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**ASSIGNMENT**

**DATA COLLECTION METHODS**

Data collection can be defined as the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test, hypothesis, and evaluate outcomes. Data collection is the most important stages in conducting a research.

**Types of Data**

* Primary Data
* Secondary Data

**Primary Data**

The data gathered by the researcher first-hand is primary data. The researcher collects such data on purpose, because no previous records of the data exists to be accessed by public. Primary data is considered as highly reliable.

Importance of Primary Data: In statistical survey it is necessary to get information from primary sources and work on Primary data.

Sources of Primary Data: Experiments, Interview, Survey, Questionnaire, Observations etc.

Advantages of Primary Data

* There is no doubt about the quality of the data collected (for the investigator)
* The investigator collects data specific to the problem under study
* If required, it may be possible to obtain additional data during the study period.

Disadvantages of Primary Data

* Cost of obtaining the data is often the major expense in studies.
* The investigator has to contend with all the hassles of data collection.
* Ensuring the data collected of a high standard

**Secondary Data**

The data that have been collected and compiled by someone. And are accessible to the public, are known as secondary data. It is the data used by the investigator from previous studies and other studies. The primary data collected for one research study, becomes secondary data when it is further used to another research. For example, census data being used to analyze the impact of education on career choice and earning.

Importance of Secondary data: secondary data can be less valid but its importance is still there. Sometimes it is difficult to obtain primary data, in these cases getting information from secondary sources is easier and possible. Sometimes primary data does not exist in such situations one has to confine the research on secondary data.

Sources of Secondary Data: books, records, newspapers, data archieves, internet articles, databases etc.

Advantages of Secondary Data:

* It is less expensive
* No hassles of data collection
* The investigator is not personally responsible for the quality of data.

Disadvantages of Secondary Data

* Data collected in one location may not be suitable for the other one due variable environmental factor.
* The data collected by the third party may not be a reliable party so the reliability and accuracy of data go down.
* Secondary data can also raise issues of authenticity and copyright.

Data Collection Methods Includes:

* Quantitative Data Collection Methods
* Qualitative Data Collection Methods

**Quantitative Data Collection Methods**

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 data collection methods rely on random sampling and structured data collection instruments that fit diverse experiences into predetermined response categories. They produce results that are easy to summarize, compare, and generalize. If the intent is to generalize from the research participants to a larger population, the researcher will employ probability sampling to select participants.

Examples of quantitative data collection methods includes:

**Probability Sampling**

A definitive method of sampling carried out by utilizing some form of random selection and enabling researchers to make a probability statement based on data collected at random from the targeted demographic. One of the best things about probability sampling is it allows researchers to collect data from representatives of the population they are interested in studying.

There are three significant types of probability sampling:

* **Simple random sampling:** More often targeted demographic is chosen for inclusion in the sample.
* **Systematic random sampling:** Any of the targeted demographic would be included in the sample, but only the first unit for inclusion in the sample is selected randomly, rest are selected in the ordered fashion as if one out of every ten people on the list.
* **Stratified random sampling:** It allows selecting each unit from a particular group of the targeted audience while creating a sample.

**Interviews**

Interviewing people is a standard method used for data collection. However, the interviews conducted to collect quantitative data are more structured, where in the researchers ask only a standard set of questions and nothing more than that.

There are major types of interviews conducted for data collection:

* **Telephone interviews**: For years telephone interviews ruled the charts of data collection methods. However, nowadays, there is a significant rise in conducting video interviews usin the internet, skype, or similar online video calling platforms.
* **Face-to-face interviews:** It is a proven technique to collect data direct from the participants. It helps in acquiring quality data as it provide a scope to ask detailed questions and probing further to collect rich and informative data.
* **Computer-Assisted Personal Interviewing (CAP):** It is nothing but a similar set up of the face-to-face interview where the interviewer carries a desktop or laptop along with him at the time of the interview directly into the database. CAP save a lot of time in updating and processing the data and also makes the entire process paperless as the interviewer does not carry a bunch of papers and questionnaires

**Surveys/ Questionnaires**

Surveys or questionnaires created using online survey software are playing a pivotal role in online data collection be it a quantitative or qualitative research. The survey are designed in a manner to legitimize the behavior and trust f the respondent.

There are two significant types of survey questionnaires used to collect online data for quantitative market research.

