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**DATA COLLECTION**

Data collection is the process of getting the information (data) that is useful to the study, and which will enable the researcher to answer the research questions and also test the hypotheses. It is an important step in the research process because those samples selected from the population will now have the opportunity of contributing to the research by providing the data. The research design often dictates the method of collection of data .

**METHODS OF DATA COLLECTION**

Information gathered using first approach is said to be collected from **primary sources** whereas the sources used in the second approach are called **secondary sources**. Examples of primary sources include determining the job satisfaction of the employees of an organisation and ascertaining the quality of service provided by workers. On the other hand, the use of a hospitals records to ascertain its activities, the collection of data from sources such as articles, journals, magazines, books, and periodicals to obtain historical and other types of information are all classified as secondary sources.

Data are organized into two broad categories**: qualitative and quantitative**

**QUALITATIVE DATA**

Are mostly non-numerical and usually descriptive or nominal in nature. This means the data collected are in the form of words and sentences. Often such data captures feelings, emotions or subjective perceptions of something. Qualitative approaches aim to address the ‘how’ and ‘why’ of a program and tend to use unstructured method of data collection to fully explore the topic. Qualitative questions are open ended. Qualitative methods include **focus group**s, **interview** and **observation.**

Qualitative data collection methods play an important role in impact evaluation by providing information useful to understand the processes behind observed results and assess changes in people’s perceptions of their wellbeing. These methods can be used to improve the quality of survey-based quantitative evaluations by helping generate evaluation hypothesis; strengthening the design of survey questionnaires and expanding or clarifying quantitative evaluation findings. These methods are characterized by the following attributes-

* They tend to be open-ended and have less structured protocols (i.e., researchers may change the data collection strategy by adding, refining or dropping techniques or informants).
* They rely more heavily on interactive interviews; respondents may be interviewed several times to follow up on a particular issue, clarify concepts or check the reliability of data.
* They use triangulation to increase the credibility of their findings (i.e., researchers rely on multiple data collection methods to check the authenticity of their results).

The researcher needs to record any potentially useful data thoroughly, accurately, and systematically, using field notes, sketches, audiotapes, photographs, and other suitable means. The data collection methods must observe the ethical principles of research. The qualitative methods most commonly used in evaluation can be classified in three broad categories-

1. **INTERVIEW**

Interviewing involves asking questions and getting answers from participants in a study. Interviewing has a variety of forms including: individual, face-to-face interviews and face-to-face group interviewing. The asking and answering of questions can be mediated by the telephone or other electronic devices (e.g. computers). Interviews can be:

* Structured
* Semi-structure
* Unstructured

### **Structured Interview** – in which the researcher reads the questions to the subjects from a prepared interview guide and records the answers as they respond, on the guide, or with tapes etc., as permitted by the subjects

### **Characteristics of the Structured Interview**

* The interviewer asks each respondent the same series of questions.
* The questions are created prior to the interview, and often have a limited set of response categories.
* There is generally little room for variation in responses and there are few open-ended questions included in the interview guide.

Self-administered questionnaires are a type of structured interview.

**Unstructured Interview**– in which the researcher has outlines or areas of the content, but no ready questions as in the guide. The manner of questioning may vary as the researcher can modify, expand or probe more during the interview to obtain the appropriate data.

**Example of unstructured interviews**: A researcher asking a broad grand tour question such as, “What happened when you ﬁrst learned that you had AIDS?” Subsequent questions are guided by initial responses.

**Characteristics of Unstructured Interviews**

* The interviewer and respondents engage in a formal interview in that they have a scheduled time to sit and speak with each other and both parties recognize this to be an interview.
* The interviewer has a clear plan in mind regarding the focus and goal of the interview. This guides the discussion.
* There is not a structured interview guide. Instead, the interviewer builds rapport with respondents, getting respondents to open-up and express themselves in their own way.

**Semi-Structured Interview**

Semi-structured (or focused) interviews are used when researchers have a list of topics or broad questions that must be addressed in an interview. Interviewers use a written topic guide (or interview guide) to ensure that all question areas are covered. The interviewer’s function is to encourage participants to talk freely about all the topics on the guide.

