

Collection of Data

Data constitute the foundation of statistical analysis and interpretation. Hence the first step in statistical work is to obtain data. Data can be obtained from three important sources, namely : (i) Secondary Source, (ii) Internal Records, and (iii) Primary Source. Depending on the source, we can have either secondary data or internal data or primary data.

(1) Secondary Data

Like all scientific pursuits, in statistics also the investigator need not begin from the very beginning, he may use and must take into account what has already been discovered by others. Consequently before starting a statistical investigation we must read the existing literature and learn what is already known of the general area in which our specific problem falls. When an investigator uses the data which has already been collected by others, such data are called *Secondary data*. Secondary data can be obtained from journals, reports, government publications, publications of research organisations, trade and professional bodies, etc. However, secondary data must be used with utmost care. The user should be extracautious in using secondary data and he should not accept it at its face value. The reason is that such data may be full of errors because of bias, inadequate size of the sample, substitution, errors of definition, arithmetical errors, etc. Even if there is no error, secondary data may not be suitable and adequate for the purpose of the inquiry. Hence, before using secondary data the investigator should examine the following aspects :

- (a) *Whether the data are suitable for the purpose of investigation.* Before using secondary data the investigator must ensure that the data are suitable for the purpose of the inquiry. The suitability of data can be judged in the light of the nature and scope of investigation. For example, if the object of inquiry is to study the wage levels including allowances of workers and the data relate to basic wages alone, such data would not be suitable for the immediate purpose.
- (b) *Whether the data are adequate for the purpose of investigation.* If it is found that the data are suitable for the purpose of investigation they should be tested for adequacy. Adequacy of the data is to be judged in the light of the requirements of the survey and the geographical area covered by the available data. For example, in the illustration given above, if our object is to study the wage rates of the workers in the sugar industry in India and if the available data cover only U.P., it would not serve the purpose. The question of adequacy may also be considered in the light of the time period for which the data are available. For example, for studying trend of prices we may need data for the last 8-10 years but from the sources known to us may be available for 5-6 years only which would not serve our object.
- (c) *Whether the data are reliable.* To determine the reliability of secondary data is perhaps the most important and at the same time most difficult job. The following tests, if applied, may be helpful to determine how far the given data are reliable :

- (i) Was the collecting agency unbiased or did it "have an axe to grind" ?
- (ii) If the enumeration was based on a sample, was the sample representative ?
- (iii) Were the enumerators capable and properly trained ? Incompetent or poorly trained enumerators cannot be depended upon to produce useful results.
- (iv) Was there a proper check on the accuracy of field work ?
- (v) Was the editing, tabulating and analysis carefully and conscientiously done ? Carelessness in either one or more of these functions can render of little value the findings of an otherwise valuable study.
- (vi) What degree of accuracy was desired by the compiler ? How far was it achieved ?

(2) Internal Data

Internal data refer to the measurements that are the by-product of routine business record keeping like accounting, finance, production, personnel, quality control, sales, R & D, etc.

In statistical analysis of many business problems one may be able to use internal data which emerges in the process of keeping records such as employee earnings from a payroll, sales amounts from a sales journal, the amount of raw materials, direct labour and manufacturing expenses used and the units of finished product produced from production records, and cash receipts from the cash book. Thus the chief source of internal data are the accounting records kept in most business firms.

Since internal data originate within the business, collecting the desired information does not usually offer much difficulty. The particular procedure depends largely upon the nature of facts being collected and the form in which they exist. The problem of collection is primarily that of having the proper record made at the time the information is secured. The information wanted is frequently to be found in more than one department of the business, which increases the difficulty of getting just the information one wants.

(3) Primary Data

Primary data are measurements observed and recorded as part of an original study. When the data required for a particular study can be found neither in the internal records of the enterprise, nor in published sources, it may become necessary to collect original data, *i.e.*, to conduct first hand investigation. The work of collecting original data is usually limited by time, money and manpower available for the study. When the data to be collected are very large in volume, it is possible to draw reasonably accurate conclusions from the study of a small portion of the group called a *sample*. The actual procedures used in collecting data are essentially the same whether all the items are to be included or only some items are considered.

There are two basic methods of obtaining primary data, namely :

- (1) Questioning, and
- (2) Observation.

Questioning, as the name suggests, is distinguished by the fact that data are collected by asking questions from people who are thought to have the desired information. Questions may be asked in person, or in writing. A formal list of such questions is called a *questionnaire**.

* A distinction is often made between a questionnaire and a schedule. Questionnaire refers to a device for securing answers to questions by using a form which the respondent fills in himself. Schedule is the name usually applied to a set of questions which are asked and filled in a face-to-face situation with another persons.

When data are collected by observation, the investigator asks no questions. Instead, he observes the objects or actions or actions in which he is interested. Sometimes individuals make the observations ; on other occasions, mechanical devices observe and record the desired information.

Observation method does not automatically produce accurate data. Physical difficulties in the observation situation on the part of the observer may result in errors. Even more important, however, is the influence on observations of the observer's training, philosophy, opinions and expectations. This is borne by the fact that significant variations in observation of the same phenomena have been reported for such diverse projects as the reading of X-ray films, E.C.G., state of repair for roads, etc.

Of the two methods named above, the questionnaire method is more widely used for collecting business data. When questionnaire method is used, three different techniques of communication with questionnaires are available : (1) personal interview, (2) mail, and (3) telephone. Personal interviews are those in which an interviewer obtains information from respondents in face-to-face meetings. The information obtained by this method is likely to be more accurate because the interviewer can clear up doubts, can cross-examine the informants and thereby obtain correct information. In most mail surveys, questionnaires are mailed to the respondents who are supposed to fill them and return by post. Sometimes, however, mail questionnaires are placed in respondent's hands by other means such as attaching them to consumer products, putting them in magazines or newspapers or having field workers leave them with respondents. In each case respondents complete the questionnaires themselves and send back the completed forms by post. This method has a special advantage in surveys where field of investigation is very vast and the informants are spread over a wide geographical area. Telephone interviews are similar to personal interviews except that communication between interviewer and respondent is on the telephone instead of direct personal contact. However, this method has several limitations such as it cannot be used to interview those people who don't have telephone, telephone conversation cannot be very long and also replies on the telephone can be very long and also replies on the telephone can be very erratic and unreliable.

