Quadrant II – Transcript / Notes

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Data is a set of values of subjects with respect to qualitative or quantitative variables. **Data** is raw, unorganized facts that need to be processed. When **data** is processed, organized, structured or presented in a given context so as to make it useful, it is called information.

When working with statistics, it's important to recognize the different types of data: numerical (discrete and continuous), categorical, and ordinal.

Data are the actual pieces of information that you collect through your study.

For example, if you ask five of your friends how many pets they own, they might give you the following data: 0, 2, 1, 4, 18. (The fifth friend might count each of her aquarium fish as a separate pet.) Not all data are numbers; let's say you also record the gender of each of your friends, getting the following data: male, male, female, male, female.

Numerical data: These data have meaning as a measurement, such as a person's height, weight, IQ, or blood pressure; or they're a count, such as the number of stock shares a person owns, how many teeth a dog has, or how many pages you can read of your favorite book before you fall asleep. (Statisticians also call numerical data *quantitative data.*)

Numerical data can be further broken into two types: discrete and continuous.

- *Discrete data* represent items that can be counted; they take on possible values that can be listed out.
- *Continuous data* represent measurements; their possible values cannot be counted and can only be described using intervals on the real number line.

Categorical data: Categorical data represent characteristics such as a person's gender, marital status, hometown, or the types of movies they like. Categorical data can take on numerical values (such as "1" indicating male and "2" indicating female), but those numbers don't have mathematical meaning. You couldn't add them together, for example. (Other names for categorical data are *qualitative data*, or *Yes/No data.*)

Ordinal data is a categorical, statistical **data type** where the variables have natural, ordered categories and the distances between the categories is not known.

What is Primary Data?

Primary data is a type of data that is collected by researchers directly from main sources through interviews, surveys, experiments, etc. Primary data are usually collected from the source—where the data originally originates from and are regarded as the best kind of data in research.

The sources of primary data are usually chosen and tailored specifically to meet the demands or requirements of a particular research. Also, before choosing a data

collection source, things like the aim of the research and target population need to be identified.

Primary Data Collection Methods

Primary data collection methods are different ways in which primary data can be collected. It explains the tools used in collecting primary data, some of which are highlighted :

- **Interviews**:

Interview is a **method of data collection** that involves two groups of people, where the first group is the interviewer (the researcher(s) asking questions and collecting data) and the interviewee (the subject or respondent that is being asked questions). The questions and responses during an interview may be oral or verbal as the case may be.

Interviews can be carried out in 2 ways, namely; in-person interviews and telephonic interviews. An in-person interview requires an interviewer or a group of interviewers to ask questions from the interviewee in a face to face fashion.

It can be direct or indirect, structured or unstructured, focused or unfocused, etc. Some of the tools used in carrying out in-person interviews include a notepad or recording device to take note of the conversation—very important due to human forgetful nature.

Telephonic interviews, on the other hand, are carried out over the phone through ordinary voice call or video calls. The 2 parties involved may decide to use video calls like Skype to carry out interviews.

A mobile phone, Laptop, Tablet or desktop computer with an internet connection is required for this

- **Surveys & Questionnaires**

Surveys and questionnaires are 2 similar tools used in collecting primary data. They are a group of questions typed or written down and sent to the sample of study to give responses.

After giving the required responses, the survey is given back to the researcher to record. It is advisable to conduct a pilot study where the questionnaires are filled by experts and meant to assess the weakness of the questions or techniques used.

There are 2 main types of surveys used for data collection, namely; online and offline surveys. Online surveys are carried out using internet-enabled devices like mobile phones, PCs, Tablets, etc.

They can be shared with respondents through email, websites, or social media. Offline surveys, on the other hand, do not require an internet connection for it to be carried out.

The most common type of offline survey is paper-based surveys. However, there are also offline surveys like Formplus that can be filled with a mobile device without access to an internet connection.

This kind of survey is called online-offline surveys because they can be filled offline but require an internet connection to be submitted.

- **Observation**

Observation method is mostly used in studies related to behavioral science. The researcher uses observation as a scientific tool and method of data collection. Observation as a data collection tool is usually systematically planned and subjected to checks and controls.

There are different approaches to the observation method—structured or unstructured, controlled or uncontrolled, and participant, non-participant, or disguised approach.

The structured and unstructured approach is characterized by careful definition of subjects of observation, style of observer, conditions, and selection of data. An observation process that satisfies this is said to be structured and vice versa.

A controlled and uncontrolled approach signifies whether the research took place in a natural setting or according to some pre-arranged plans. If an observation is done in a natural setting, it is uncontrolled but becomes controlled if done in a laboratory.

Before employing a new teacher, academic institutions sometimes ask for a sample teaching class to test the teacher's ability. The evaluator joins the class and observes the teaching, making him or her a participant.

The evaluation may also decide to observe from outside the class, becoming a non-participant. An evaluator may also be asked to stay in class and disguise as a student, in order to carry out a disguised observation.

Focus Groups

Focus groups are gathering of 2 or more people with similar characteristics or who possess common traits. They seek open-ended thoughts and contributions from participants.

A focus group is a primary source of data collection because the data is collected directly from the participant. It is commonly used for market research, where a group of market consumers engage in a discussion with a research moderator.

It is slightly similar to interviews, but this involves discussions and interactions rather than questions and answers. Focus groups are less formal and the participants are the ones who do most of the talking, with moderators there to oversee the process.

An experiment is a structured study where the researchers attempt to understand the causes, effects, and processes involved in a particular process. This data collection method is usually controlled by the researcher, who determines which subject is used, how they are grouped and the treatment they receive.

During the first stage of the experiment, the researcher selects the subject which will be considered. Some actions are therefore carried out on these subjects, while the primary data consisting of the actions and reactions are recorded by the researcher.

After which they will be analyzed and a conclusion will be drawn from the result of the analysis. Although experiments can be used to collect different types of primary data, it is mostly used for data collection in the laboratory.

Pros

- It is usually objective since the data recorded are results of a process.
- Non-response bias is eliminated.

Cons

- Incorrect data may be recorded due to human error.

Secondary data is the data that have been already collected by and readily available from other sources. Such data are cheaper and more quickly obtainable than the primary data and also may be available when primary data cannot be obtained at all.