6. Questionnaire design

6.1 Chapter summary

Once researchers have taken a decision to employ a specific research design and sampling procedure and determined the measurement and scaling method, they can now develop a questionnaire to collect the data required for the study. This chapter will focus on the questionnaire design and development. We will start by discussing the significance of questionnaire design in marketing research. Next, we shall describe the steps involved in questionnaire design and several guidelines for developing an appropriate questionnaire based on question structure, layout and wording. The chapter will also discuss the importance of pilot testing.

6.2 Significance of questionnaire building

A researcher's ability to design an appropriate measurement scale does not by itself provide guarantee that relevant data will automatically collected. Therefore, understanding what involves in building a questionnaire becomes utmost important for a researcher and manager. Much of the primary data collection required for solving marketing problems involves asking questions to respondents and recording their response. Most problems in the field of marketing research are complex in the nature and require primary data collection. In such cases, a questionnaire becomes a potent tool for collecting primary data.

A questionnaire is a formalized set of questions involving one or more measurement scales designed to collect specified primary data. Measurement scales discussed in the previous chapter provide the building blocks for questionnaire design. Regardless of the form of administration, a questionnaire is characterized by two main objectives. First, it must convert the information required by managers in a format of questions. Second, the questions asked must be created in a format in which respondent will understand it and be willing to answer them. The first objective poses a tough challenge to researchers in converting management dilemma into a researchable questionnaire which respondents will be willing to answer. The second objective requires researcher to build a questionnaire in a format that will encourage and motivate the respondents in becoming involved and complete the interviewing process. Incomplete interviews seldom provide any useful insights and therefore the researcher must strive for reducing respondent disengagement as much as possible. A well-designed questionnaire would generally overcome the problem of disengagement. The researcher must also keep a tab on the various errors stemming from the process including the response, respondent and researcher errors as discussed earlier in chapter 3.

6.3 Process of questionnaire design

Designing questionnaire has been always an issue of debate in marketing research as some researchers view it as art which is based on experience of the researcher,[65] while others consider it as a science based on sound theoretical development.[66] While the debate is still going on with regard to what a questionnaire design is all about, there is consensus among the research community that the designing process involves some established rules of logic, objectivity and systematic procedures.[67] While the systematic procedure provides guidelines to avoid major mistakes, each questionnaire requires a customized path for development. The generic structure in developing questionnaire is described as follows:

> (a) Specification of the information needed in researchable format
> (b) Selection of interview method
> (c) Determination of question composition
> (d) Determination of individual question content
> (e) Developing question order, form and layout
> (f) Pilot testing the questionnaire

In this section each of these steps will be discussed in details. Before proceeding however it is important to note that while the process stated above is quite helpful, researcher may need to follow a different pattern in developing the questionnaire. For example, the researcher may develop the form and layout of the questionnaire simultaneously or prior to piloting the questionnaire the researcher may fine tune the questionnaire.

6.3.1 Specification of the information needed in researchable format

The first step in developing a questionnaire is to specify the information needed in researchable format. A dummy table (discussed in chapter 3) could be very helpful in converting information needed into researchable format. The researcher should also look at the research objectives and hypotheses and match this information. At this stage, it is very important to have a clear idea of target population and sample. The characteristics of the respondents have a great influence on questionnaire design. For example, questions which are appropriate for elderly consumers might not be appropriate for young consumers. Unclear understanding of the information needed could lead to the development of an improper questionnaire which has direct effect on the analysis and the final results.

6.3.2 Selection of interview method

In the chapter 3 we discussed various methods of interview including personal, mail, telephone and internet based interviews. The type of interviewing method also plays an important role in questionnaire design. For example, in personal interview situations, respondents are able to see the questionnaire and interact in person with the interviewer. This provides an opportunity to ask varied questions involving complexities because instant feedback mechanism is available. Due to the personal interaction it is also possible sometimes

to ask lengthy questions. In telephone interviews, because the respondent cannot see the questionnaire it is quite hard to ask complex and lengthy questions. Therefore, the questions should be short and to the point involving little complexity. Even with the use of computer assisted telephone interviews (which involves sophisticated skip patterns and randomization) the questions have to be kept simple. The length related issues can be dealt with in mail questionnaire however because in this situation the respondent is left on his or her own it is recommended that the questions be kept simple. Internet based questionnaire provide high level of interactivity however, as the respondent is trying to tackle each question on his or her own, the researcher must take this into consideration in questionnaire development process. The interview method also has an effect on the scaling technique due to the issue of complexity. In personal interviews most complex scales can easily be used however, in telephone interviews researchers tend to prefer nominal scales. At times researchers have used other scales in telephone interviews with varied effects. In mail interviews complex scales can be used however, detailed explanation with examples is always desirable. Similar pattern is also observed in internet based interviews.