**Characteristics of Semi-Structured Interviews**

* The interviewer and respondents engage in a formal interview.
* The interviewer develops and uses an ‘interview guide’. This is a list of questions and topics that need to be covered during the conversation, usually in a particular order.
* The interviewer follows the guide, but is able to follow topical trajectories in the conversation that may stray from the guide when s/he feels this is appropriate.

**Example of a semi-structured interview:** A researcher explored the perceived impact of childhood leukaemia on the career development and expectations of young adult survivors via semi-structured interviews with 11 young men and women. Examples of questions they asked are: “How, if at all, has your cancer diagnosis affected your educational plans?” and “Tell me about your future”

**Focus group interviews:** theseare interviews with groups of about 5 to 10 people whose opinions and experiences are solicited simultaneously. The interviewer (or moderator) guides the discussion according to a topic guide. The advantages of a group format are that it is efﬁcient and can generate a lot of dialogue—although not everyone is comfortable sharing their views or experiences in front of a group. Focus groups have been used by researchers in many qualitative traditions, and can play a particularly important role in feminist, critical theory, and participatory action research.

**Example of focus group interviews**: Sivan and colleagues (2008) conducted a focus group study to learn about how parents from different racial or ethnic and income groups view children’s behaviour problems and two instruments used to assess them. Fifteen focus groups (separate ones for mothers and fathers from three racial or ethnic backgrounds) were conducted at an urban medical centre. An example of a question from the interview guide is: “If you saw a child aged 2 to 4 years old in your neighbourhood and you said to yourself, ‘Wow, that kid’s got problems!’ what behaviour would you be seeing?”

1. **OBSERVATION**

It is the method of data collection that involves watching and noting of behaviours or activities of the research subjects that are of interest to the researcher. It is the most applicable method in many researches that involve performance, as in nursing. With observation, the researcher has a record of what is observed in narrative form, or on a schedule that has some categories, or a checklist that shows the expected behaviours. Observation is planned, and all the behaviours of importance must be clearly identified, and stated on the observation schedule. Observation considers what should be observed, how it should be recorded, how the accuracy will be ensured, and what relationship exists between the observer and the subjects. Clear definitions of the kinds of behaviour to be observed will enhance the accuracy and objectivity of the data.

**Classification of Observational Method**

Observational methods can be classified as follows:

**Natural Observation**: Natural observation involves observing the behaviour in a normal setting and in this type of observation, no efforts are made to bring any type of change in the behaviour of the observed.

**Subjective and Objective Observation**: All the observations consist of the two main components, the subject and the object. The subject refers to the observer whereas the object refers to the activity or any type of operation that is being observed. Subjective observation involves the observation of the one’s own immediate experience whereas the observations involving observer as an entity apart from the thing being observed, are referred to as the objective observation. Objective observation is also called as the retrospection.

**Direct and Indirect Observation:** With the help of the direct method of observation, one comes to know how the observer is physically present in which type of situation is he present and then this type of observation monitors what takes place. Indirect method of observation involves studies of mechanical recording or the recording by some of the other means like photographic or electronic. Direct observation is relatively more straight forward as compared to the indirect observation.

**Participant and Non Participant Observation:** Participation by the observers with the various types of operations of the group under study refers to the participant type of observation. In participant observation, the degree of the participation is largely affected by the nature of the study and it also depends on the type of the situation and also on its demands. But in the non-participant type of observation, no participation of the observer in the activities of the group takes place and also there occurs no relationship between the researcher and the group.

1. **LIFE HISTORIES**

life histories are narrative self-disclosures about individual life experiences. With this approach, researchers ask respondents to describe, often in chronologic sequence, their experiences regarding a specified theme, either orally or in writing. Some researchers have used this approach to obtain a total life health history. Personal diaries have long been used as a source of data in historical research. It is also possible to generate new data for a study by asking participants to maintain a diary or journal over a speciﬁed period.

1. **DIARIES**

Dairies can be useful in providing an intimate description of a person’s everyday life. The diaries may be completely unstructured; for example, individuals who have undergone organ transplantation could be asked simply to spend 10 to 15 minutes a day jotting down their thoughts. Frequently, however, subjects are requested to make entries into a diary regarding some speciﬁc aspect of their experience, sometimes in a semi-structured format.

