

Causal Research Designs (Experimentation)

So named because it tests for the existence of cause-and-effect relationships.

Experimentation is (generally speaking) the only way to scientifically establish the existence of cause-and-effect relationships

Experiments may be conducted in a “lab” or in the “field.”

Examples of Causal Studies in the Lab

General Motors wishes to test the appeal of two new body designs for the Chevy Volt sports car.

Artists prepare scale models of the two designs and invite participants to rate one of them. Which is assigned randomly.

Each model appears in a row with several “distractor” models not actually under consideration. (The two test models are not seen together.)

Participants rate each model they see for several important characteristics, then rank them for overall preference.

Examples of Causal Studies in the Lab

Dirt Devil home appliance company wishes to test three campaign approaches.

Marketers prepare three different T.V. ad versions for participants to evaluate.

Participants were invited (and paid) to view a TV program at the researcher's offices with one of the ads inserted into the program.

Which ad participants viewed was determined randomly.

Participants rated the ads for attitude and recall.

Examples of Causal Studies in the Field

Campbell's Soup evaluated a shift in advertising media expenditures by comparing two schedules in two cities: Indianapolis and St. Louis

The actual ads were identical. In St. Louis, the schedule heavily favored outdoor, while in Indy, the schedule heavily favored TV.

Warehouse shipments to the two markets were measured to determine which media mix worked best.

Examples of Causal Studies in the Field

P&G wishes to test the germ killing capabilities of two agents added to bar soap. (The germs are thought to cause body odor.)

Two groups of randomly selected people are assigned to use one of the soap formulations for two weeks.

After the test period, participants rate the deodorant effectiveness of the soap they used on a scale along with other measures of attitude and preference relative to their old soaps.

Independent Variables

also called “treatment variables,” denoted by letter “X.”

variables that are frequently manipulated (changed).

variables that are sometimes simply measured (limited).

In experiments, independent variables are always used to classify data or responses into groups for comparison.

Independent Variables

Dependent Variables

also called “criterion variables,” denoted by letter “Y.”

variables that are always measured to determine the effects of the independent variables.

Validity truth in research results
freedom from bias or error
external versus internal

Web Notes discuss validity and threats to it in the context of experimentation.

Symbols used to diagram experiments:

- X exposure of group to an experimental treatment
- O observation or measurement of the dependent variable
- R random assignment of participants to treatments

Terminology:

Experimental groups are exposed to at least one treatment.

Control groups are not exposed to any treatment.