Types of Experimental Research Design

There are three primary types of experimental research design:

- Pre-experimental research design
- True experimental research design
- Quasi-experimental research design

The different types of experimental research design are based on the how the researcher classifies the subjects according to various conditions and groups.

1. Pre-Experimental Research Design

This is the simplest form of experimental research design. A group or various groups are kept under observation after factors are considered for cause and effect. It is usually conducted to understand whether further investigation needs to be carried out on the target group(s), due to which it is considered to be cost-effective.

The pre-experimental research design is further bifurcated into three types:

- One-shot Case Study Research Design
- One-group Pretest-posttest Research Design
- Static-group Comparison

2. **True Experimental Research Design**

True experimental research is the most accurate form of experimental research design as it relies on statistical analysis to prove or disprove a hypothesis. It is the only type of Experimental Design that can establish a cause-effect relationship within a group(s). In a true experiment; there are three factors which need to be satisfied:

- Control Group (Group of participants for research that are familiar to the Experimental group but experimental research rules do not apply to them.) and Experimental Group (Research participants on whom experimental research rules are applied.)
- Variable which can be manipulated by the researcher
- Random distribution

This experimental research method is commonly implemented in physical sciences.

3. **Quasi-Experimental Research Design**

The word "Quasi" indicates resemblance. A quasi-experimental research design is similar to experimental research but is not exactly due to the difference between the two assignments of a control group. In this research design, an independent variable is manipulated but the participants of a group are not randomly assigned as per conditions. The independent variable is manipulated before calculating the dependent variable and so, directionality problem is eliminated. Quasi-research is used in field settings where random assignment is either irrelevant or not required.