* **Web-based questionnaire:** This is one of the ruling and most trusted methods for internet based research or online research. In web-based questionnaire, they receive an email containing the survey link, clicking on which takes the respondent to a secure online survey tool from where he/she can take the survey or fill in the survey questionnaire. The primary benefit of web-based questionnaire is flexibility; respondents are free to take the survey in their free time using either a desktop, laptop, tablet, or mobile.
* **Mail Questionnaire:** In a mail questionnaire, the survey is mailed out to a host of the sample population, enabling the researcher to connect with a wide range of audiences. The mail questionnaire typically consists of a packet containing a cover sheet that introduces the audiences about the type of research and reason why it is being conducted along with prepaid return to collect data online. One of the benefits of mail questionnaire is all the responses are anonymous, and respondents are allowed to take as much time as they want to complete the survey and be completely honest about the answer without the fear of prejudice.
* Paper-to pencil questionnaire can be sent to large number of people and saves the researcher time and money. People are more truthful while responding to the questionnaires regarding controversial issues in particular due to the fact that their responses are anonymous.

**Observation**

In this method, researchers collect quantitative data through systematic observations by using techniques like counting the number of people present at the specific event at a particular time and a particular venue or number of people attending the event in a designated place. Structured observation is more used to collect quantitative data.

* **Structured Observation:** in this type of observation method, the researcher has to make careful observations of one or more specific behaviors in a more comprehensive or structured setting compared to a naturalistic or participant observation. In a structured observation, the researcher, rather than observing everything, focus only on very specific behaviors of interest.

**Document Review**

Document review is a process used to collect data after reviewing the existing documents. It is an efficient and effective way of gathering data as documents are manageable and are practical resource to get qualified data from the past. Three primary document types are being analyzed for collecting supporting quantitative research data:

* **Public Record:** under this document review, official, ongoing records of an organization are analyzed further research. For example, annual reports, student activities, policy manuals etc
* **Personal Documents:** in contrast to public documents, this type of document review deals with individual personal accounts of individual actions, behavior, health and physique etc.
* **Physical Evidence:** physical evidence or physical documents deals with previous achievements of an individual or of an organization in terms of monetary and scalable growth.

**Qualitative Data Collection Methods**

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 (not always), such data captures feelings, emotions, or subjective perceptions of something.

Qualitative data collection method plays 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 well-being. Furthermore qualitative 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.

Examples of Qualitative Data Collection Methods which includes:

**Interviews**

Interviews are useful to explore experiences, views, opinions, or beliefs on specific matters. There are different grades of structuring the interview: structured, semi-structured or open/ in depth, dependent on the characteristics of structuring the interview by the researcher. Often the researcher develops a topic list before the start of the interview, which can be used in a flexible manner. As the interview is a product of interaction between the researcher and the interviewee, the setting and skills of the researcher are of importance ( e.g the ability to build a sense of trust (developing rapport), the way of phrasing questions, give the interviewee room to tell a story, body language).

**Focus Group Discussion**

Focus group discussion are useful to examine how social knowledge is produced, the researcher stimulates discussion in order to examine how knowledge and ideas develop and operate in a given group. Most of the times, a facilitator guides a discussion about a particu8lar topic in a group of usually 6-12 people. Some sensitive issues might be more easy discussed within a group, although other (personal) information might be withheld, or instance when persons are acquainted with each other or because of hierarchical relations within the group. The role of the facilitator is to create an open atmosphere, involve participants in the discussion and manage this discussion. The organization of a focus group requires careful attention. This includes the sampling and recruitment of participants, the composition of the topic list and how the data will be collected.

**Observational Methods**

Observational methods are used to understand phenomena by studying people’s accounts and actions in everyday context. There are different types of observations, with various degree of research participants, like non-participating observation (e.g video calling) and participants observation or ethnography. Ethnography usually involves the researcher participating, overtly or covertly, in people daily lives for an extended period of time, watching what happens, listening to what is said, and/or asking questions through formal and informal interviews, collecting documents and artefacts. Direct observation is one of the most passive qualitative data collection methods. Due to its participatory nature, direct observation can lead to bias in research, as the participatory may influence the attitudes and opinions of the researcher, making it challenging for them to remain objective. Plus, the fact that researcher is a participant too can affect the naturalness of the actions and behaviors of subjects who they are being observed.

**Document Analysis**

Document analysis is based on existing sources, like government reports, personal document, articles in newspapers, books or medical records.