The greatest advantage of the questionnaire method is the versatility as many of the business problems can be dealt with without much difficulty. Also, questioning is usually faster and cheaper than observing. The most important limitation of the questionnaire method is the difficulty in obtaining information from the respondents. The interviewer is unknown to the respondent, and the subject of the proposed interview may be of little or no interest. Questions about income or very personal subjects frequently meet refusals. Besides the difficulty of obtaining information, the respondents may supply wrong information. Also it is difficult, if not impossible, to state a given question in such a way that it will mean exactly the same thing to every respondent. Much of the success of the questionnaire method depends on the wisdom with which the questionnaire has been drafted. The designing of questionnaire involves many vital issues and is discussed in detail below.

DESIGNING A QUESTIONNAIRE

The success of the questionnaire method of collecting information depends largely on the proper designing of the questionnaire. Designing questionnaire is a highly specialised job and requires a great deal of skill and experience. It is difficult to lay down any hard and fast rules to be followed in this connection. Although much progress has been made, the designing of questionnaires is still very much an art.

Most of what is known about making questionnaires is based on experience. Neither a basic theory nor even a fully systematised approach to the problem has been developed. Nevertheless, the extensive experience of many researchers and a limited number of organised experiments have led to a considerable understanding of the problem and to a long list of "do's and don'ts" rules of thumb. These can definitely help a beginning researchers avoid pitfalls, but they cannot be substituted for creative imagination in designing a questionnaire procedure.

While developing a questionnaire, the researcher has to be very clear on the following issues :

1. What information will be sought ?
2. What type(s) of questionnaire will be required ?
3. How that (those) questionnaire (s) will be administered ?
4. What the content of the individual question will be ?
5. What the form of response of each question will be ?
6. How many questions will be used and how the individual questions will be sequenced ?
7. Whether the questionnaire shall be disguised or undisguised ?
8. Whether the questionnaire shall be structured or unstructured ?

STRUCTURED AND UNSTRUCTURED QUESTIONNAIRES

A questionnaire can be either structured or unstructured and disguised or undisguised as can be seen from the following :

	Structured	Unstructured
Undisguised	A	B
Disguised	D	C

Structure refers to the degree of standardisation imposed on the questionnaire. A highly structured questionnaire is one in which the questions to be asked and the response permitted are completely predetermined. A highly unstructured questionnaire is one in which the questions to be asked are only loosely predetermined, and the respondent is free to respond in his/her own words and in any way he/she sees fit. Unstructured techniques have two major disadvantages :

- (1) They are slow and, hence, costly to administer in the field and to tabulate ; and
- (2) The data collection process and the interpretation of results are both subjective and, hence open to bias. Structured techniques overcome these problems, but they are difficult to use in situations where respondents may hesitate to report their attitudes.

A disguised questionnaire attempts to hide the purpose of the study whereas an undisguised questionnaire is one in which the purpose of the research is obvious from the questions posed.

Structured undisguised questionnaires are the most commonly used type in practice. In such questionnaires the responses as well as the questions are standardised. This is accomplished by employing fixed alternative questions in which the responses of the subject are limited to the stated alternatives. An example of this type of questions regarding people's attitude towards social security and the more government legislation controlling it could be :

Do you feel India needs more (or less) social security legislation ?

- ☐ Needs more
- ☐ Needs less
- ☐ Neither more or less
- ☐ No opinion.

Structured undisguised questionnaires are simple to administer and easy to tabulate and analyse. The respondent also feels almost no difficulty in replying. The question "What is your marital status" is more confusing than is the question. "Are you married, single widowed or divorced ?" The fixed alternative questions are most productive when the possible replies are well known, limited in number and clear cut.

The unstructured undisguised questionnaire is one in which the purpose of the study is not concealed but the response to the question is open-ended. Thus consider the question "How do you feel about the need for legislation for more social security measures ?" Such questions provide complete freedom to the respondent. However, the responses are difficult to tabulate and analyse.

In the unstructured disguised questionnaires, the respondents are not directly told about the purpose of study and the questions are framed in a manner that there is complete freedom for the respondent to answer. The basic philosophy underlying such questionnaires is that the more unstructured and ambiguous a stimulus, the more a subject can and will project his emotions, needs, motivations, attitudes and values. The practical difficulties of editing, coding and tabulation of replies impose serious limitations on the use of the methods. This method is more often used for exploratory research than for descriptive or casual research.

The structured disguised questionnaires are also not very popularly used in practice. They emerged as an attempt to secure the advantages of disguise in revealing unconscious and hidden motives and attitudes along with the advantages in coding and tabulation common to structured questionnaires. The main advantages of this approach emerges in analysis.

Having decided these issues, the following points may be kept in mind while designing a questionnaire :

1. *Covering letter.* The person conducting the survey must introduce himself and state the objective of the survey. It is desirable that—

- (i) A short letter is enclosed. The letter should state in as few a words as possible, the purpose of the survey and how the informant would tend to benefit from it.
- (ii) Enclose a self-addressed envelope for the respondent's convenience in returning the questionnaire.
- (iii) Assure the respondent that his answers will be kept in strictest confidence.
- (iv) Promise the respondent that he will not be harassed after he fills up the questionnaire.
- (v) Offer special inducement (free gifts, concession coupon, etc.) to return the questionnaire.
- (vi) If the respondent is interested, promise him a copy of the result of the survey.

2. *The number of questions should be as few as possible.* The number of questions should be kept to the minimum. The precise number of questions to be included would naturally depend on the object and scope of the investigation. Once the objectives are clearly defined only question pertinent to the objectives should be asked. The time of the respondent should not be wasted by asking irrelevant questions. Fifteen to twenty-five may be regarded as a fair number. If a lengthy questionnaire is unavoidable, it should preferably be divided into two or more parts.

3. *Questions should be logically arranged.* The questions must be arranged in a logical order so that a natural and spontaneous reply to each is induced. They should not skip back and forth from one topic to another. Thus it is undesirable to ask a man how many children he has before asking whether he is married or not. Similarly, it would be illogical to ask a man his income before asking him whether he is employed or not. Thus, the sequence of the questions should be considered carefully in terms of the purpose of the study and the persons who will supply the information. Questions supplying identification and description of the respondent should come first followed by major information questions. If opinions are requested, such questions should usually be placed at the end of the list. Two different questions may be included on the same subject to provide a cross-check on important points.

