

Experimental Research

by Sophia Tutorial



WHAT'S COVERED

This tutorial will cover the experimental method, which is the most widely recognized method of psychological research, as well as scientific research in general. Our discussion breaks down as follows:

1. Experiments
2. Experimental Subjects and Groups
3. Accuracy in Experimental Research
 - a. Random Assignment
 - b. Double-Blind Experiment

1. Experiments

An **experiment** is a study that is specifically designed to prove or disprove a hypothesis about cause and effect between two or more different things. Generally, an experiment is done within a professional setting like a laboratory, and it is specifically adapted to the needs of the study itself, meaning that whatever the professional setting is, it has certain elements that are needed for the experiment.

Experimental methods are very effective at explaining causation or discovering the causes for specific events or behavior--saying that one thing makes another thing happen.



TERM TO KNOW

Experiment

A study specifically done to confirm or disprove a hypothesis about the cause of some behavior or mental event

2. Experimental Subjects and Groups

Let's discuss the different elements of the experimental method. An experiment begins by selecting **experimental subjects**. These subjects are the group of people that are going to participate in an experiment. Now, the subjects are chosen as a sample to represent a larger group or population of people, meaning we're

not necessarily testing *everybody*. We're testing a select number of people that will be used to make a general conclusion about the larger population as a whole.

These experimental subjects are further divided into **control groups** and **experimental groups**. Now, there might be more than two, or certain ones might use different aspects, but this is generally how subjects are divided.

A control group is a group of people that receive all of the conditions within an experiment *except* for the experimental variables or the conditions that are being tested. This is, in other words, the "normal" or "regular" group, used to demonstrate that normally when the events within the experiment happen, there is no effect.

The experimental group is the group of people that receive *all* of the conditions of the experiment. They receive the variables from the control group, and they also get whatever the different experimental condition is.

IN CONTEXT

Suppose you perform an experiment with a new drug. You take everybody--all of the different subjects--and put them into two different rooms. The rooms themselves are exactly the same--same chairs, same walls, etc. You give each person within one room a glass of water and something small and benign, like a sugar pill, that would have no effect on them. This is the control group.

In the other room--which again, is exactly the same because you don't want any difference in the environment to affect your experiment--you give those people the glass of water and the new drug that you're testing. Then, you determine what the difference is between these two different groups of people.

As mentioned, it is important to control all of the conditions of the experiment to make sure that there's nothing else that is causing the effects that you measure.



TERMS TO KNOW

Experimental Subject

Individuals who are a part of an experiment, become part of the sample of the population

Control Group

Subjects that receive all the conditions of an experiment except the variable being tested

Experimental Group

Subjects that receive all of the conditions of the experiment including the experimental condition or the variable being tested

3. Accuracy in Experimental Research

Sometimes people are chosen within an experiment for specific aspects of behavior, or aspects that are special or unique to them. Most of the time, though, researchers are simply trying to choose people that are generally representative of the population as a whole. Therefore, most often you want to choose large groups

of subjects for an experiment, and you want to choose them randomly to prevent any errors within sampling.



HINT

Typically in selecting experimental groups, bigger is better. The more people you can have in the experiment statistically, the better or more accurate your results will be.

There are also other techniques used to keep the results accurate:

- Random assignment
- Double-blind experiment

3a. Random Assignment

The first one is **random assignment**, which means that when you're placing people within the different groups, you randomly assign them to the experimental or control groups. In this way, you avoid consciously or unconsciously affecting the results by choosing certain people to go in certain types of groups.



TERM TO KNOW

Random Assignment

Subject has an equal chance of being in either the experimental or control group

3b. Double-Blind Experiment

Another technique used to maintain accuracy in experimental research is the double-blind experiment, which is when the subjects are assigned to their different groups and neither they nor the experimenter know which group is the experimental group or control group.



EXAMPLE For example, the experimenter would take all of the subjects, and without the experimenter even knowing which room is which, would place them into one room or the other. One of the rooms has the pills that they are being tested, and one of them has the sugar pills.

This method prevents either the experimenter or the subjects from influencing the results. If the experimenter knows that the people are taking a certain type of drug, then they might look for more results and emphasize them more, either consciously or unconsciously. Alternatively, if the subject knows that they're taking a new pill, they might feel like they're going to have some result and report it more easily.



SUMMARY

Today we learned about the experimental method, the most widely recognized method of psychological research. An **experiment** is a study--typically done within a professional setting--that is designed to confirm or disprove a hypothesis about the cause of some behavior or mental event. The different elements of the experimental method include **experimental subjects**, or the individuals participating in the experiment, who are further divided into **experimental groups**: a control group and an experimental group. The control group receives all of the conditions of the experiment except for the experimental variable being tested, while the experimental group receives all conditions, including the one being tested.

There are certain techniques used to maintain **accuracy in experimental research** results, including random assignment and use of double-blind experiments.

Good luck!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR ERICK TAGGART.



TERMS TO KNOW

Control Group

Subjects that receive all the conditions of an experiment except the variable being tested

Experiment

A study specifically done to confirm or disprove a hypothesis about the cause of some behavior or mental event

Experimental Group

Subjects that receive all of the conditions of the experiment including the experimental condition or the variable being tested

Experimental Subject

Individuals who are a part of an experiment, become part of the sample of the population

Random Assignment

Subject has an equal chance of being in either the experimental or control group