**Chapter 4: Data Collection Technique**

Every study is a research for information about some given topic. In other words every study requires information. The question is however, from where to get the information (data) and how to get them.

**Quantitative and Qualitative Data Collection Methods**

On the basis of the nature of the data we could divide the information and the method of data collection into quantitative and qualitative data collection techniques. Data collection in the form of numbers is quantitative data collection while data collected in the form of word or pictures is called qualitative data collection mechanism.

**Sources of Data**

Data can be acquired from different sources. Burt these different sources can generally be categorized in two major groups, namely primary and secondary data sources.

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**Advantages of Secondary Data**

1. Secondary sources can usually be found more quickly and cheaply. Collection of primary data can be so costly and time consuming as to be impractical. These collections are also voluminous and detailed.

2. Most research on past events has to rely on secondary data sources. In like manners data gathered about distant places is secondary data.

**Disadvantages**

1. The information often does not meet one’s specific needs. This is source material that has been collected by others for their own purpose. Definitions will differ units of measurements are different and different time periods may be involved.
2. It is difficult to assess the accuracy of the information because one knows little about the researcher design or the conditions under which the research took place.
3. Finally, secondary data is often out of date. A study made five years ago may not be relevant today.

**Uses of Secondary Data**

Secondary data is used for three research purposes:

1. It fills the need for a specific reference on some point in time,

Example: the population of Ethiopia in 1980.

The production of coffee five years ago.

From a simple survey one could estimate that a certain percentage of the population has certain age and income distribution. One could seek reference benchmark against which to test other findings.

2. as an integral part of a larger research study. Research requires learning if the past can make a contribution to the present study. Data from secondary sources helps one to decide what further needs to be done.

3. Secondary source may be used as the sole basis for a t research study retrospective research often requires the use of published data. In may cases one cannot conduct primary research because of physical, legal or cost limitations.

Source of Secondary Data

Secondary data sources can be classified as

* Internal
* External sources of information

**Internal (organizational) sources**

These sources are so varied that there I little in a general way that can be said about their use. Collection methods are unique to the specific situations. Internal sources may be the only source of information for many studies.

Example: department reports, production summaries, financial and accounting reports, marketing and sales studies, etc.

**External sources**

Published sources may be classified into four categories:

* Books
* Periodicals
* Government documents
* Different sources

1. Reference books encyclopedia
2. University publications (asters thesis, dissertations, etc.)
3. Company publications (financial reports, company policy statements, speeches by prominent executives, sales literature, product specifications, etc.
4. Productions of trade, professional and other associations (statistical compilations, research report, proceedings, etc.)
5. Personal documents (historical studies)

The data that is complied can be classified as statistical data or non-stastical data. Government documents and company and association publications are often statistical nature, while periodical, and books tend to be non statistical.

Examples of statistical data: trade statistics, survey of manufacturing industries qualitly builelins, and many other periodicals contain information on transportation, agriculture, industry, education welfare and other areas.

**Evaluating Secondary Data**

There is a need to evaluate the data, which we obtained from secondary sources. The evaluation takes two forms.

1. How well does the data fit the research needs
2. What confidences can you put in the accuracy and legitimacy of the data?

**Data Pertinence**

Secondary data were not originally collected for the current purpose. Hence one should (i) understand the definitions and classification supplyaed (ii) s that their meanings are consistent with one’s own need (iii) measurements used and coverage of their data in terms of topic and time must be casured.

**Data Quality**

This is a question of data accuracy. It is always good to go the original source of the information rather than use an intermediate source, which is quoted from the original. This enables use to catch any errors in transcriptions as well as review cautionary and other comments that went along with the original data.

Another aspect of the data accuracy concerns is completeness. That is how much does the reported material actually cover. Is it based on a narrow sample or large population or what?

Another aspect of the data quality concerns the capability of the source of the data. Two concerns are important.

1. Are the persons who conducted the study people of whom you can have confidence? Are they highly regarded? Is their organization well regarded?
2. The second aspect concerns the original source itself. could the respondents actually answer this question? What are the chances that the responds would know and be willing to give such information under the study conditions?