4. *Questions should be short and simple.* The questions should be short, simple and easy to understand and they should convey one and only one sense. Unless the persons being interrogated is technically trained, technical terms should be avoided. Words such as "Capital" or "income" that have different meanings for different persons should not be used unless a clarification is included in the questions.

5. *Questions of a sensitive nature should be avoided.* As far as possible questions of a personal and pecuniary nature should not be asked. For example, questions about sources of income, volume of sales, etc., may be willingly answered in writing. Where such information is essential, it should be obtained indirectly, preferably personal interviews. For example, we may ask the respondent to indicate his salary, profits or sales turnover from among a set of ranges. Even then, such questions should be asked at the end of the interview when the informants feel more at ease with the interviewer.

6. *Instructions to the informants.* The questionnaire should provide necessary instructions to the informants. For example, the questionnaire should specify the time within which it should be sent back and the place where it should also be given. For instance, if there is a question on weight it should be specified as to whether weight is to be expressed in pounds or kilograms.

7. *Footnotes.* If a particular questions needs clarification, it should be marked or lettered and the explanation provided in footnotes.

8. *Questions should be capable of objective answers.* Various types of questions that may form part of a questionnaire can be grouped under three categories :

- (a) dichotomous questions,
- (b) multiple choice questions, and
- (c) open-ended or free answer questions.

Dichotomous questions are fixed alternative questions in which only two alternatives are listed. The respondent has to tick one of these alternatives. Such questions can usually be answered in 'yes' or 'no'. Two examples of dichotomous questions are :

Do you intend to purchase a coloured television set this year ?

☐ Yes

☐ No

Are you satisfied with the after-sales service provided by our organisation ?

☐ Yes

☐ No

This is an excellent techniques if applied to situations where a clear cut alternative exists. For example, a question : 'Do you have a television ?' can be easily answered in 'yes' or 'no' questions be avoided or additional answers such as sometimes, cannot say, etc., must be included. For example, in order to find out which particular toothpaste people use, giving only two alternatives 'yes' or 'no' will not be enough because there may be some persons who are using it occasionally. This questions should be framed as follows :

- (a) Do you use Colgate toothpaste ?

☐ Yes

☐ No

- (b) If yes, how often

always; occasionally ;

seldom; never

In the multiple choice questions, the respondent is asked to select one out of a number of alternative responses. All possible answers to a question are listed and the respondent choose one of these. This process not only facilitates tabulation of data, but also takes very little time to the respondent to fill in the questionnaire. Thus, while ascertaining how do MBA students normally travel to Faculty of Management Studies, instead of asking 'how do you normally travel to the Faculty', frame a question of this type :

How do you normally travel to Faculty of Manangement ? (Tick)

- (i) By Bus

☐

- (ii) By your own car

☐

- (iii) By your own scooter ☐
- (iv) By taxi ☐
- (v) By three wheeler scooter ☐
- (vi) On foot ☐
- (vii) Any other. ☐

Another example of a multiple choice questions is :

Why did you purchase Onida TV ?

- ☐ Price is lower than other brands.
- ☐ It represents best quality.
- ☐ Picture is better.
- ☐ Warranty period is longer.
- ☐ After-sales service is better.
- ☐ Any other.

The problem with such questions is that the respondent may like to tick more than one alternative. For example, one might have bought that brand of TV not only because of lowest prices, but longer period of warranty and best after-sales service. Hence, the respondent should be instructed to 'check the most important reason', 'check all those reasons that apply' or 'rank all the reasons that apply from most important to least important'. However, this type of question is excellent if most of the possible answers are both known and few in number. When the possible answers are numerous, a limited list—even accompanied by 'any other' category—may elicit a response different from that which otherwise would be forthcoming. The use of multiple choice questions is indicated only when the investigator is confident of the existence of a limited group of important alternatives and it should be avoided when there are many possible responses of relative equal significance.

In the free answer form or open-ended questions, the responses is asked to answer a question in his/her own words in essay form. The MBA students after completion of the course may be asked questions like :

What is your opinion of the quality of teaching ?

What do you feel about the facilities offered by the faculty ?

What do you think of the practical usefulness of the course you have undergone ?

The difficulty with the free answer questions is in classifying the responses. This is often difficult, time-consuming and somewhat arbitrary.

In most questionnaires one may find it necessary to employ all the three types of questions to elicit the information required.

9. *Answer to questions should not require calculations.* Questions should not require calculations to be made. For example, informant should not be asked yearly income, for in most cases they are paid monthly. Similarly, questions necessitating calculation of ratio and percentages, etc., should not be asked as it may take much time and the informant may not send back the questionnaire at all.

10. *Pre-testing the questionnaire.* The questionnaire should be pre-tested with a group before mailing it out. The advantage of pre-testing is that the shortcomings of the questionnaire can be discovered and it can be revised in the light of the try out.

11. *Cross-checks.* If possible, one or more cross-checks should be incorporated into the questionnaire, to determine whether the respondent is answering the questions carefully.

12. *Incentives to respondents.* Some incentive for filling up the questionnaire should be provided. It may be in the form of gift coupons, a sample of a product which the company wanted to introduce, etc. Sometimes even a promise to supply a copy of the findings after the survey work is over, works as an incentive.

13. *Method of tabulation to be used.* The method to be used for tabulating the results should be determined before the final draft of the questionnaire is made. These days most of the surveys are conducted on a large scale. This necessitates the use of computers. When the results are to be computerized, the questionnaire has to be drafted in a different way. This does not mean that the basic principles of constructing questionnaire are changed—the only change is that every question is to be properly coded. It is suggested that whenever the results are to be processed on computer, the guidance or the computer expert should be obtained before the questionnaire is finally printed.

It should be kept in mind that though the above points provide a guide or a checklist researchers can follow in their first encounters with the problem of questionnaire design, blind adherence to the above procedure shall do more harm than good. With questionnaires, the "proof of pudding lies very much in the eating," i.e., a questionnaire shall serve its purposes if it is able to produce accurate data of the kind needed. The proper construction of a questionnaire is a skill which is generally developed only by experiences in the use of research methodology or by on the job training. The natural tendency to rush through the construction should be avoided. Time spent in this stage of a well planned survey or experiment is invariably found to be extremely valuable in retrospect.