**Example of diaries:** Bray (2007) explored the inpatient experiences of adolescents, aged 13 to 16, during their hospitalization for a planned surgery. The youth were asked to keep unstructured diaries of their experiences during their hospital stay, and they were also interviewed 2 weeks after discharge. The diaries provided data and also served to aid discussion in the interviews.

**QUANTITATIVE DATA**

Quantitative data is numerical in nature and can be mathematically computed. Quantitative data measure uses different scales, which can be classified as nominal scale, ordinal scale, interval scale and ratio scale. Often (not always), such data includes measurements of something. Quantitative approaches address the ‘what’ of the program. They use a systematic standardized approach and employ methods such as surveys and ask questions. Quantitative approaches have the advantage that they are cheaper to implement, are standardized so comparisons can be easily made and the size of the effect can usually be measured. Quantitative approaches however are limited in their capacity for the investigation and explanation of similarities and unexpected differences. It is important to note that for peer-based programs quantitative data collection approaches often prove to be difficult to implement for agencies as lack of necessary resources to ensure rigorous implementation of surveys and frequently experienced low participation and loss to follow up rates are commonly experienced factors. Typical quantitative data gathering strategies include:

## **QUESTIONNAIRES**

A questionnaire is a research instrument consisting of series of questions and other prompts for the purpose of gathering information from respondents. Although they are often designed for statistical analysis of the responses. The questionnaire was invented by Sir Francis Galton (1822-1911).

Questionnaires often make use of checklist and rating scales. These devices help simplify and quantify people's behaviours and attitudes. A **checklist** is a list of behaviours, characteristics, or other entities the researcher is looking for. Either the researcher or survey participant simply checks whether each item on the list is observed, present or true or vice versa. A **rating scale** is more useful when a behaviour needs to be evaluated on a continuum. They are also known as **Likert scales**.

### **Mail questionnaires**

**Advantages**

* Can be sent to a large number of people.
* Saves the researcher time and money compared to interviewing.
* People are more truthful while responding to the questionnaires regarding controversial issues in particular due to the fact that their responses are anonymous.
* Allow the respondent to answer at their leisure.

**Disadvantages***:*

* In most cases, the majority of people who receive questionnaires don't return them.

Therefore:

* Over‐sampling may be necessary if doing a one‐time mail out in order to get enough completed questionnaires to be generalizable to the population.
* Follow‐up reminders to participants encouraging them to complete the questionnaire may be necessary, thereby increasing the time and cost to conduct the study.
* May need to offer incentives to increase response rate.
* Time – mail surveys take longer than other types of surveys.

**Example of mail questionnaire**

Kennedy-Malone and colleagues (2008) surveyed a random sample of gerontologic nurse practitioners (GNPs) to identify their prescribing patterns and other practice characteristics. Questionnaires were mailed to 1,000 GNPs.

**Web‐based questionnaires:**

A new and inevitably growing methodology is the use of Internet based research. This would mean receiving an e‐mail on which you would click on an address that would take you to a secure web‐site to fill in a questionnaire.

**Advantages:**

* This type of research is often quicker and less detailed.
* Very cost effective.

**Disadvantages:**

* Excludes people who do not have a computer or are unable to access a computer.  Need to have access to email addresses.
* Many worksites have screening mechanisms in place blocking access to employee emails.

The validity of such surveys may be in question as people might be in a hurry to complete it and so might not give accurate responses.

1. **EXPERIMENTS**

Clinical trials fall under experiments. They are considered to be a form of experiment, and are quantitative in nature. These methods involve manipulation of independent variable, while maintaining varying degrees of control over other variable, most likely the dependent ones. Usually, this is employed to obtain data that will be used later on for analysis of relationships and correlations.

Quantitative researches often make use of experiment to gather data and the types of experiments include:

**Laboratory Experiments:** This is the typical scientific experiment setup, taking place within a confined, closed and controlled environment (the laboratory), with the data collector being able to have strict control over all the variables. This level of control also implies that he can fully and deliberately manipulate the independent variable.

**Field Experiment:** This takes place in the natural experiment, “on field” where, although the data collector may not be in full control of the variables, he is still able to do so up to a certain extent. Manipulation is still possible although not as deliberate in a laboratory setting.

**Natural Experiment:** This time, the data collector has no control over the independent variable whatsoever which means it cannot be manipulated. Therefore, what can only be done is to gather data by letting the independent variable occur naturally, and observe its effect.