with the computer and another with the respondent, and a good questionnaire design must help interviewers manage both interactions to optimize survey data quality.

Different pretesting methods, and different ways of carrying out the same method, influence the numbers and types of problems identified in questionnaires. Consistency among currently used questionnaire pretesting methods is often low, and the reasons for this need more investigation. One perspective that should be thoroughly investigated by studies is that lack of consistency may occur because the methods used are suited for identifying different problem types. On the other hand,

inconsistencies may reflect a lack of consensus among researchers, cognitive interviewers, and coders about what is regarded as a problem with the questionnaire. The kinds and severity of problems that questionnaire pretesting aims to identify are not always clear, and this lack of specification may contribute to the inconsistencies that have been found.

#### 4. Conclusions

This paper aims to resolve the paradox encountered in the specialized literature, namely that, on the one hand, it argues the importance and indispensability of pretesting to marketing research and, on the other hand, it fails to provide sufficient methodological information concerning pretesting.

Indeed, when summarizing the aforementioned, we, too, can draw the conclusion that questionnaire pretesting constitutes an important stage, considering that developing a perfect data collection instrument is almost impossible, and that pretesting is the only way of testing and improving the efficiency of the data collection instrument. Therefore, we have focused especially on pretesting methods that can be applied, and on aspects related to when, and how they can be used.

Theoretical and empirical research must be expanded, as specified above, to identify the most efficient pretesting modes and methods, and the new developments in survey questionnaire pretesting, which occurred as a result of the adoption of new computer-assisted survey modes and surveys of special populations.

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