Any investigator has the concern in studying the quality of secondary data is to determine the degree to which they accurately reflect reality. So the question that did the study, whether the findings promote a special interest, and how the study itself was conducted are all important clues. These and other factors are of prime importance in determing if the secondary data are adequate for the investigation’s research purpose.

**Primary Sources of Data**

Researchers conventionally togard as primary sources those that were written or came into being by the people dircely involved in the research. this data refers to the sa material which the investigator originates for the purpose of the inquiry at hand. These are data collected afresh and for the first time and these happen to be original in character.

Example: an inquiry into the cost of living of the workers if the investigation of his representat6ive collects the facts pertaining to this inquiry.

The difference between secondary and primary date is one of degree .Data which are primary in the hands of one person, may be secondary in the hands of another.

Primary data may be collected through a variety of methods the investigator adopt one of the following two methods.

* Direct person a observation method
* Survey or question other persons

1. Indirect personal interviews,
2. Information from correspondents
3. Mailed questionnaires to be field by the enumerators

**The Personal Observation Method (non Resctive research)**

Must of what one knows comes from observation. While such observation may be the basis for knowledge the collection process is haphazard. Some people restrict the concept of observation to “watching” only. But this is to narrow a view and it also involves listening and reading. Observation includes the full range of monitoring behavioral and non-behavioral activities and conditions. There can be roughly being divided into the following.

Non-behavioral Observations

* Records analysis
* Physical condition analysis
* Physical process analysis.

Record analysis is one of the prevalent forms of observation research. Historical or current records public or private records, analysis of current financial records and economic data are all different types of analysis.

Physical condition analysis is typified by store audits to determine availability of merchandise, study of plant safety compliance, analysis of inventory conditions, and the analysis of the financial statements of organizations.

Process or activity analysis includes time or motion studies of manufacturing process, traffic flows, and financial flows in the banking sector.

Behavioral observation is related to persons. Behavioral observation includes body movement, motor expression, and even exchange glances. body movement as an indicator of interest or boredom, exchange glances for studies of interpersonal behavior, linguistic behavior including some words and sounds (ahs), extra-linguistic analysis including vocal loudness, temporal rate of speaking duration of utterance and rhythm, interantion tendencies verbal stylistic including vocabulary and pronunciation pecula

Example: the study of records

Mechanical process

Most small children can not be questioned very successfully.

1. There are vast areas of information for which observation is the only method available.

2. One can collect data at the time it occurs. One need not depend on reports by others.

3. One can secure information that most participants would ignore either because it is so common and expected or because ti is not seen relevant.

4. Only with this method can one capture the whole event sit occurs. One may be interested in all of the conditions surrounding a confrontation at a bargaining session between union and management representatives.

5. Some subjects seem to accept as observational type of intervention better than questioning. It is less demanding and normally has less blas.

**Weakness of the Method**

There are some limitations of this method

1. The observer normally must be at the stepe of event when it takes place. But it is often difficult or impossible to predict when and where an event will
2. Observation is also slow ad expensive process that brings up a second disadvantage. it requires either human observers or some type of costly and
3. its most reliable results are resched in data that can be determined by an overt (open or deliberate) action or surface indicator. The observe must make inferences from surface indicators.
4. Observation is limited as a way to learn the past. It is also limited as a method to learn what is going on at some distance place.
5. It is also limited or difficult to gather information on such topics as intensions, attitudes, opinions and preferences.

**2. The Survey Method**

To survey is to question persons and record their response as the data for the analysis. This is the second major technique for gathering information. To survey is to ask people question in a written questionnaire (mailed or handed to people) or during an interview and then record the answer. The researcher is not able to manipulate the situation but simply records the answer. Surveys are used to generate data on economic behavior, statistics, option polls, etc., the things under study in a given survey are the units of analysis. Typically the unit of analysis in a survey is a person.

**Purposes of Surveys**

There are different reasons for conducting surveys. Generally three objectives can be identified.

