**TTU 1st year level**

[**What is data analysis in research?**](https://www.questionpro.com/blog/data-analysis-in-research/)

Definition of research in data analysis:According to *LeCompte* and *Schensul*, research data analysis is a process used by researchers for reducing data to a story and interpreting it to derive insights. The data analysis process helps in reducing a large chunk of data into smaller fragments, which makes sense.

Three essential things take place during the data analysis process — the first data organization. Summarization and categorization together contribute to becoming the second known method used for data reduction. It helps in finding patterns and themes in the data for easy identification and linking. Third and the last way is data analysis – researchers do it in both top-down or bottom-up fashion.

Marshall and Rossman, on the other hand, describe [data analysis](https://www.questionpro.com/blog/data-analysis-simple-and-complex-a-primer/) as a messy, ambiguous, and time-consuming, but a creative and fascinating process through which a mass of collected data is being brought to order, structure and meaning.

### [Why analyze data in research?](https://www.questionpro.com/blog/data-analysis-in-research/)

Researchers rely heavily on data as they have a story to tell or problems to solve. It starts with a question, and data is nothing but an answer to that question. But, what if there is no question to ask? Well! It is possible to explore data even without a problem – we call it ‘Data Mining’ which often reveal some interesting patterns within the data that are worth exploring.

Irrelevant to the type of data, researchers explore, their mission and audiences’ vision guide them to find the patterns so they could shape the story they want to tell. One of the essential things expected from researchers while analyzing data is to stay open and remain unbiased towards unexpected patterns, expressions, and results. Remember, sometimes, data analysis tells the most unforeseen yet exciting stories that were not at all expected at the time of initiating data analysis. Therefore, rely on the data you have at hand and enjoy the journey of [exploratory data analysis in research.](https://www.questionpro.com/blog/exploratory-research/)

### [Types of data in research](https://www.questionpro.com/blog/data-analysis-in-research/)

Every kind of data has a rare quality of describing things after assigning a specific value to it. For analysis, you need to organize these values, processed and presented in a given context, to make it useful. Data can be in different forms, here are the primary data types

**Qualitative data:**When the data presented has words and descriptions, then we call it [qualitative data](https://www.questionpro.com/blog/qualitative-data/). Although you can observe this data, it is subjective and, therefore, harder to analyze data in research, especially for comparison. **Example:** Quality data represents everything describing taste, experience, texture, or an opinion is considered as a quality data. This type of data is usually collected through focus groups, personal interviews, or using open-ended questions in surveys.

* **Quantitative data:**Any data expressed in numbers of numerical figures are called [quantitative data](https://www.questionpro.com/blog/quantitative-data/). This type of data can be distinguished into categories, grouped, measured, calculated, or ranked. **Example:** questions such as age, rank, cost, length, weight, scores, etc. everything comes under this type of data. You can present such data in graphical format, charts, or you can apply statistical analysis methods to this data. The

(Outcomes Measurement Systems) OMS questionnaires in surveys are a significant source of collecting numeric data.

**Categorical data:**It is datapresented in groups. However, an item included in the categorical data cannot belong to more than one group at a time. **Example:** a person responding to a survey by telling his living style, marital status, smoking habit, or drinking habit comes under the categorical data. A chi-square test is a standard method used to analyze this data.

## [Data analysis in qualitative research](https://www.questionpro.com/blog/data-analysis-in-research/)

Data analysis and research in qualitative data work a little differently than the numerical data as the quality data is made up of words, descriptions, images, objects, and sometimes symbols. Getting insight from such complicated information is a complicated process, hence is typically used for exploratory research and data analysis.

### [Finding patterns in the qualitative data](https://www.questionpro.com/blog/data-analysis-in-research/)

Although there are several ways to find patterns in the textual information, a word-based method is the most relied and widely used global technique for research and data analysis. Notably, the data analysis process in qualitative research is manual. Here the researchers usually read the available data and find repetitive or commonly used words.

### [Methods used for data analysis in quantitative research](https://www.questionpro.com/blog/data-analysis-in-research/)

After the data is prepared for analysis, researchers are open to using different research and data analysis methods to derive meaningful insights. For sure, statistical techniques are most favored to analyze numerical data. The method is again classified into two groups. First, *‘Descriptive Statistics’* used to describe data. Second, *‘Inferential statistics’*that helps in comparing the data.