PRE-TESTING THE QUESTIONNAIRE

Pre-testing the questionnaire occupies a place of great significance in a survey. A researcher should not expect that the first draft of his/her efforts will result in a usable questionnaire. The researchers should examine each question with a jaundiced eye to assure that the question is not confusing or ambiguous, potentially offensive to the respondent, leading to biased responses, etc. The real test of a questionnaire is how it performs under actual conditions of data collections. For this assessment, the questionnaire pre-test is vital. The questionnaire pre-test serves the same role in questionnaire design as test marketing serves in new product development. Test marketing provides the real test of customer reactions to the product and the accompanying marketing programme. Similarly, the pre-test provides the real test of the questionnaire and the mode of administration. Some of the advantages of pre-testing the questionnaire are :

1. The investigator can find out what are the shortcomings of the questionnaire. Even the best designed questionnaire may have some problems. For example, there may be ambiguous questions, sequence may require changes, some questions may have to be dropped, some questions may have to be asked in different forms and still some new questions may have to be added. The time to know about all these problems is before the full-scale survey or experiment is conducted—not after.

2. An idea can be formed about the extent of non-response likely to take place.

3. Greater co-operations of the informants can be secured. Even persons most allergic to writing can with proper inducement be persuaded to answer the questionnaire. It is the surveyor's job to find out what these appeals are.

While pre-testing the questionnaire, it is desirable to cover a cross-section of the population eventually to be surveyed. When the sample is drawn, it should be broken down into various sub-samples by taking, for instance, every tenth or every hundredth case from the entire list.

The pre-test should be done by the personal interview regardless of the actual mode of administration that will be used. The work of pre-testing must be done with utmost care and caution otherwise unnecessary

and unwanted changes may be introduced. The firm's most experienced interviewers should be employed to conduct the pre-test. If the pre-test suggests major changes in the question, the questionnaire should again be pre-tested employing personal interviews. If the changes are minor, the questionnaire can then be pre-tested second time using mail or telephone.

After each significant revision of the questionnaire, another pre-test should be run. When the last pre-test suggests no new revisions, the researcher should get the questionnaire finally printed.

It is desirable that the response resulting from pre-test be coded and tabulated. The tabulation of pre-test responses can serve as a check on our conceptualisation of the problem and the data and method of analysis necessary to answer it. It is said that if a researcher who avoids a questionnaire pre-test and tabulation of replies is either a naive or a fool. The pre-test is the most inexpensive insurance the researcher can buy to ensure the success of the questionnaire and the research project.

SPECIMEN QUESTIONNAIRE

Two specimen questionnaires are given below. In the first, manual tabulation of results would be done and in the second, computerised results would be obtained.

A study* entitled 'Consumer Survey on Television Sets' was conducted by a post-graduate student of the Faculty of Management Studies. The basic objectives of carrying out this survey were to determine :

- The people who influence the purchase decision of a particular brand of television set.
- The people in the family who decide about the budget for the purchase of television set.
- The factors that influences the selection of a particular dealer/ showroom for the purchase.
- The various attributes of the production, which, if introduced in a particular brand, would create more market for the brand.
- Effectiveness of the I.S.I. mark in the context of purchase of a particular brand of TV set.
- The factors that influence the selection of a particular size of TV set.
- The economic profile of people who own TV sets.
- The importance of the TV set as a status symbol to an owner.
- The various factors that can be emphasized in providing the sales of a particular brand.
- The comparative effectiveness of promotion channels for TV sets.

The questionnaire designed for attaining the above objectives is given below :

QUESTIONNAIRE

1. Do you have Television Set ? Yes ☐ No ☐
 If yes,
 What brand ?
 What is the size of the screen ?
 When did you buy it ? (Month and Year)
 Approximate, price paid ?
2. Of the following persons, who advised you to purchase the above brand of TV set [tick the appropriate box(es)]:

<input type="checkbox"/> Yourself	<input type="checkbox"/> Your friend	<input type="checkbox"/> Your wife/husband	<input type="checkbox"/> Your neighbour
<input type="checkbox"/> Your children	<input type="checkbox"/> Your colleague	<input type="checkbox"/> Your parents	<input type="checkbox"/> Dealer
<input type="checkbox"/> Any other (Please state who)			

* The study was conducted by Mr. Deepak Mahendru.

13. Who decided about the budget for TV set's purchase ? [tick the appropriate box(es)]
- ☐ Yourself ☐ Your parents ☐ Your wife/ husband ☐ Any other (please state who)
14. Who decided about the place you bought your TV set from ?
- ☐ Yourself ☐ Your friend ☐ Your wife/husband ☐ Your neighbour
- ☐ Your children ☐ Your colleague ☐ Your parents ☐ Any other (Please state who)
15. Do you remember the place from where you bought your TV set ?
- ☐ Yes ☐ No
- If yes, please state the name and address of showroom or company (if bought direct from the company).....
16. Is there showroom near the house ? Yes ☐ No ☐
17. How did you come to know the above showroom/dealer/company ? [tick the appropriate box(es)] :
- ☐ Through radio advertisement ☐ Through newspaper ☐ Through TV advertisement
- ☐ Through cinema slides ☐ Through roadside hoardings ☐ Through hand bills
- ☐ Through magazines ☐ Through some person
18. Rank the following factors affecting decision to buy TV according to their importance ('1' of highest priority factor, '2' most important factor and so on up to '11') :
- ☐ Size of showroom ☐ Discount offered by dealer
- ☐ Market where showroom is located ☐ Free transformer and antenna
- ☐ Distance of showroom from house ☐ Free installation offered by dealer
- ☐ Reputation of showroom ☐ Rate of interest charged by dealer on hire-purchase instalments
- ☐ After-sales service offered by dealer
- ☐ Range of products sold in the showroom
- ☐ Gift at time of purchase offered by dealer.
19. Did you make a special survey of the market before buying your TV set ?
- ☐ Yes ☐ No
- If yes, please state why (tick whichever boxes are appropriate) :
- To see performance of various brands of TV sets ☐
- To check which dealer offered lower price ☐
- To check which dealer offered more incentives ☐
- To check which dealer offered better after-sales service ☐
20. Do you get your TV set repaired by the same dealer from where you bought your TV set ?
- ☐ Yes ☐ No
21. In your opinion, which of the following media is giving the most effective and impact-creating advertisement (tick only two boxes) :
- ☐ Radio ☐ Magazines ☐ Television ☐ Newspapers
- ☐ Cinema slides ☐ Hoardings on roadside ☐ Advertisement films ☐ Hand bills
22. Where do you come across most of the advertisements concerning TV sets (tick only two boxes) ?
- ☐ Radio ☐ Magazines ☐ Television ☐ Newspapers
- ☐ Cinema slides ☐ Hoardings on road side ☐ Advertisement films ☐ Hand bills
23. How much time *per day*, on an average, do you spend in listening/reading the following ?
- ☐ Radio ☐ Newspapers ☐ Magazines
24. State the magazines/newspapers/periodicals you buy for your family.
25. Rank the following factors according to your preference at the time of purchasing the TV set (rank from 1 to 8) :
- ☐ Picture quality ☐ Shape of cabinet ☐ Price ☐ Material of cabinet
- ☐ Sound ☐ Colour of cabinet ☐ Size of screen ☐ Shutter/door