**Description:** surveys are frequently used or conducted for the purpose of making descriptive statements or assertions about some population. The sample survey provides a vehicle for providing the information.

Example: age and sex distribution of a given population

Explanation: many surveys have the additional objective of making explanatory assertions about the population.

Exploration survey methods can also provide a search device when the researcher is only beginning his inquiry into a particular topic. kind of pre

Most studies have however, more that one objective and some may even involve all the three.

Strength of the survey method

1. It is versatile or flexible-capable of many different uses
2. it does not require that there be a visual or other objective perception of the sough information by a researcher.
3. one can seldom learn much about opinon and attitudes except by questioning.
4. surveys tend to be more efficient and economical than observations. In formation can be gathered by a few well chosen questions, which would lake much more time and effort to gather by observations. For instance, surveying using telephone or mail is less expensive.

**Weakness pf the Method**

Survey method has its own weakness or shortcomings.

1. The quality of information secured depends heavily on the ability and willingness of representatives to cooperate. People refuse an interview, fail to reply to mail surveys. They may not have the knowledge sought.
2. A respondent may interpret questions or concept differently from what was intended by the researcher. He is assuming questions different from the one being asked.
3. A respondent may deliberately mislead the researcher by giving false information. It is difficult identify these occasions. In spite of those weakness, surveying is much more widely used in business research than is observation.

**The use of Questioning**

Almost any topic can be investigated by asking questions about it. The most appropriate application are those where conditions indicate that respondents are uniquely qualified to provide the desired information. Questions can be used to inquire also about subjects that are exclusively internal to respondents. Questions can be called out by:

* Face to face personal interview
* Try telephone interview
* By mail
* By a combination of all these.

Personal Face to Face Interviewing

Is a two-way conversion initiated by an interviewer to obtain information from a respondent. The respondent is asked to provide information with little hope of receiving any immediate or direct benefit from this cooperation. If the interviewer is carried off successfully it is an excellent data collection technique.

**Advantages of this Method**

1. The depth and detail of information that can be secured far exceeds the information secured from telephone or mad surveys.
2. Interviewers can note condition of the interviewers, probe additional questions, gather implemental importation through observation.
3. The interviewer also his more control than with other kinds of investigation. They can set up control questions.
4. Interviewer can make adjustments to the language of the interviewer because they can observe the problems and effects that the interviewer is having on the respondent.

**Limitations of the Method**

1. The method is costly, both in money and time
2. Interviewer may be relevant to visit unfamiliar neighborhoods alone especial for evening interviewers.
3. Results of personal interviewers can be affected adversely by interventions that alter the questions asked or bils the result.

**Success Requirements**

1. Availability of this needed information from the respondent i.e. the respondent’s information levels.
2. An understanding by the respondent of his in her role.
3. Adequate motivation by the respondent to cooperate.

Interviewing Techniques

Research interviewing is not so simple. What we do or say as interviewers can make or break a study. It is important that the interviewee asks the questions properly, second the responses accurately, and problem (examine meaningfully to achieve these aims interviwers must be trained to carry out those procedures that foster a good interviewing relationship.

**Ensuring Respondent’s Receptiveness**

The first goal in an interview is to establish a friendly relationship with the respondent. There factors will help to being al-out respnds receptiveness. The respondent must:

1. Pool that the experience will be pleasant and satisfying. Respondents will cooperate with an interviewer who is understanding and accepting.
2. Believe that the survey is important and worthwhile. This requires some explanation of the stud. The purpose of tea study, how the information will be used, and what is expected of the respondent must be explained.
3. Must have any montal reservations satisfied. Respondents often have reservations about being interviewed that must be over some. They suspect that the interviewer is a disguised bill collector, orb the like. They may also feel u= inadequate, or fear that they will be embarrassed by the questioning.
4. in addition if the respondent is busy or a way one should arrange the interview at some later date.

**Personal Interview Problems**

Two major closely related problems can be expected

* Bias
* Cost

Biased results grow out of the three types of errors

* Sampling error
* Non-response error
* Response error

**Non-repose error**

This error when you are not able to find those whom you are supposed to study. In probability samples there are prede signated persons to be interviewed. The task is to find these respondents. When one is forced to interview substitutes, an unknown but possibly substantial bias is introduced. Under such circumstances one of the following could be done.