6.3.3 Determination of question composition

Once the information is specified in the researchable format and the interview method is decided, the next stage for the researchers will be to determine what kind of question are they going to ask to the respondents. There are two major types of question structures: unstructured (also called open ended questions) and structured (also called close ended questions).

Unstructured questions (or open-ended questions) are questions in which respondents are asked to answer the questions in their own words. These types of questions allow the respondents to express their general attitude and opinions and provide rich insights relating to the respondents views about a certain phenomenon. Unstructured questions are highly used in exploratory research. While unstructured questions provide freedom of expression there are inherent disadvantages associated with them with regard to interviewer bias. If the interviewer is recording the answers by writing the summary down while respondents speaks, the recording may be biased as its based on skills of interviewer on deriving the main points. It is always advisable to use audio recording if possible. Another disadvantage of this questioning is creating coding and interpretations. The overall coding of unstructured questions is costly and time consuming.[68] To avoid mistakes of response recording and coding related errors, researchers use pre-coding wherein they identify possible answers and assign responses to the categories they have identified.

Most conclusive studies employ structured (or close-ended) questions. These types of questions allow the respondents to answer the questions in a pre-defined format. There are three main types of structured questions, dichotomous, multiple choice and scale questions. This type of question format reduces the amount of thinking and effort required by respondents. Interviewer bias in eliminated with unstructured questions because either the interviewer or respondents themselves have to check a box or a line, circle a category, hit a key on a keyboard or record a number.[69] In simple words, structured format gives the

researcher an opportunity to control the respondent's thinking and allows simplicity. Of the three major types of structured questions, dichotomous question is the simple most questioning category. A dichotomous question has only two response alternatives, yes or no, male or female and so on. Sometimes, a neutral alternative is also added in the questions such as 'don't know' or 'no opinion'. While simplicity is the greatest advantage of dichotomous questions, the response bias becomes a great disadvantage also. Dichotomous questions are good when considering collecting demographic information however, with attitude measurement they are of little use. Multiple choice questions provide an extension to the dichotomous question wherein a respondent is provided with a set of alternatives and is allowed to choose more than one alternative. Multiple choice questions also have an inherent position and order bias wherein respondents tend to choose the first or last statement in the list. To avoid such bias several forms of the questions with the same alternatives should be prepared. This can easily be handled when interviewing respondents on internet or on telephone using CATI. Another disadvantage of multiple choice questions is the effort required in developing an effective question. A theoretical exploration as well as an exploratory study can assist in such process. The third alternative for structured questionnaire is scale questions, which were discussed in detail in chapter 5.

6.3.4 Determination of individual question content

Each individual question is unique from its content perspective and therefore must be treated with caution in the development process. Using components such as words, order, tenses and so on, each question attempts to fulfil the overarching research objectives.

One of the most important components of any question is words. Researchers have to be very clear in the choice of words which can easily be understood in the correct manner by respondents. If the researchers and respondents do not assign the same meaning to the used words, the response will be biased.[70] Wording of a question could create problems such as ambiguity, abstraction, and connotation. To avoid these problems researchers can take several steps such as:

(1) Use ordinary words which can easily be understood by the respondents
- For example, instead of using the word 'ambidextrous' one can use 'skilful'

(2) Avoid ambiguous words
- For example, word 'hot' or 'cool' change their meaning according to the context they are used in

(3) Avoid leading questions
- For example, do you think immigration is hurting local economy and making locals lose their jobs?

(4) Avoid implicit questions
- For example, do you think a government backed website will have more trust and credibility?

(5) Avoid generalizations
- For example, what is the per capita annual milk consumption in your family?

(6) Avoid double barrelled questions
- For example, do you think you will purchase this product for low price and high quality?

