

# Observing Promising Evidence: CORRELATIONAL STUDIES

Part of an infographic series on research study design for educators

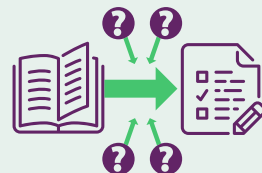
## What defines a correlational study?

### Associations

There are many forms of correlational studies; however, all of them look at the association or relationship between factors of interest.

#### Example

For example, a study might show that students who report reading more books score higher on end of year test. This tells us these two factors, reading more books and test scores, are related. It can even tell us how strongly the two factors are related.



However, correlational studies lack the components of random control trials and quasi-experimental studies to allow them to assign causality. A correlational study might look at differences in behaviors or outcomes, but it cannot prove that a specific factor caused the changes. Even if it looks causal it is always possible there is an unobserved factor that could influence the results. Using the reading example above, maybe the students who read more books are more engaged with school and that was the underlying reason for their higher scores.

### Features not present in correlational studies



#### No Comparison Groups

Comparison groups are used when you want to examine a treatment's impact on one group but not the comparison group.



#### No Random Assignment

Since correlational studies cannot randomly assign subjects, they often use statistical techniques to account for outside factors.



#### No Baseline Equivalence

Baseline equivalence ensures that comparison groups had characteristics that were similar before the start of the intervention. Without comparison groups, it is not possible to establish baseline equivalence.

## Other considerations

### Control Variables

The possible presence of an unobserved factor is an inherent aspect of correlational studies. Studies use control variables to take into account as many factors as possible that might influence the outcome of interest. This helps isolate the relationship being studied.

#### Example

Common factors that researchers control for in education research include prior test scores, race, gender, home language, disability status, and economic status.

### Causal Inference

Correlational studies are not and cannot be causal. Instead, they tell you that two things change in concert with each other, but not why they change. Without the rigorous structure of an experimental study, there are too many unknown factors that prevent correlational studies from establishing causality.

#### Example

Engagement, motivation, and parent support are just some of possible factors that are difficult to measure and thus difficult to account for in a correlational study. Unmeasured factors limit the ability to use a study to make causal inferences.

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