1. The most reliable solution is to make cathbacks. If enough attempts are made it is usually possible to contact most target respondents.
2. to treat all remaining non-responders as a new subpopulation and draw a random sample is from this group and can be weighted into the total population estimate.
3. to substitute someone else for the respondent when the population is homogenous.

**Response error**

This occurs when the data reported differ from the actual data. Errors are made in the processing and tabulating of data. Respondent may fail to report fully and accurately. Interviewer is also a major source of error. Cheating by enumeration, usually with only limited training and under little direct supervision. Enumerator can also distort the results any survey by in–appropriate suggestions, word emphasis, tone of voice and question rephrasing .Perceived social distance between enumerator and respondent ahs a distorting effect.

**Cost Considerations**

Interviewing is costly. Much of the cost results from the substantial enumerator time taken up with administrative and travel tasks. Respondents are often geographically scattered and this adds to the cost. To reduce cost.

One might use telephone interviewee

Use self-administered questionnaire

Pay enumerators on hourly basis.

**b) Telephone Interview**

Telephone can be helpful in setting up interviews and screening large population for rare respondent type. The telephone is the medium of communication.

**Strength of this method**

1. Moderate cost (cost in travel and administrative costs)

2. fusion completation of the study

3. Responses can be directly entered on to the compute

4. Fewer interviewers bias

**Limitations of this method**

1. Respondents must be available by phone.

2. untialed households (telephone numbers of deficiencies of directions)

3. The length of the interview period is short or limited

4. Telephone interview can result in less complete responses and that those interviewed by phone find the experience to be less rewarding to them than a personal interview.

**c) Interviewing by Mail**

Self administrated questionnaires may be used by surveys.

Advantages

1. Lower cost than personal interview

2. Persons who might otherwise be inaccessible can be contacted( major corporate executives)

3. Respondents can take more time to collect facts

Disadvantages

1. Non response errors is expected
2. Large amount of information may not be acquired.

To improve this situation or survey obms one could adopt a number of options such as follow ups (reminders), advance motifictions, concurrent techniques including questionnaire length, survey sponsorship, return envelopes, personalization, cover letters, anonymity, money incentives.

**Qualitative Data Collection Techniques**

There are a number of ways by which qualitative data can be collected.

Field Research: conduct case studies on a small number of people for some length. The researcher observes and interacts in the held setting for a certain period of time-a few months or several years.

Historical comparative research- examines aspects of social life in a past historical ear or across different cultures.

Cased studies: a cases study is an account and an analysis or particular events and decisions. it draws issues that have been faced. A case study will concern itself with events and conditions during a certain period of time. A case study is essentially an initiative investigation of a particular unit under consideration.

**Survey Instrument Design (Questionnaire Design)**

**Survey Strategy**

One should consider the survey strategy before getting down to instrument design particulars. Prominent among these strategy concerns is:

1. What communication mode will be used?

It has been pointed out that surveys may be conducted by personal interview, mail or through the phone or a combination of these methods. The decision on which method to use will affect the design of the instrument.

Example: in personal interview it is possible to use graphs and other questioning tools more easily than by mail or phone.

2. How much st

Interviewing experiences can vary from one that is un-structured to one with a great deal of structure. In the structed case the respondent is encouraged to talk about a set of topics. Whether structure or unstructed, the aim is to provide a relaxed environment in which the respondent will open up and discuss topics in depth. Focused group interview is also widely used in marketing research. The researcher has a list of some points, which he would like to discuss and prompt decision.

**Instrument Drafting**

Actual instrument design begins by drafting specific measurement questions. Both the subject and wording of each question one should also have some logical question sequences. The psychological order of the question needs to be considered. Questions that are more interesting easier to answer, and less threatening usually are placed easly in the sequence to encourage response.