16. Would you prefer to put extra screen on your T.V. ?

☐ Yes

☐ No

If yes, it is because

(i) the TV screen without extra screen is harmful to eyes.

(ii) the double screen looks more elegant.

(iii) any other reason.

17. Which one do you think is better (tick *only one* box) ?

☐ Removable legs

☐ TV set in showcase

☐ Separate stand

☐ TV set on the table

Specify the reason for your choice from the following :

☐ Price advantage

☐ Ease of transportation

☐ Appearance

☐ Flexibility of placing TV set anywhere

18. Which, in your opinion, is better ?

☐ TV supported on legs

☐ TV supported on one single leg in the centre

State reasons for your choice (tick *only one* box) :

☐ Appearance

☐ Stability

19. Which one do you think is better ?

☐ Plastic moulded cabinet

☐ Wooden cabinet

State reason for your choice (tick *only one* box) :

☐ Low price

☐ Appearance

☐ Sturdiness

20. What shade of cabinet do you prefer ?

Wooden : ☐ Light

☐ Medium

☐ Dark

Plastic : ☐ Black

☐ Red

☐ Yellow

☐ White

☐ Blue

☐ Any other (specify)

21. Which type of 'Off-on' knob is better ?

☐ Rotating type

☐ Push-pull type

22. Which type of control knobs are better ?

☐ Rotating type

☐ Sliding type

23. Which type of channel selector appears better ?

☐ Rotating type

☐ Push button type

24. Which would you prefer ?

☐ Antenna on roof top

☐ Indoor antenna

25. Do you think it better to have the voltage regulator within the TV set cabinet ?

☐ Yes

☐ No

26. Do you prefer a stand that can be used to adjust the height and direction of TV screen ?

☐ Yes

☐ No

27. Rank the following factors as per their importance to you at the time of your deciding the size of screen when you are purchasing TV set ?

☐ Strain on eyes

☐ Size of room

☐ Size of picture on screen

☐ Appearance of TV set

28. Which one of the following types of TV sets is better in your opinion ?

☐ Valve set

☐ Semi-solid set

☐ IC set

☐ Don't know

State reason for your choice :

☐ Price advantage

☐ Low maintenance

☐ Lower power consumption

☐ Don't know

29. In your opinion, ISI mark is

☐ Symbol of quality

☐ Gimmick to attract customers

☐ Don't know

30. In which room have you kept your set ?

☐ Drawing room

☐ Bed room

☐ Dining room

☐ Study room

Please give approximate size of the room

(iii) Subjects studied :

1. At Graduate level
2. At post-graduate level.....
3. At Ph.D. level.....
4. Others.....

(iv) Area of Specialisation :

1. At Bachelor's Degree level.....
2. At Master's Degree level.....
3. At Diploma/Post-graduate level.....
4. At Ph.D. level.....
5. At Post Doctorate level.....

5. **EXPERIENCE :** (Please indicate total relevant experience in years)

0—3 () 4—7 () 8—11 () 12—15 () Over 15 ()

Exact No. of years.....

6. **EXPERIENCE ON PRESENT JOB :**

0—3 () 4—7 () 8—11 () 12—15 () Over 15 ()

Exact No. of years.....

7. **PRESENT DESIGNATION :**8. **PRESENT EXECUTIVE/PROFESSIONAL LEVEL :**

JUNIOR () MIDDLE () SENIOR () TOP LEVEL ()

Reporting to.....

9. **PAY SCALE** (If any) :**EMOLUMENTS**10. **BASIC PAY** (per month) :

Below Rs. 700 ()	701—1100 ()	1101—1500 ()	1501—2000 ()
2001—2500 ()	2501—3000 ()	3001—3500 ()	3501—4000 ()
4001—4500 ()	4501—5000 ()	5001—5500 ()	5501—6000 ()
6001—6500 ()	6501—7000 ()	Above—7000 ()	

11. **GROSS TOTAL PAY :** (including Basic, DA, ADA, CCA, HRA, Conveyance and other Allowances)

1000—1500 ()	1501—2000 ()	2001—2500 ()	2501—3000 ()
3001—3500 ()	3501—4000 ()	4001—4500 ()	4501—5000 ()
5001—5500 ()	5501—6000 ()	6001—6500 ()	6501—7000 ()
7001—7500 ()	7501—8000 ()	Above 10,000 ()	

ALLOWANCES

12. Does your salary include following in addition to basic pay :

DA () ADA () CCA () HRA () CONVEYANCE ()

ALLOWANCES**SPECIAL ALLOWANCES**

13. If you get any other allowances/monthly monetary benefits, please mention names (not amounts) :

1.
2.
3.
4.

14. **PERQUISITES AND OTHER FRINGE BENEFITS** availed of by you :

(Please tick mark in the brackets applicable)

Free furnished	Subsidised/leased or	Office Tele.	()
flat/house	() company accommodation	Direct Phone	()
		PBX/PABX Extn.	()

- Residential telephone () Domestic help () Cook () Free Transport () Mail () Bus () Driver () Car () Scooter () L.T.C. ()
- House building advance () Retirement benefits ()
- Medical Free () Group term/ Insurance Scheme () Pension and post-retirement benefits ()
- Treatment Subsidised () Executive ()
- Provident Fund () Free Education of Children () Free conveyance for school going children ()
- Wife/Husband/ Sons job () Leave encashment ()

OTHER PERKS

15. Please list other perquisites, benefits and facilities provided to you by your employers in additions to the above :

1.
2.
3.
4.
5.

