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 **QUATITATIVE DATA METHOD COLLECTIONS**

Data collection is defined as the “process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer queries, stated research questions, test hypotheses, and evaluate outcomes.”

Quantitative data deals with things that are measurable and can be expressed in numbers or figures, or using other values that express quantity. That being said, quantitative data is usually expressed in numerical form and can represent size, length, duration, amount, price, and so on.

Quantitative research is most likely to provide answers to questions such as who? When? where ? what ? And how many?

Quantitative survey questions are in most cases closed-ended and created in accordance with the research goals, thus making the answers easily transformable into numbers, charts, graphs, and tables.

Typical quantitative data gathering strategies include

* Experiments/clinical trials.
* Observing and recording well-defined events (e.g., counting the number of patients waiting in emergency at specified times of the day).
* Obtaining relevant data from management information systems.
* Administering surveys with closed-ended questions (e.g., face-to face and telephone interviews, questionnaires etc).

 **Data Collection Methods**

**Quantitative data collection methods**

**1. Closed-ended Surveys and Online Quizzes**

Closed-ended surveys and online quizzes are based on questions that give respondents predefined answer options to opt for. There are two main types of closed-ended surveys – those based on categorical and those based on interval/ratio questions.

Categorical survey questions can be further classified into dichotomous (‘yes/no’), multiple-choice questions, or checkbox questions and can be answered with a simple “yes” or “no” or a specific piece of predefined information.

Interval/ratio questions, on the other hand, can consist of rating-scale, Likert-scale, or matrix questions and involve a set of predefined values to choose from on a fixed scale

**2. Experiments**

Have you ever wondered where clinical trials fall? They are considered to be a form of experiment, and are quantitative in nature. These methods involve manipulation of an independent variable, while maintaining varying degrees of control over other variables, 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 experiments to gather data, and the types of experiments are:

1. Laboratory experiments.
2. Field experiments.
3. Natural experiments.

**3. Surveys/questionnaires**

Surveys or questionnaires created using online survey software are playing a pivotal role in online data collection be is quantitative research. The surveys are designed in a manner to legitimize the behavior and trust of the respondents. More often, checklists and rating scale type of questions make the bulk of quantitative surveys as it helps in simplifying and quantifying the attitude or behavior of the respondents.

There can be

**Web-based questionnaire**: This is one of the ruling and most trusted methods for internet-based research or online research. In a web-based questionnaire, the 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. Being a cost-efficient, quicker, and having a wider reach, web-based surveys are more preferred by the researchers. The primary benefit of a web-based questionnaire is flexibility; respondents are free to take the survey in their free time using 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 audience about the type of research and reason why it is being conducted along with a prepaid return to collect data online. Although the mail questionnaire has a higher churn rate compared to other quantitative data collection methods, adding certain perks such as reminders and incentives to complete the survey help in drastically improving the churn rate. One of the major benefits of the 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-pencil-questionnaires**; can be sent to a 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. But they also have drawbacks. Majority of the people who receive questionnaires don't return them and those who do might not be representative of the originally selected sample.

**4. Observation**

As the name suggests, it is a pretty simple and straightforward method of collecting quantitative data. 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. More often, for quantitative data collection, the researchers have a naturalistic observation approach that needs keen observation skills and senses for getting the numerical data about the “what” and not about “why” and ”how.”