**Instrument Testing**

Once a draft of the instrument has been developed it must be put through a series of tests. There will be many differences of opinions and suggestions for improbmement. Usually two or three drafts can be developed for the in house losting. The in house testing is done by the designers. The importance of the test revise and relest cycle cannot be overestimate. The failure to take this important step is one of the greatest causes of poor survey results. Testing is the hallmark of the scientific researcher.

**Question construction (Designing of the Questionnaire)**

Survey instruments normally include three types of information

1. The sought data facts. Attitudes, preferences and expectations al the central topic.

2. Classification and analysis –included are such item, like sex, age, family life cycle stage, family income, social class etc.

3. Administrative includes respondent identification, interview place, and conditions of the interview and the like.

One is ready to begin question drafting once one has decided in the information needed and the collection process to use.

In developing a survey instrument there are some important discussion areas. Issues to be considered in designing the questionnaire.

* Question content
* Question wording
* Response form
* Question sequence

**1. Question Content**

Question should contribute significant information towards answering one, the investigative questions. One should challenge each question function. Both questions and statements may be used profitably in survey research survey research is commonly viewed as involving the asking of questions, yet a typical survey will probably uncover as many statements as questions. Using both in a given questionnaire gives the researcher more flexibility in the design of items. There are some important issues that one should consider when drafting questions.

Is the question of proper scope?

This concerns the coverage, minimizing the number of questions is highly desirable, but don’t try to ask two questions in one.

Respondent must be competent enoght to answer the questions. In asking respondents to provide information, the researchers should continually ask himself whether they areal be to do so reliably. The question designers should consider the respondent information level when determing the content and appropriateness of a question.

An adequacy problem also assess when one asks questions that overtax the respondent’s recall ability. Many cannot recal much that has happened in the past. The adequacy of answers also dependa on achieving the proper balance between generality and specificity.

One often asks questions that are too general and detached from respondent’s experience. There is also the dange of being too specific, for which the respondent does not have an answer. There are no rules about this generality specificity problem. Developing the right level of generality depends upon the situation and the art and experience of the question designer.

The ability of the respondents to answer adequately is also often distorted by questions whose content is biased by what is included or omitted. Questions may explicitly mention only the positive or negative a specs of the topic.

(iii) Willingness of respondent to answer adequately

Even if respondents have the information, they may be willing to give it. Some topics are to sensitive to discuss with strangers. Examples: the most sensitive topics concern money matters and fady life. If responses consider a topic to be irrelevant and uninteresting they would be reluctant to give an adequate answer. They participate half hearidly, often answer with don’t know , give negative replies, even refuse to be interviewed. Thus the researcher’s challenge is to develop approaches to overcome these trouble areas. Generally there approaches can be used to secure more complete and truthful information.

* 1. motivate respondent to provide appropriate information. The more interest that responsnts have the more cooperation they will give.
  2. Change the design of the questioning process one can redesign the questionnaire process to improve the quality of the answers. For instqance, one might demsoonstrate that confidentiality is a fact. Appropriate questioning sequences that will lead a respondent from question gradually to those that are more sentsive. Indirect questing is one of the most widely used approaches by which opinions on sensitive topics are secured.
  3. Use methods other than questioning to secure the data. If questioning will not secure the information resort to other techniques (observation).

**2. Question Wording**

Another important descion in the desining of a questionnaire is the question of working. While it is impossible to say which wording of a question is best, one can point out a number of problem areas.

1. Shared Vocabulry

A survey is an exchange of idea between interviewer and respondent. Each must understand what the other says, and this is possible only if the vocabulary used is common to both parties.

(i) words must be simple

(ii) the use of technical language requires the employment of knowledgeable persons and interviewers.

b)Question Calrity

It should go without saying that questionnaire items should be clear and uanoigius. The reis always a problem of understanding long and complex sentences and phraseology. The use of simple words is not enough. Many of there words have vague references or meanings which may be determined from their context.

c) Unstated Assumptions (Misleading assumptions)

Many problems of questions wording can be traced to making unwarranted assumptions. Each one of us understand concepts, words, and expressions in the light of oruown experience. Thus it is useful to specify the frame of reference for the resposnt.

d) Biased Wording

Bias is the distortion of responses in one direction. Strong adjectives can be distriting. So we should avoid bias. For example, ethical reference may be such an example.

e) Personalization

finding the right degree of personalization may be a challenge persponses can be changed by personalizing the questions. Instead of asking, what would you do about ..? it is better to ask, what would people do about…?

f) Adequate Alternatives

Are adequate alternatives presented? It is usually wise to express each alternative explicitly in order to avoid bias.