16. Please indicate approximate value in rupees of these *other perquisites* (14 & 15) received in cash or kind per month over and above salary :

Below Rs. 1000 ()	1001—1500 ()	1501—2000 ()
2001—2500 ()	2501—3000 ()	3001—3500 ()
3501—4000 ()	4001—4500 ()	4501—5000 ()
5001—6000 ()	6001—7000 ()	7001—8000 ()
8001—9000 ()	9001—10000 ()	10001 & Above ()

Please mention exact amount.....

17. MARITAL STATUS :

Single () Married () Any other specify ()

18. Wife/Husband's Education :

Non-matric () Matric () Inter (10+2) ()
Graduate () Post-graduate () Ph. D. ()

Mention exact qualifications (like M.A., M.Ed., etc.).....

19. Her/his any other qualifications or training than above :

1.
2.
3.

20. Is your wife/husband also employed/self-earning ?

Yes () No ()

21. What is her/his profession/designation ?

Profession..... Designation.....

22. If employed, full time or part time ?

Full time () Part time ()

23. Please tick mark (✓) her/his total monthly salary (Basic+DA+other allowances) or income :

Up to Rs. 500 ()	501—1000 ()
1001—1500 ()	1501—2000 ()
2001—2500 ()	2501—3000 ()
3001—3500 ()	3501—4000 ()
4001—5000 ()	Above 5000 ()

24. **COUNTRY OF DOMICILE :**
 (1) Your's..... (2) Your spouse's.....
25. **MOTHER TONGUE :**
 (1) Your's..... (2) Your spouse's.....
26. **LANGUAGES KNOWN (Working knowledge) :**

27. **FAMILY :**
 Single () Husband and wife () Husband, wife & children ()
28. **CHILDREN :**
 Sons :
 One () Two () Three () Four () More ()
 Daughters :
 One () Two () Three () Four () More ()
29. (i) **DEPENDENTS :**
 None () Spouse and children () Spouse.....children and parents/others ()
 (ii) **PARTIALLY DEPENDENT :**
 One () Two () Three () Four () More ()
30. **WHAT KIND OF FAMILY YOU HAVE ?**
 Nuclear family (H.W. & C.) () Joint/Extended family ()
 Background
31. **ORIGINALLY FROM :**
 Village () City ()
 Province.....
 Job changes/trunover
32. **How many jobs have you changed ?**
 One () Two () Three () Four () More ()
 Exact No. if more than four.....
33. **Are you :**
 (i) going to change your present job ?
 Yes () No () Don't know ()
 (ii) going to settle down now with this job ?
 Yes () No () Don't know ()
34. **Do you think :**
 (i) you were made for this job
 Yes () No () Don't know ()
 (ii) you are doing this job because you could not get a better one
 Yes () No () Don't know ()
 (iii) this is a good jumping board
 Yes () No () Don't know ()
- JOB ABROAD**
35. **If given choice where would you like to work :**
 In India () Abroad ()
 If abroad, mention 3 countries in order of preference :
 1. 2. 3.
36. **What are the 3 major considerations in your preferring a job abroad-select from the following :**
 More money () Professional growth () Job satisfaction () Prestige () Family circumstances () Further education and training etc. () Any other considerations.
 1. 2. 3.
 Not applicable ()

37. If you go abroad for a job would you like to :
- | | | |
|------------------------------------|--------------------|----------------|
| (i) Return home after working for | 2-3 yrs. () | 5 yrs. () |
| | 10 yrs. () | More () |
| (ii) Settle down there permanently | Yes () | No () |
| | Not applicable () | Don't know () |
38. What would you like to do after you return from a foreign assignment ?
- Will try to get a job ()
- Will start own business ()
- Would relax ()
- Don't know ()
- Not applicable ()
- ABOUT PRESENT JOB
39. What do you think makes you to stay in your present job ?
- Lack of opportunity and resources to go abroad ()
- You like your job ()
- Your family circumstances ()
- Your loyalty/affinity to your boss ()
- Your loyalty/affinity to your Organisation ()
- Good future prospects in your present assignment ()
- PERMANENT ADDRESS
40. Please give your permanent address for any future communication/contacts :
-
-
-

EDITING PRIMARY DATA

The completed questionnaires and schedules must be carefully checked and edited for errors. This is quite a difficult job and requires a great deal of skill and experience. While editing primary data the following considerations need attention :

1. The data should be complete.
2. The data should be consistent.
3. The data should be accurate.
4. The data should be homogeneous.

1. Editing for completeness. The editor should see that each schedule and questionnaire is complete in all respects, *i.e.*, answer to each and every question has been furnished. If some questions have not been answered and those questions are of vital importance, the informants should be contacted again either personally or through correspondence. It may happen that in spite of best efforts a few questions remain unanswered. In such questions, the editor should mark 'Not reported' or simply N.R. in the space provided for answers and if the questions are of vital importance then the schedule or questionnaire could be dropped.

2. Editing for consistency. While editing the data for consistency, the editor should see that answers to questions are not contradictory in nature. If there are mutually contradictory answers, he should try to obtain the correct answers either by referring back the questionnaire or by contacting, wherever possible, the informant in person. For example, if amongst others, two questions in a questionnaire are : (a) Are you married ? (b) State the number of children you have, and the reply to the former question is 'no' and to the latter 'Three', then there is contradiction and it should be clarified.

3. Editing for accuracy. The reliability of the inferences drawn depend basically on the correctness of information. If the information supplied is wrong, inferences can never be valid. It is, therefore, necessary for the editor to see that the information is accurate in all respects. However, this is one of the most difficult tasks of the editor. If the inaccuracy is due to arithmetical errors, it can be easily detected and corrected. But if the cause of inaccuracy is faulty information supplied it may be difficult to verify it, for example, information relating to income, age, sales, etc.

4. Editing for homogeneity. By homogeneity we mean that all the questions have been understood in the same sense by different respondents. The editor must check various questions carefully. If some informants have given monthly income, others annual income and still others weekly income or even daily income, no comparison can be made. Similarly, if some persons have given the basic income whereas others the total income, no comparison is possible. The editor should check that information supplied by the various people is homogeneous and uniform.

It should be noted that these days computer is extensively being used to edit data. Various computer techniques have been developed to identify "outliers"—responses which are greatly different from the majority of the responses. Many outliers result from clerical error, recording, transcription or from false information provided by the respondent.