There are several other considerations before researcher decides the final question. Once the question is developed researchers need to ask 'Is this question necessary?' 'Does it fulfil the part of the research objective as desired?' Sometimes it is possible that a single question might not suffice a phenomenon to be studied and may require more than one question. For example, instead of asking 'what is the per capita annual milk consumption in your family?' a researcher will be better off asking following two questions:

- What is the total weekly (monthly) milk consumption in terms of litres (pints) in your family?
- How many people including you live in your household?

The researchers also need to understand the problem of memory loss which has been discussed in earlier chapters. The memory loss issue can hamper respondent's ability and willingness to answer. For example, 'what did you eat Wednesday two weeks ago?' will be a question which will be impossible for most respondents to answer because they do not remember the phenomenon. Similarly, asking respondents to rank 20 items in a single question will make it too difficult for them and most will be unwilling to attempt the same.

6.3.5 Developing question order, form and layout

The question order, format and layout can have a significant impact on respondent engagement. Questionnaire with unclear order, format and layout generally get very low response rate and in turn become costly exercise. The questionnaire can be divided in three main parts generally: forward and opening questions; generic information questions; specific information questions.

The forward and opening questions are highly important in gaining respondents' trust and making them feel comfortable with the study. It also improves the response rate among the respondent if they find it worthwhile and interesting. Questions pertaining to opinion can give a good start to most questionnaires as everyone likes to give some opinion about issues at hand. At times, when it is necessary to qualify a respondent (i.e. determine if they are part of the defined target population), opening questions can act as qualification questions.

Generic information questions are divided into two main areas: classification information questions and identification information questions. Most socioeconomic and demographic questions (age, gender, income group, family size and so on) provide classification information. On the other hand, respondent name, address, and other contact information provide identification information. It is advisable to collect classification information before identification information as most respondents do not like their personal information collected by researchers and this process may alienate the respondent from the interview.

The specific information questions are questions directly associated with the research objectives. They mostly involve various scales and are complex in nature. This type of questions should be asked later in the questionnaire after the rapport has been established between the researcher and the respondent. Most researchers agree that it is good to start with forward and opening questions followed progressively by specific information question and concluding with classification and identification information questions.

The format and layout of the questionnaire has a direct impact on respondent engagement. It is always suggested that the questionnaire format and layout should have some type of symmetry. This can lead to higher response rate.

6.3.6 Pilot testing the questionnaire

Once the preliminary questionnaire has been developed using the above stated process a researcher should assign coding (discussed in the next chapter) to every question and test the questionnaire on a small sample of respondents to identify and eliminate potential problems. This sampling process is called pilot testing. It is advised that, a questionnaire should not be used in the field survey without being adequately pilot tested. A pilot test provides testing of all aspects of a questionnaire including, content, wording, order, form and layout.[71] The sample respondents selected for the pilot test must be similar to those who will be included in the actual survey in terms of their background characteristics, familiarity with the topic and

attitudes and behaviours of interest. An initial personal interview based pilot test is recommended for all types of surveys because the researcher can observe respondents' attitudes and reactions towards each question. Once the necessary changes have been made using the initial personal interview based pilot test, another pilot test could be conducted for mail, telephone or internet based survey. Most researchers recommend a pilot test sample between 15 and 30 respondents. If the study is very large involving multiple stages, a larger pilot test sample may be required. Finally, the response obtained from the pilot test sample should be coded and analysed. These responses can provide a check on the adequacy of the data obtained in answering the issue at hand.

6.4 Conclusion

In this chapter we focused on an important aspect of overall research process, questionnaire design. A questionnaire is a robust tool in collecting primary data for both exploratory and conclusive studies. Regardless of the form of administration, a questionnaire is characterized by two main objectives. First, it must convert the information required by managers in a format of questions. Second, the questions asked must be created in a format in which respondent will understand it and be willing to answer them.

While every questionnaire design involves unique set of solutions, researchers agree that a structured process can be employed in preparing an appropriate questionnaire. The steps of this process include; specification of information needed in researchable format; selection of interview method; determination of question composition; determination of individual question content; developing question order, form and layout and pilot testing the questionnaire. Each of these steps is important however their order may differ from one study to the other.