One a set of questions are developed then it is necessary to test and revise them .Revising questions several times is not usual.

**3. Response Structure**

A third major decision area is the degree and form of the structure imposed on the responses. The options range from open (free choice of words) to closed (specified alternatives). Open ended (free response) in turn range from

(i) Those in which the respondents express themselves extensively.

(ii) Those in which the freedom is to choose one word in a “fill in” question.

Closed questions are typically categorized as dichotomous or multiple choice questions.

Factors that determine response structure

Some of the factors that influence the choice of the response structure include:

Situational determinates of closed or open-ended questions

Some situational factors that will help to decide whether or not to use open or closed response questions include:

(i) Objective of the interview. If the objective is only to classify the respondent on some slaled point of view, then the c from solve well if question were to explore a wider territory, then an open response from would be more desirable. Open-ended response questions are appropriate when the objective is to discover opinions and degrees of knowledge.

(ii) Respondents level of information about the topic when the topic of a question is likely to be outside of the respondent’s experience, the open-ended question may be the better way to learn his or her level of information.

(iii)Degree to which respondent has thought through the topic: if the respondent has developed a clear opinion on the topic, a closed response question does well.

(iv)Ease of communication and motivation of respondent to talk. Closed questions typically take less motivation and the process of answering is less threatening to respondents.

**Open Ended Questions**

An open-ended question (unstructured free response) questions ask questions to which respondents can give any answer. What is your favorite TV program?

**Advantages of open ended questions**

Permit an unlimited number of possible answer

Respondents can answer in detail and can qualify and clarify responses

Unanticipated findings can be discovered

Permit adequate answers to complete questions

Permit creativity self expression, and riches of detail

Reveal a respondent’s logic, thinking process and frame of reference.

**Disadvantages of Open Ended Question**

Different respondents give different degree of details in detail answers- responses may not be consistent.

Responses may be irrelevant or buried in useless detail

Comparison and statistical analysis become very difficult.

Coding responses is difficult

Articulate and highly literature respondents have Ana advantage

Responses are written verbatim, which is difficult for interviewers.

Greater amount of resonant time, thought and effort in economy.

**Closed Questions**

Closed questions are typically categorized as dichotomous or multiple-choice questions

While the open response question has many advantages closed questions are generally preferable in large surveys. Closed questions are less costly to administer, reduce the variability of responses, make fever demands on interviewer skill, and are much easier to code and analyze. Two guideline should always be followed in the construction of closed ended questions.

* 1. The response categories provided should be exhaustive. They should include all the possible response that might be expected.
  2. The answer categories must be mutually exclusive. The respondent must not fell compelled to select more than one answer.

**Advantages of Closed Question**

Easier and quicker for respondents to answer

Easier to compare the answers of different respondents

Easier to code and statistically analyses

Response choices can clarify questions for respondents

Less articulate or less literature respondents are not at a disadvantage

**Disadvantages of Closed Questions**

Can suggest ideas that the respondents would not otherwise have

Respondents with no opinion or no knowledge can answer anyway

Respondents can be confused because of two many choices

Misinterpretation of questions can go unnoticed

Force people to make choices they want of not make in the real world

Two Way questions versus multiple-choice questions

Should a closed questions be a two way or multiple response questions are dictated by the nature of the problem. For dichotomous topic something is a fact or it is not, a respondent can recall or not recall the information. The most common type of two way questions is the YES and NO type questions.

On the other hand multiple-choice questions are clearly appropriate in those cases where there are more than two alternatives, or where one seeks graduations of preferences, interest, or agreement.

