

Quantitative Research Design

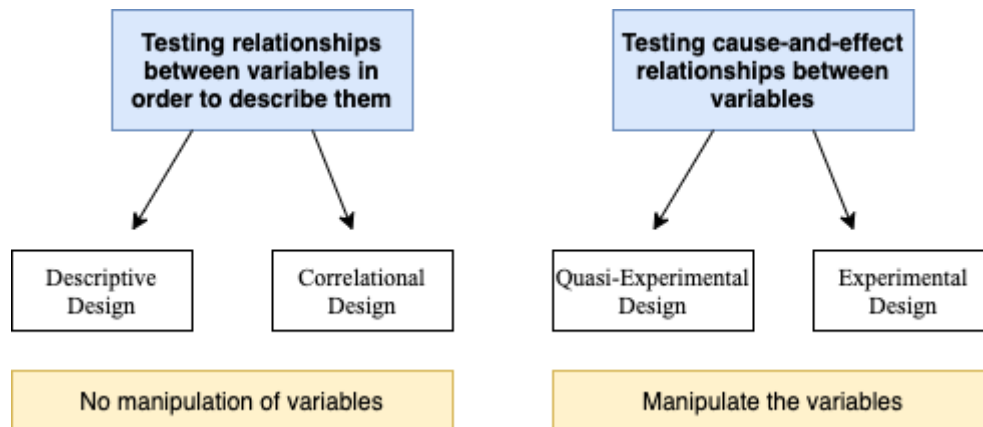
Your research design will set the specifications of your study. When determining your research design for quantitative research, please consider the following options.

Phenomenon = event/occurrence/circumstance

Variable = what you are studying

General Guidelines

A basic guide to help you determine which research design will work for you is to identify what you want to know about your variables. Are you attempting to describe the relationship between them or are you testing a cause-and-effect relationship?



Descriptive

What is it? Describes a phenomenon or variable as they are right **now**. The researcher does not control the variables.

Developing a question. The researcher will come up with a hypothesis after they collect their data. The question will focus on answering **what** something **looks like**.

Method. Cross-sectional design or comparative descriptive design

Results. The researcher uses data that they observe and describes only what they see in the data.

Examples. What is the average math test score in a class? What percentage of people polled said they'd vote in favor of the proposition?

Correlational

What is it? The researcher observes and explores how uncontrolled variables relate to each other using statistical analyses. Data collection is primarily observational. The researcher does not try to identify the reason that certain relationships or patterns are

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present, instead, they simply note that they are present (is there a positive, negative, or zero correlation between the variables).

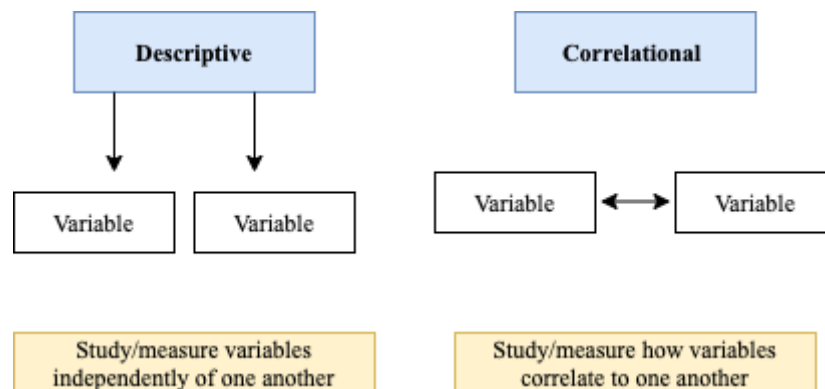
Developing a question. The researcher will begin with a hypothesis before they collect data. The question will answer how uncontrolled variables **relate** to each other by **observing** phenomena.

Method. Predictive design, model-testing design

Results. Dependent on data collected primarily through **observation**. Remember that you are not identifying a casual relationship (where one thing causes another), but instead, the most this research will do is support a causal hypothesis.

Examples. What is the relationship between level of education and salary in working adults? What is the relationship between the quality of educational goal outcomes and the level of education of the teacher?

What is the main **difference** between descriptive and correlational?



Quasi-Experimental

What is it? You may also hear quasi-experimental referred to as causal-comparative. The goal is to identify a relationship of **cause-effect** between **multiple variables**. The groups are **not random** as the researcher has control over how the groups are assigned.

Developing a question. The researcher will begin with a hypothesis before they collect data. The researcher will control the groups and then expose them to the variable. The question will answer what happens to a **control group** and a group that is **not** a control group when each group is exposed to an independent variable.

Method. Pre- and post-test designs are commonly used as well as interrupted times-series designs.

Results. Results from the control group exposed to the independent variable are compared to the groups that are not exposed to the independent variable.

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Example. How does a certain number of parents attending parenting classes affect the numbers of students who graduated? How does a new leadership strategy influence employee productivity?

Experimental

What is it? It is at times called **true experimentation**. It uses the **scientific method** to create a **cause-effect relationship** within variables that are grouped together in a research study.

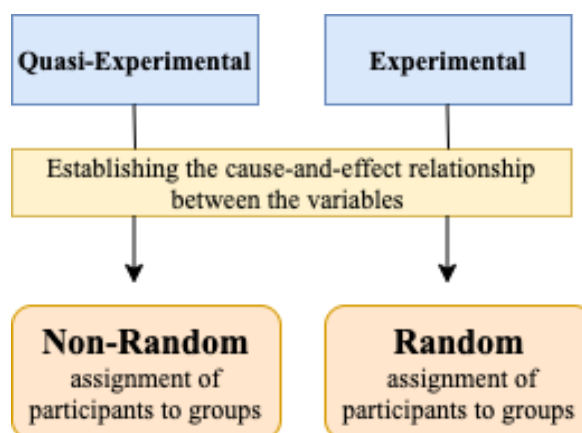
Developing a question. The researcher will begin with a hypothesis before they collect data. The researcher will also control every variable except for the one being tested. The question will use the **scientific method** to determine the cause-effect of **uncontrolled** and **multiple** variables.

Method. Classic experimental designs, randomized designs, nested designs

Results. The researcher observes how the independent variable affects the dependent variable (casual relationship). Then they collect the data and analyze it to see if there is a relationship.

Example. How does a company's level of sustainability in product creation impact consumer purchasing decisions? How does a new writing program impact the writing level of English Language Learners?

What is the main **difference** between quasi-experimental and experimental?



(See below for an example)

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Example: If a researcher wanted to test the effect of a new reading program on student reading performance at the fifth grade level, they could:

| Experimental Example | Experimental Example |
|---|--|
| <p>Contact two teachers who are teaching fifth grade reading. The researcher would intentionally select the two groups--the control group and the treatment group--The treatment group would be given the new reading program, and the control group would not be given the new reading program.</p> <p>In this situation, the teachers involved would not have been planning on using this new reading method until the researcher contacted them.</p> | <p>Hear that one teacher was planning on using the new reading program and based on that, contact the teacher who was planning to implement it and a teacher who was not. The treatment group would be the class using the new reading program, and the control group would be the class not given the new reading program.</p> <p>In this situation, the researcher would not have selected the control and treatment group because this was done for them already - the teacher was already planning the implementation. Thus, the selection was outside of their control.</p> |