**Types of Scientific Research**

Depending on the purpose of research, scientific research projects can be grouped into three types: exploratory, descriptive, and explanatory.

**Exploratory research** is often conducted in new areas of inquiry, where the goals of the research are: (1) to scope out the magnitude or extent of a particular phenomenon, problem, or behavior, (2) to generate some initial ideas (or “hunches”) about that phenomenon, or (3) to test the feasibility of undertaking a more extensive study regarding that phenomenon. It is conducted to handle new problem areas which haven’t been explored before. This exploratory process lays the foundation for more conclusive research and data collection.For instance, if the citizens of a country are generally dissatisfied with governmental policies regarding during an economic recession,exploratory research may be directed at measuring the extent of citizens’ dissatisfaction, understanding how such dissatisfaction is manifested, such as the frequency of public protests, and the presumed causes of such dissatisfaction, such as ineffective government policies in dealing with inflation, interest rates, unemployment, or higher taxes.

Such research may include examination of publicly reported figures, such as estimates of economic indicators, such as gross domestic product (GDP), unemployment, and consumer price index, as archived by third-party sources, obtained through interviews of experts, eminent economists, or key government officials, and/or derived from studying historical examples of dealing with similar problems. This research may not lead to a very accurate understanding of the target problem, but may

be worthwhile in scoping out the nature and extent of the problem and serve as a useful precursor to more in-depth research.

**Descriptive research** is directed at making careful observations and detailed documentation of a phenomenon of interest. These observations must be based on the scientific method (i.e., must be replicable, precise, etc.), and therefore, are more reliable than casual observations by untrained people. Examples of descriptive research are tabulation of demographic statistics by the United States Census Bureau or employment statistics by the Bureau of Labor, who use the same or similar instruments for estimating employment by sector or population growth by ethnicity over multiple employment surveys or censuses. If any changes are made to the measuring instruments, estimates are provided with and without the changed instrumentation to allow the readers to make a fair before-and-after comparison regarding population or employment trends.

[Descriptive research](https://www.questionpro.com/blog/descriptive-research/) focuses on expanding knowledge on current issues through a process of data collection. Descriptive studies are used to describe the behavior of a sample population. In a descriptive study, only one variable is required to conduct the study. The three main purposes of descriptive research are describing, explaining, and validating the findings. For example, a study conducted to know if top-level management leaders in the 21st century possess the moral right to receive a huge sum of money from the company profit.

Other descriptive research may include chronicling ethnographic reports of gang activities among adolescent youth in urban populations, the persistence or evolution of religious, cultural, or ethnic practices in select communities, and the role of technologies such as Twitter and instant messaging in the spread of democracy movements in Middle Eastern countries.

**Explanatory research** seeks explanations of observed phenomena, problems, or behaviors. While descriptive research examines the what, where, and when of a phenomenon, explanatory research seeks answers to why and how types of questions. It attempts to “connect the dots” in research, by identifying causal factors and outcomes of the target phenomenon.Explanatory research or causal research is conducted to understand the impact of certain changes in existing standard procedures. Conducting experiments is the most popular form of casual research.

Examples include understanding the reasons behind adolescent crime or gang violence, with the goal of prescribing strategies to overcome such societal ailments. Most academic or doctoral research belongs to the explanation category, though some amount of exploratory and/or descriptive research may also be needed during initial phases of academic research. Seeking explanations for observed events requires strong theoretical and interpretation skills, along with intuition, insights, and personal experience. Those who can do it well are also the most prized scientists in their disciplines.

**Types of research methods**

Research methods are broadly classified as [Qualitative](https://www.questionpro.com/blog/qualitative-research-methods/)and [Quantitative](https://www.questionpro.com/blog/quantitative-research/).Both methods have distinctive properties and data collection methods.

**Qualitative Methods**

[Qualitative research](https://www.questionpro.com/blog/qualitative-research-methods/) is a method that collects data using conversational methods. Participants are asked open-ended questions. The responses collected are essentially non-numerical. This method not only helps a researcher understand what participants think but also why they think in a particular way.

Types of qualitative methods include:

* One-to-one Interview: This interview is conducted with one participant at a given point in time. One-to-one interviews need a researcher to prepare questions in advance. The researcher asks only the most important questions to the participant. This type of interview lasts anywhere between 20 minutes to half an hour. During this time the researcher collects as many meaningful answers as possible from the participants to draw inferences.
* Focus Groups: Focus groups are small groups comprising of around 6-10 participants who are usually experts in the subject matter. A moderator is assigned to a focus group who facilitates the discussion amongst the group members. A moderator’s experience in conducting the focus group plays an important role. An experienced moderator can probe the participants by asking the correct questions that will help them collect a sizable amount of information related to the research.
* Ethnographic Research: Ethnographic research is an in-depth form of research where people are observed in their natural environment without This method is demanding due to the necessity of a researcher entering a natural environment of other people. Geographic locations can be a constraint as well. Instead of conducting interviews, a researcher experiences the normal setting and daily life of a group of people.
* Text Analysis: [Text analysis](https://www.questionpro.com/tour/text-analysis.html) is a little different from other qualitative methods as it is used to analyze social constructs by decoding words through any available form of documentation. The researcher studies and understands the context in which the documents are written and then tries to draw meaningful inferences from it. Researchers today follow activities on a social media platform to try and understand patterns of thoughts.
* Case Study: Case study research is used to study an organization or an entity. This method is one of the most valuable options for modern This type of research is used in fields like the education sector, philosophical studies, and psychological studies. This method involves a deep dive into ongoing research and collecting data.

**Quantitative Research Methods**

[Quantitative](https://www.questionpro.com/blog/quantitative-research/) methods deal with numbers and measurable forms. It uses a systematic way of investigating events or data. It is used to answer questions in terms of justifying relationships with measurable variables to either explain, predict, or control a phenomenon.

There are three methods that are often used by researchers:

* Survey Research — The ultimate goal of survey research is to learn about a large population by deploying a[survey](https://www.questionpro.com/tour/). Today, [online surveys](https://www.questionpro.com/tour/) are popular as they are convenient and can be sent in an email or made available on the internet. In this method, a researcher designs a survey with the most relevant [survey questions](https://www.questionpro.com/article/survey-question-answer-type.html) and distributes the survey. Once the researcher receives responses, they summarize them to tabulate meaningful findings and data.
* Descriptive Research — Descriptive research is a method which identifies the characteristics of an observed phenomenon and collects more information. This method is designed to depict the participants in a very systematic and accurate manner. In simple words, descriptive research is all about describing the phenomenon, observing it, and drawing conclusions from it.
* Correlational Research— [Correlational research](https://www.questionpro.com/blog/correlational-research/) examines the relationship between two or more variables. Consider a researcher is studying a correlation between cancer and married women. Married women have a negative correlation with cancer. In this example, there are two variables: cancer and married women. When we say negative correlation, it means women who are married are less likely to develop cancer. However, it doesn’t mean that marriage directly avoids cancer.

**Mix method research / triangulation**

In this research method both quantitative and qualitative research methods are used and on the basis of both inferences are derived and currently this technique has been applied in many social science research.