1. One problem is that the list may not be exhaustive. In other words, respondents may want to give an answer that is not one of the alternatives.
2. A second problem occurs when some response category has not been anticipated. (other specifies is often taken as the solution).
3. Another problem is the alternative selection occurs when the choices are not mutually exclusive . Two or more responses may be overlapping.

Example: why did you go to college?

Good academic reputation

Specific program of desire

Enjoyable campus life

Many friends for home attend

High quality for the faculty.

4. Still anther common problem of multiple-choice question is the assuring that all alternatives are reasonable.

5. The order of the choice can also be a problem

4. Question Sequence (Ordering Questions in a Questionnaire)

The order in which questions are asked can affect the response as well as the overall data collection activity. The appearance of the question can affect the answer given to subsequent questions. Generally the nature and needs of the respondent must determine the sequence of the questions and the organizations of the schedule. Some guides to improve quality include.

1. The question process must quickly awaken interest and motivate the respondent to participate in the interview. Choosing early interview questions that are attention getting and not controversial in subject on third does this. It is possible that the early questions will contribute hard data to the major study objectives, but their major task is to overcome the motivational barrier.
2. The respondent should not be confronted by early request for information that might be considered too personal of threatening. It is dangerous to ask any questions at the start that might appear to be personal or private.
3. The questioning process should begin with simple items and move to the more complex and from general items to the more specific. In other words they should move from simpler questions to more complex ones.
4. Changes in frame of reference should be minimal and should be clearly pointed out. Minimum shift of subject matter and frame of references is needed.

**General Questionnaire Format**

The formal of a questionnaire can be just as important as the nature and working of the questions asked. An improperly laid out questionnaire can lea respondents to miss questions, can lead to respondents throwing the questionnaire away.]

As a general rule, the questionnaire should be spread out properly. Inexperienced researchers tend to feal th they squeeze several questions on a single line, abbreviate questions, and by pages as possible. All these efforts are ill advised and even dangerous. Putting more than one question on a line will result in some respondents skipping the second questions. Abbreviating questions will result in misinterpret of the question. The desirability of spreading questions out in the questionnaire cannot be overemphasized. Squeezed together questionnaire are disastrous whether used in mail surveys or in interviews.

**Formats for Responses**

A variety of methods are available for presenting a series of responses categories for the respondent to check in answering, a given question

* Boxes
* Blank spaces
* Entering code numbers besides each response and circle.

*Providing Instructions*

Every questionnaire whether to be self administered by the an interviewer should contain clear instructions and introductory comments where appropriate.

*Generally instructions*

It is usefully to begin a questionnaire with basic instructions to be followed in completing it. The respondent should be told on how respond to specific questions.

*Introduction*

If a questionnaire is arranged into subsections it is useful to introduce each section with a short statement concerning its content and purpose.

*Specific Instructions*

Some questions may require special instructions to facilitate proper answering.

*Interviewers Instruction*

Where as a confusing self administered questionnaire can lower the morale of the respondent a confusing interview questionnaire can lower the morale of both the respondent and the interviewer and will endangered the efficiency of the latter. It is particularly important to provide clear complementary instruction where appropriate to interviewer.

*Reproducing the Questionnaire*

Having constructed questionnaire that will collect data revel event to the researchers aims and one that will be effectively processed, it is necessary to provide enough copies for the actual data collection. A neatly reproduced instrument will encourage a higher response rate, thereby providing better data.

Pre-coding :questionnaire should be pre coded to facilitate data entry and analysis.

Measurement in Research

Measurement is defined as the assignment of numbers to objects and events or observation according to logically accepted rules. It is the process of assigning of numbers to objects and observations. The things that we measure may be categorized either as objects or properties. The quality of a study depends on the adequacy of the research design and the appropriateness of the measuring concept and procedures. Objects include the things of ordinary experiences such as tables people, books and automobiles, etc. on the other hand properties are the characteristics of the objects. Example: a person’s physical properties may be stated in terms of weight, height, posture, colors, etc, his psychological properties included attitudes, intelligence, etc, and his social properties include leadership ability, class status, etc, these and many other objects and properties may be of an individual can be of measurement interest in a research study.