PROBLEMS

1-A. Answer the following questions, each questions carries **one** mark :

- (i) Define primary data.
- (ii) What is secondary data ?
- (iii) Give few sources of secondary data.
- (iv) What is meant by questionnaire ?
- (v) Why pre-testing of questionnaire is desirable ?
- (vi) What is editing ?
- (vii) How many questions should a questionnaire contain ?
- (viii) Is primary source more reliable than secondary source ?
- (ix) Name few sources of business data.
- (x) Statistics are dangerous in the hands of the inexpert.

1-B. Answer the following questions, each question carries **four** marks :

- (i) Distinguish between primary and secondary data.
 - (ii) What are the methods of collecting primary data ?
 - (iii) Briefly explain the characteristics of a good questionnaire.
 - (iv) What precautions should be taken while using secondary data.
 - (v) Distinguish between structured and unstructured questionnaire.
 - (vi) Describe the various steps that are taken in conducting a statistical investigations.
 - (vii) Discuss the merits and limitations of collecting primary data through questionnaire.
2. Distinguish clearly between internal and external data. Give examples to illustrate the distinction between the two.
 3. Distinguish between primary and secondary data. Discuss the various methods of collecting primary data. Indicate the situation in which each of these methods should be used.
[MBA, HPU, 2002; MBA (HCA), DU., 2002; MBA, UP Tech. Univ., 2003]
 4. Distinguish between primary and secondary data. What precautions would you take before using data from a secondary source ?
 5. "It is never safe to take published statistics at their face value without knowing their meaning and limitation." Elucidate this statement by enumerating and briefly explaining the various points which you consider before using any published statistics. Illustrate your answer with example wherever possible.
 6. Discuss the validity of the statement : "A secondary source is not as reliable as primary source."
 7. Explain what precautions must be taken while drafting a questionnaire in order that it may be really useful. Illustrate your answer giving suitable examples.

11. As the personnel manager of a particular firm you want to determine the effect of pecuniary and non-pecuniary incentives on workers' efficiency. Draft a suitable questionnaire.
12. Describe the different methods of collecting data indicating the merits and demerits of each of them. Which method is suitable to the following types of studies ?
 - (i) Enquiry by a Research Organisation into the living conditions of the workers of cotton textile mills of Bombay.
 - (ii) Study of the buying habits of the people in regard to washing powder like Surf, Lux, Nirma, etc.
 - (iii) Enquiry to the food situation by a committee appointed by the Government of India.
13. Are the following statements true, false, or a combination of truth and false, or a combination of truth and falsehood ?
 - (a) Bias is not undesirable if it contributes to the reporting of results that the investigator has anticipated.
 - (b) Inaccurate responses to questionnaire create no serious problem for the investigator as long as they result from inability to reply correctly rather than from bias.
 - (c) Interviews introduce more bias than does the use of questionnaire.
 - (d) 'True or false' or 'Yes or No' questions should not be used in questionnaires unless only one of the two answers is possible.
 - (e) Open questions are more difficult than most other types to tabulate.
14. (a) A manufacturing organisation has selling branches in each large town in the country. It makes 6 kinds of articles which are sold both in retail and wholesale by the branches. The Head Office wishes to plan a sales campaign based on the past sales and likely future demand. Design a questionnaire for the collection of the necessary data and draft instructions for completing the questionnaire.
- (b) What are the sources of secondary data ? Explain some uses and limitations of secondary sources of data. [MBA, Osmania, 2002]
- (c) Compare and contrast the questionnaire and interview techniques of collecting data. Which technique is more reliable and why ? [MBA, TU, Kathmandu, 2002]
15. Distinguish between the following :
 - (a) a schedule and a questionnaire,
 - (b) primary and secondary data, and
 - (c) survey and an experiment.
16. In constructing a questionnaire or a schedule, the primary steps are design, pre-test and editing. Describe briefly each of these.
17. In the following situations indicate whether a sample or a census should be taken and explain why :
 - (i) A car manufacturer wants to obtain data on customer performances with respect to size of cars.
 - (ii) A firm employing 1,200 persons wants to determine the acceptability of subscribing to a new employee insurance programme.
 - (iii) The AGCR office wants to obtain data on the proportion of income-tax returns that contain arithmetic mistakes.
 - (iv) A researcher wants to find out efficiency of an executive development programme.
18. In the following situations, which method of data collection—self, enumeration-personal interview or telephone interview—would you select and why ? You should also keep in mind the cost of the method, response rate and the time necessary to obtain the information, as well as other relevant factors.
 - (i) Consumer acceptance of new TV model before it is placed on the market.
 - (ii) Data on percentage expenditure incurred on education by class IV employees of State.
 - (iii) Information of the adequacy of the social security measure and the changes to be made therein.
 - (iv) The determination of national ranking of an international management convention.
 - (v) Data on malaria cases during 2003-04.
19. In the following set of questions find at least one fault in each. Also suggest an improved rewording of the questions :
 - (i) How many tubes of toothpaste did you purchase in the last six months ?
 - (ii) Do you agree that too much money is being spent on entertainment by various ministries ?
 - (iii) Does the name National Panasonic come to your mind while buying a record player ?
 - (iv) Is it a waste of money spend heavily on defence (strongly agree, agree, undecided, disagree, strongly disagree) ?
 - (v) What inspired you to join this company ?
20. Define 'secondary data'. State their chief sources and point out the dangers involved in their use and precautions necessary before using them.

