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# Data Collection Methods

Data collection is a process of collecting information from all the relevant sources to find answers to the research problem, test the hypothesis and evaluate the outcomes. Data collection methods can be divided into two categories: secondary methods of data collection and primary methods of data collection.

[Quantitative data collection methods](https://research-methodology.net/research-methods/quantitative-research/) are based in mathematical calculations in various formats. Methods of quantitative data collection and analysis include questionnaires with closed-ended questions, methods of correlation and regression, mean, mode and median and others.

[Qualitative research methods](https://research-methodology.net/research-methods/qualitative-research/), do not involve numbers or mathematical calculations. Qualitative research is closely associated with words, sounds, feeling, emotions, colours and other elements that are non-quantifiable.

## METHODS OF DATA COLLECTION

**I. Qualitative Data Collection Methods**

These methods are mainly concerned at gaining insights and understanding on underlying reasons and motivations, so they tend to dig deeper. Since they cannot be quantified, measurability becomes an issue. This lack of measurability leads to the preference for methods or tools that are largely unstructured or, in some cases, maybe structured but only to a very small, limited extent.

#### Face-to-Face Personal Interviews

This the most common data collection instrument for qualitative research, primarily because of its personal approach. The interviewer will collect data directly from the subject, face-to-face interaction. This is ideal for when data to be obtained must be highly personalized.

The interview may be informal and unstructured – conversational, even as if taking place between two casual to close friends. The questions asked are mostly unplanned and spontaneous, with the interviewer letting the flow of the interview dictate the next questions to be asked. This methods is subject to certain limitations, such as language barriers, culture differences, and geographical distances.

The person conducting the interview must have very good interviewing skills in order to elicit responses.

#### Qualitative Surveys

**Paper surveys or questionnaires:** Questionnaires often utilize a structure comprised of short questions and, in the case of qualitative questionnaires, they are usually open-ended, with the respondents asked to provide detailed answers, in their own words. It’s almost like answering essay questions.

**Web-based questionnaires:**This is basically a web-based or internet-based survey, involving a questionnaire uploaded to a site, where the respondents will log into and accomplish electronically. Instead of a paper and a pen, they will be using a computer screen and the mouse.

There is a limitation on the respondents, since the only ones to be able to answer are those who own a computer, have internet connection, and know their way around answering online surverys.

#### Focus Groups

#### [Focus groups method](https://www.cleverism.com/lexicon/focus-group/) is basically an interview method, but done in a group discussion setting. When the object of the data is behaviors and attitudes, particularly in social situations, and resources for one-on-one interviews are limited, using the focus group approach is highly recommended. Ideally, the focus group should have at least 3 people and a moderator to around 10 to 13 people maximum, plus a moderator.

Depending on the data being sought, the members of the group should have something in common. For example, a researcher conducting a study on the recovery of married mothers from alcoholism will choose women who are (1) married, (2) have kids, and (3) recovering alcoholics. Other parameters such as the age, employment status, and income bracket do not have to be similar across the members of the focus group.

The topic that data will be collected about will be presented to the group, and the moderator will open the floor for a debate. Much of the success of the discussion within the focus group lies in the hands of the moderator. He must be highly capable and experienced in controlling these types of interactions.

#### Documental Revision

This method involves the use of previously existing and reliable documents and other sources of information as a source of data to be used in a new research or investigation. This is linked to how the data collector will go to a library and go over the books and other references for information relevant to what he is currently researching on.

#### Observation

In this method, the researcher takes a participatory stance, immersing himself in the setting where his respondents are, and generally taking a look at everything, while taking down notes.

Aside from note-taking, other documentation methods may be used, such as video and audio recording, photography, and the use of tangible items such as artifacts, mementoes, and other tools.The participatory nature may lead to the researcher getting more reliable information.

#### Longitudinal studies

This is a research or data collection method that is performed repeatedly, on the same data sources, over an extended period of time. It is an observational research method that could even cover a span of years and, in some cases, even decades. The goal is to find correlations through an empirical or observational study of subjects with a common trait or characteristic.

An example of this is the [Terman Study of the Gifted](http://lifecourse.web.unc.edu/research_projects/terman/) conducted by Lewis Terman at Stanford University. The study aimed to gather data on the characteristics of gifted children – and how they grow and develop – over their lifetime.Terman started in 1921, and it extended over the lifespan of the subjects, more than 1,500 boys and girls aged 3 to 19 years old, and with IQs higher than 135.over a period of time, particularly over an extended period of time.

#### Case Studies

In this qualitative method, data is gathered by taking a close look and an in-depth analysis of a “case study” or “case studies” – the unit or units of research that may be an individual, a group of individuals, or an entire organization.This methodology’s versatility is demonstrated in how it can be used to analyze both simple and complex subjects.

However, the strength of a case study as a data collection method is attributed to how it utilizes other data collection methods, and captures more variables than when a single methodology is used. In analyzing the case study, the researcher may employ other methods such as interviewing, floating questionnaires, or conducting group discussions in order to gather data.

### II. Quantitative Data Collection Methods

Data can be readily quantified and generated into numerical form, which will then be converted and processed into useful information mathematically. The result is often in the form of statistics that is meaningful and, therefore, useful. Unlike qualitative methods, these quantitative techniques usually make use of larger sample sizes because its measurable nature makes that possible and easier.

#### Quantitative Surveys

Unlike the open-ended questions asked in qualitative questionnaires, quantitative paper surveys pose closed questions, with the answer options provided. The respondents will only have to choose their answer among the choices provided on the questionnaire. Similarly, these are ideal for use when surveying large numbers of respondents.

#### Interviews

Personal one-on-one interviews may also be used for gathering quantitative data. In collecting quantitative data, the interview is more structured than when gathering qualitative data, comprised of a prepared set of standard questions.

These interviews can take the following forms:

**Face-to-face interviews:**Much like when conducting interviews to gather qualitative data, this can also yield quantitative data when standard questions are asked. The face-to-face setup allows the researcher to make clarifications on any answer given by the interviewee.

**Telephone and/or online, web-based interviews:**Conducting interviews over the telephone is no longer a new concept. Rapidly rising to take the place of telephone interviews is the video interview via internet connection and web-based applications, such as Skype.

**Computer-assisted interviews.**This is called CAPI, or Computer-Assisted Personal Interviewing where, in a face-to-face interview, the data obtained from the interviewee will be entered directly into a database through the use of a computer.

#### Quantitative Observation

This is straightforward enough. Data may be collected through systematic observation by, say, counting the number of users present and currently accessing services in a specific area, or the number of services being used within a designated vicinity. When quantitative data is being sought, the approach is naturalistic observation, which mostly involves using the senses and keen observation skills to get data about the “what”, and not really about the “why” and “how”. It is a quite simple way of collecting data, and not as expensive as the other methods.

#### 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:

**Laboratory experiments.**This is your 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 experiments.**This takes place in a natural environment, “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 as in a laboratory setting.

**Natural experiments.**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 effects.

You can probably name several other data collection methods, but the ones discussed are the most commonly used approaches. At the end of the day, the choice of a collection method is only 50% of the whole process. The correct usage of these methods will also have a bearing on the quality and integrity of the data being sought.