Some objects and properties can be measured directly, while direct measurement is not possible for others particularly properties. Properties such as age, years of experiences, height, weight, etc, are directly measurable. In contrast it is not easy to measure properties like motivation to succeed, ability to stand stress,(problem solving ability, persuasiveness, etc. under such case one can talk of the presence or the absence of such characteristics. We use some yardstick to measure. Through measurement we can test our hypothesis and theories.

*Measurement Scales*

There are several levels of measurement each of which are appropriate under given circumstances. In measuring one devises some form of scale and transfers the observations of property indicates into this scale .Scale classification employees the characteristics of real number systems. The most accepted scale conceptualizations are based on the following characteristics.

1. Numbers are ordered. One number is greater than, less than or equal to another number.
2. Differences between numbers are ordered. The difference between any pair of numbers is greater than, less than, or equal to the difference between any other pair of numbers.
3. The number series has a unique origin indicated by the number

According to one classification there are four levels of measurement scales. These are the

* + Nominal scale
  + Ordinal scale
  + Interval scale
  + Ratio scale

*Nominal scale*

In the social sciences nominal scales are probably more widely used than others. These are used mostly for describing qualitative or descriptive data. When one uses nominal scale one partition a set into subsets or categories that are mutually exclusive and collectively exhaustible. These are used when a set of objects among two or more categories are to be differentiated on the bias of qualitative differences.

Example: one might classify the respo0ndnets of a city according to their expressed preferences for a commodity into male and female. Sex, nationality, education level, professional rank, etc are some other examples.

Nominal scales are the least powerful of the four types of .They indicate no order or distance relationship and have no arithmetic origin. The counting of members in each group is the only possible matheratical operation when dealing with nominal data. The only quantification is the number of counts or cases in each of the subset. Thus one is restricted to the use of the mode as the measure of central tendency. No generally accepted measure of dispersion exists for nominal scale. Some of the most commonly used statistical test of significance include the chi-square test, the contingency coefficient, etc. while nominal scale are weak they are still useful. This scale is especially useful in exploratory work, the objective of which is to uncover relationships rather than secure precise measurement.

*Ordinal Scale*

These scales include the characteristics of the nominal scale plus an indicator of order. The ordinal scale places events in order. Ordinal measurement is possible when the transitivity postulate is justified. The postulate states that if a greater than b and b is greater than c, then a is greater than c, the use of ordinal scale c implies a statement of “greater than’ or ‘less than’ an equality statement is also acceptable) without stating how much grater or less. An ordinal concept can be generalized beyond the simple illustration of a>b>c.

*Interval Scale*

The interval scale has the power of nominal and ordinal scales plus one additional strength. It is trying to form differences. It incorporates the concept of equality of intervals (the distance between 1 and 2 equals the distance between 2 and 3).Example calendar time. The elapsed time between 3 and 6 a.m. equals the time between 4 and 7 a.m. centigrade and Fahrenheit temperature scales are other examples of interval scales. An increase in temperature from 3o degree involves the same increase in temperature as an increase from 60 to 70 degrees.

When a scale is interval one can use the arithmetic means as the measure of central tendency.

*Ratio Scale*

This is the highest level of measurement. These scales incorporate ail of the powers of pervious ones plus the concept of absolute zero or origin. The ration scale represents the actual amount of a variable. Measures of physical dimensions such as weight, height, income, distance, area, etc are example. All statistical techniques that alone can carry out with real numbers can be useable with the ratio scale. Multiplication and division can be sued with this scale.

Combination of these characteristics of order, distance and origin provided the widely used classification scales.

|  |  |  |
| --- | --- | --- |
| Types of Scale | Characteristic | Basic empirical operation |
| Nominal scale | No order, distance or origin | Determination of equality |
| Ordinal scale | Order but no distance of unique origin | Determination of greater/less vales |
| Interval scale | Both order and distance but no unique origin | Determination of equality of intervals or differences |
| Ration scale | Order, distance, and unique origin | Determination of equality of nation. |