18. Distinguish between primary and secondary data. Give a brief account of the chief methods of collecting primary data and bring out their merits and defects.
19. (a) Describe the requirements of a good questionnaire.
(b) Construct a suitable questionnaire containing not more than twenty questions pertaining to the effectiveness of an EDP programme attended by your subordinates.
20. It is required to collect information on the economic conditions of textile workers in Bombay. Suggest a suitable method for collection of primary data. Draft a suitable questionnaire of about ten questions for collecting this information. Also suggest how will you proceed to carry out statistical analysis of the information collected.
21. "Data collected in census are automatically free from errors." Discuss the validity of this statement.
22. (a) Examine critically any two method of collecting primary data.
(b) Distinguish clearly between structured and unstructured questionnaires. Construct a suitable questionnaire containing not more than ten questions pertaining to 'Consumer Survey' on Maruti Cars.
23. What are the basic sources of business data ? What precautions would you take while using secondary data ?
24. (a) What are the methods of collecting primary data ? Can field and laboratory experiments act as sources of business data ? Explain briefly.
(b) What precautions must be taken while drafting a suitable questionnaire ? Give examples.
[MBA, Rohilkhand Univ., 2007]
25. What are the essentials of a good questionnaire ? Draft a suitable questionnaire containing not more than 20 questions to find out the efficacy of MBA programme.
[MBA, Osmania Univ., 2006]
26. Suppose you are in charge of conducting a socio-economic survey of the Taxi drivers in a city. Prepare a suitable questionnaire in this connection.
27. You are required to collect data on the extent and nature of graduate unemployment in urban areas in Nepal, using the sample survey method. How do you proceed ?
[MBA, TU, 2008]

SCREEN ACTORS GUILD

Read the following case carefully and answer the questions given in the end :

Evaluating a marketing research project

The Screen Actors Guild shared with all unions the goal of ensuring its 29,000 members a living wage and job security. But lately the Guild had become increasingly interested, as well, in the accuracy and honesty of its members dramatic roles. A driving force behind this trend was Louise Garrity, who was a vice president in the Guild and who also headed its Women's Conference Committee.

Last year Ms. Garrity appeared before the Federal Communications Committee (FCC) and at a meeting of television network producers. Her purpose in these appearances was to discuss such issues as the media's image of women and minorities, TV reruns, the prime-time access rule, and the "family viewing time" rule.

Recently the Women's Conference Committee of the Guild, under Ms. Garrity's leadership, launched a national survey of television viewers' opinions. Although the survey was particularly concerned with how women were portrayed on television, it was also designed to touch on other areas.

"This is not just a question of women's image," Ms. Garrity was quoted. "We want to be able to go before the FCC and network producers and studio people and writers—especially the writers—and say that x amount of people in this or that area like this or don't like that. We can't go on feelings. We need facts, and input from around the country, to perform a better service as entertainers. It's a matter of projecting *truth*."

An attitude questionnaire was designed (see Exhibit 1). In 192 communities the editors of newspapers, Sunday magazine supplements, and TV sections of newspapers were invited to complete the questionnaire. Readers were invited to complete the questionnaire, adding any personal comments they wished to make, and send it directly to the Screen Actors Guild. (The Guild's address was to be provided when the questionnaire was published.)

QUESTIONS

1. Evaluate the research design and methodology used in this project.
2. Evaluate the questionnaire in Exhibit 1.

30 Marks

EXHIBIT—1 SCREEN ACTORS GUILD ATTITUDES QUESTIONNAIRE

Recognition _____ Male _____ Female _____ City and State : _____

Age level :

Under 12 _____

Under 18 _____

Under 25 _____

Under 35 _____

Under 45 _____

Under 55 _____

55 and over _____

Education :

Grade school level _____

High school level _____

Some college _____

College degree _____

1. Do you think television influences the way you live your own life ?
 (a) Mode of dress _____ Yes _____ No _____ Undecided.
 (f) Mode of conduct _____ Yes _____ No _____ Undecided.
 (c) Products you buy _____ Yes _____ No _____ Undecided.
 (d) Attitudes about minorities _____ Yes _____ No _____ Undecided.
 (e) Attitudes about women _____ Yes _____ No _____ Undecided.
2. Do you think that the images of women presented on TV are truthful and believable ? _____ Yes _____ No _____ Undecided.
3. Do you like the women you see on TV ?
 _____ Yes _____ No _____ Undecided.
4. Do you feel that women are abused and ridiculed by media more often than not ? _____ Yes _____ No _____ Undecided.
5. Do you feel the relationships and roles on TV shows mirror women's life-styles ? _____ Yes _____ No _____ Undecided.
6. Do you feel that the media encourage young girls to aspire to useful and meaningful roles in society ? _____ Yes _____ No _____ Undecided.
7. Do you identify with the women in daytime soap operas ?
 _____ Yes _____ No _____ Undecided.
8. Do you think there is hostility between women as portrayed in television commercials ?
 _____ Yes _____ No _____ Undecided.
9. Do you think commercials portray women's total identity and happiness as depending on the use of the product ?
 _____ Yes _____ No _____ Undecided.
10. Do you think sex is overused to products ?
 _____ Yes _____ No _____ Undecided.
11. Do you feel that women's news items are given equal time and serious consideration ?
 _____ Yes _____ No _____ Undecided.
12. Would you like to see more women in leading roles on television programs other than comedies and variety and talk shows ?
 _____ Yes _____ No _____ Undecided.
13. Are you aware of the small number of women appearing in dramatic shows ? _____ Yes _____ No _____ Undecided.
14. Would you like to see women appearing on TV in positions of authority ?
 (a) Presenting national news ?
 _____ Yes _____ No _____ Undecided.
 (b) Moderators of game shows ?
 _____ Yes _____ No _____ Undecided.
 (c) Hosts of talk shows and children's programmes ?
 _____ Yes _____ No _____ Undecided.

- (d) Spokeswomen for national products ?
 _____ Yes _____ No _____ Undecided.
- (e) Voiceovers (the voice you hear off camera) ?
 _____ Yes _____ No _____ Undecided.
- (f) Narrators of documentaries ?
 _____ Yes _____ No _____ Undecided.
- (g) Actresses portraying women in professions ?
 _____ Yes _____ No _____ Undecided.
15. Do you see any change in minority representation ?
- (a) Black _____ Yes _____ No _____ Undecided.
- (b) Mexican _____ Yes _____ No _____ Undecided.
- (c) Asian _____ Yes _____ No _____ Undecided.
- (d) Indian _____ Yes _____ No _____ Undecided.
- (e) Other _____ Yes _____ No _____ Undecided.
16. Do you feel the image of minorities is accurately represented ?
 _____ Yes _____ No _____ Undecided.
17. What is your preference for prime-time evening programming ?
 Marks in order of preferences :
 Drama _____ Documentaries _____ Variety _____ Comedy _____
 Game shows _____ Sports _____
18. Do you feel television generally is fantasy or fact ?
 Fantasy _____ Fact _____
19. Regarding reruns of TV series in prime time, do you think there are
 _____ Too few _____ Too many _____ Just enough _____ Undecided.
20. Do you think the public should have some say in how many shows are rerun ?
 _____ Yes _____ No _____ Undecided.

[MBA, Sukhadia Univ., 2007]
